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FUNCTIONAL SERVICING & STORMWATER MANAGEMENT REPORT

Proposed Residential Subdivision

1303 Belle Aire Beach Road
Community of Lefroy
Town of Innisfil
County of Simcoe

January 2018
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Prepared For: **1602850 Ontario Ltd.**

CORTEL GROUP

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VALDOR WATER RESOURCES

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1.0 INTRODUCTION

Valdor Engineering Inc. has been retained by 1602850 Ontario Ltd. to provide consulting engineering services for their proposed development referred to as Belle Aire by the Lake. The property is located on the south side of Belle Aire Beach Road, approximately 720m east of the 20th Sideroad, in the community of Lefroy in the Town of Innisfil as indicated in **Figure 1**. The site is approximately 5.30 hectares in size and is known municipally as 1303 Belle Aire Beach Road.

1.1 Existing Conditions

The subject site is currently vacant and has a rolling topography with drainage directed northeasterly and southeasterly. The site is bounded to the north by Belle Aire Beach Road, to the northwest by a proposed townhouse development (Laurel View Homes Inc.) and to the south and west by the Trails at Carson Creek Subdivision (Bellaire Properties Inc.). The site is bound to the east by the Metrolinx railway corridor. There are no valley lands or other natural features within or adjacent to the subject site.

1.2 Proposed Development

The proposed development will be in the form of a subdivision which includes detached dwellings and a municipal park fronting on a proposed municipal road which will link Plant Street to Bardeau Street. The subdivision also includes a block for common element condominium townhomes.

The townhouse block will include buildings of 4 to 8 units serviced by a private road having access to both Belle Aire Beach Road and the proposed municipal road. The townhouse units will be slab-on-grade (ie. no basements).

The development statistics are summarized in **Table 1**. A copy of the Draft Plan as well as the Conceptual Site Plan for the townhouse block are included in **Appendix "A"** together with the calculation of the equivalent population is provided in **Table A1**.

Table 1. Development Statistics

Land Use	**Site Area** (Ha)	**No. of Units**	**Equiv. Population** (persons)
Condominium Townhomes	4.127	135	405
Detached Dwellings	0.551	16	48
Municipal Park	0.212		
Trail	0.068		
Roads & Road Widening	0.345		
Total:	5.303	151	453

1.3 Purpose of Report

This Functional Servicing Report outlines the engineering design elements for the proposed development, including water supply, sanitary sewers, storm sewers and stormwater management as well as grading.

This report is prepared in support of Draft Plan of Subdivision and Zoning By-law Amendment applications for the proposed development. The report has been prepared to demonstrate compliance with the criteria of the Town of Innisfil and the Lake Simcoe Region Conservation Authority (LSRCA). This document provides guidance for detailed engineering design which is to be prepared in conjunction with the future site plan application.

2.0 WATER SUPPLY

Water for the community of Lefroy is supplied by the Lakeshore Water Filtration Plant located at 2155 25 Sideroad in the community of Alcona. The lake based plant, which was commissioned in 1996, is owned and operated by InnServices Utilities Inc., wholly-owned by the Town of Innisfil. Water from this plant delivered to Lefroy via trunk mains which supply the reservoir located at the southeast corner of Aire Beach Road and the 20th Sideroad. The adjacent booster station increases pressure for distribution through the local watermains. A plan indicating the Town's water system is included in **Appendix "B"**.

The following is a summary of the proposed water servicing for the site:

2.1 Domestic Demand

The domestic demand is to be calculated using the Town of Innisfil engineering design standards which include the following parameters:

Residential Average Day Demand:	325 L/person/day
Maximum Day Factor:	1.80
Peak Hour Factor	4.00

Based on the above, it is anticipated that the development will have water demands as summarized in **Table 2**. A detailed calculation of the domestic water demand is provided in **Table B1** which is included in **Appendix "B"**.

Table 2. Domestic Water & Fire Flow Demand

Equivalent Population (Persons)	Average Day Demand (L/min)	Maximum Day Demand (L/min)	Peak Hour Demand (L/min)	Fire Flow (L/min)	Maximum Day Plus Fire Flow (L/min)	Maximum Day Plus Fire Flow (L/s)
453	102.2	184.0	409.0	12,000	12,184	203.1

2.2 Fire Flow Requirements

The fire flow required for the proposed townhouse units was calculated using the criteria indicated in the *Water Supply for Public Fire Protection Manual*, 1999, by the Fire Underwriters Survey (FUS). The calculation incorporates various parameters such as coefficient for fire-resistant construction, an area reduction accounting for a fire-resistant (one hour rating) protection, a reduction for low-hazard occupancies and a factor for neighbouring building proximity. The dwelling units will not have a sprinkler protection system.

The calculations completed for the detached dwellings is based on a floor area of 302 m^2 (3,250 sq.ft.). The calculations completed for the townhomes is based on a building containing 4 units in a row and for building with more units, a fire wall will be required. Based on the calculations, the minimum fire suppression flow required for a detached dwelling is 9,000 L/min and 12,000 L/min for the townhomes. This fire flow plus the maximum day domestic demand totals 203.1 L/s which must be available at the nearest hydrant with a minimum pressure of 140 KPa.

Fire protection for the detached dwellings will be provided by a watermain having fire hydrants which are located along the municipal road. These fire hydrants will be spaced in accordance with the Town's subdivision engineering design criteria.

Fire protection for the townhomes will be provided by a watermain having private fire hydrants which are located along the private roads. These fire hydrants provide sufficient coverage given that at least one hydrant is located within 90m of the principal of each dwelling unit in accordance with the Ontario Building Code (OBC 2012).

The location of the existing municipal fire hydrants and the proposed site fire hydrants are illustrated in **Figure 2** together with the configuration of the watermain. A copy of the calculations for the minimum required fire suppression flow is provided in **Table B2a** and **Table B2b** which can be found in **Appendix "B"** together with the fire hydrant detail.

2.3 Watermains & Service Connections

The existing 500mm diameter watermain on Belle Aire Beach Road across the frontage of the site is a low pressure trunk watermain and therefore is not adequate to supply the subject site. A water service for the site will therefore connect to the existing 200mm diameter watermain on Bardeau Street.

The individual townhouse units will be serviced with water service connections from a proposed watermain. Based on Ontario Building Code (OBC 2012) regulations (7.6.3.4.(1) and (5) and Table 7.6.3.4), the dwellings will be serviced with 25mm diameter water connections given that it is anticipated that the dwellings will each have more than 16 fixture units.

The proposed watermain alignment internal to the site as well as the external watermain connections are indicated in **Figure 3**. A copy of the Town standard details for the proposed water service connection is included in **Appendix "B"**.

2.4 Water Meters

Water meters are to be purchased from the Town of Innisfil and will be installed in each dwelling unit with a remote readout device located on the exterior ground floor wall of the unit. Generally, residential water meters are selected to be one size smaller than the water service and therefore 20mm x 25mm water meters will be installed. The standard detail for the water meter is included in **Appendix "B".**

3.0 WASTEWATER SERVICING

The community of Lefroy is located in the service area of the Lakeshore Wastewater Treatment Plant (WWTP) which is owned and operated by InnServices Utilities Inc., wholly-owned by the Town of Innisfil. This WWTP, which discharges to Lake Simcoe, is located at 1578 St. Johns Road and was originally built in 1987. The collection system consists of approximately 100 Km of gravity sewers with 4 Km of force main running from six pump stations. The collection system runs from Sandy Cove in the north end, to Lefroy in the south end, and westerly as far as Hwy 11. Wastewater in the community of Lefroy drains by gravity to Pump Station # located at 1236 Maple Road which then pumps to the WWTP.

A plan indicating the location of the WWTP and the pump station is included in **Appendix "C"**. The following is a summary of the proposed sanitary servicing for the site:

3.1 Wastewater Loading

The wastewater loading has been calculated using the Town of Innisfil engineering design standards which include the following parameters:

Domestic Flow: Q = 350 L/person/day

Extraneous Flow: *I* = 0.231 L/s/Ha (Infiltration)

Peaking Factor: $M = 1 + \frac{14}{4 + \sqrt{P}}$

Where: M = Harmon Peaking Factor
(Max = 4.0, Min = 2.0)
P = Population in thousands

Design Flow, Q = Q x M + *I*

Based on the site statistics, the wastewater flow for the proposed development is summarized in **Table 3**. The detailed calculation for the sanitary loading is included in **Table C1** which is contained in **Appendix "C"**.

Table 3. Wastewater Loading Summary

	Area (Ha)	Equivalent Population (Persons)	Average Daily Flow (L/s)	Harmon Peaking Factor	Peak Daily Flow (L/s)	Infiltration Rate (L/s)	Total Flow (L/s)
Outlet North to Belle Aire Beach Rd.							
Townhomes	2.02	201	0.81	4.00	3.26	0.47	3.72
Outlet South to Bardeau Street.							
Townhomes & Detached Dwellings	3.12	252	1.02	4.00	4.08	0.72	4.81
Total:	5.14	453	1.83		7.34	1.19	8.53

3.2 Sanitary Sewer & Service Connections

Based on the topography, the north part of the site will discharge to the 200mm diameter sanitary sewer is located on Belle Aire Beach Road which drains easterly and discharges to Pump Station #1. Discharge to this sewer will include an additional 4.95 L/s from the proposed townhouse development on the adjacent property to the west (Laurel View Homes Inc., 1357 Belle Aire Beach Road) which will be conveyed through the subject site.

The south part of the site will discharge southerly to the existing 200mm diameter sanitary sewer on Bardeau Street. This existing sewer drains southerly and then crosses under the Metrolinx railway corridor to the Squire Street sanitary sewer.

Each dwelling unit will be provided with a 125mm diameter single sanitary connections in accordance with Town of Innisfil standards.

The locations of the existing and proposed sanitary sewers are indicated in **Figure 3**. A standard detail for a sanitary service connection is contained in **Appendix "C"**.

4.0 STORM DRAINAGE & STORMWATER MANAGEMENT

The subject site is located within the Innisfil Creeks sub-watershed which is within the Lake Simcoe watershed. The sub-watershed is located on the western side of the Lake Simcoe watershed and is 107 km^2 in size, accounting for 4% of Lake Simcoe's total watershed area. It consists of 17 named streams: Banks Creek, Belle Aire Creek, Bon Secours Creek, Carson Creek, Cedar Creek, Gilford Creek, Holland River, Innisfil Creeks (small unnamed tributaries), Leonard's Creek, Mooselanka Creek, Moyer Creek, Sandy Cove Creek, Strathallan Creek, Sylvan Creek, Upper Marsh Creek, White Birch Creek, and Wilson Creek. All of the subwatershed's streams have headwaters in agricultural areas, and then flow downstream, some through urban areas, before entering the lake.

The subject site is located in the Carson Creek shed which has a catchment of approximately 7.4 km^2. The Innisfil Creeks sub-watershed is located within the jurisdiction of the Lake Simcoe Region Conservation Authority (LSRCA). A review of the regulation mapping indicates that the

subject site is located in an area regulated by the LSRCA. A copy of the watershed map, sub-watershed map and the regulation mapping is included in **Appendix "D"**.

In accordance with the requirements of the Town of Innisfil and LSRCA, developments are to address the following stormwater controls:

- **Quantity Control**: to be provided to control post development flows to pre-development rates for rainfall events up to and including the 100-year storm.
- **Quality Control**: to be provided to achieve Enhanced (Level 1) treatment of stormwater runoff for sediment and phosphorous removal.
- **Water Balance**: to be assessed on an annual basis to ensure that pre-development infiltration rates are maintained.
- **Low Impact Development (LID) Measures**: to be implemented to provide quality treatment and to maintain the pre-development infiltration and evapotranspiration rates and temperatures to the receiving waterbody and watershed.
- **Phosphorus Loading**: to be analyzed to ensure that an 80% reduction in total post-development phosphorus loading is achieved.

The following is a summary of the storm drainage and stormwater management analysis for the proposed development:

4.1 Quantity Control

Stormwater quantity control is typically implemented to minimize the potential for downstream flooding, stream bank erosion and overflows of infrastructure. The impact of the proposed development has been analyzed as follows:

4.1.1 Pre-Development Flow

Runoff from the south part of the site (*Catchment 105, 0.12 ha, and Catchment 106, 3.15 ha*) has been accommodated in a stormwater management pond which was constructed in conjunction with the adjacent Trails at Carson Creek Subdivision. In this regard, based on the *Stormwater Management Report for Parcel P1, Lefroy* prepared by Cole Engineering Group Ltd. (March 2012), *Catchment 105* is identified as a part of *External Catchment "EXT1"* (0.12 ha of 1.13 ha), and *Catchment 106* is identified as *External Catchment "EXT2"* (3.15 ha). Refer to Cole Engineering figure *DAP-2* in **Appendix E**.

The balance of the subject site (*Catchment 103*), totaling 1.87 Ha, will drain north to the Belle Aire Beach Road. This area consists of cropland. It is to be noted that *Catchment 104*, totaling 0.16 Ha, is to be transferred to the Town as part of a road widening and trail block, and will drain directly to Belle Aire Beach Road. This area is not considered as part of the pre-development flow targets for the proposed development. Pre-development drainage areas are illustrated on **Figure 4**.

A total of two design storms were modelled. In order to be consistent with the Visual Otthymo modelling completed by Cole Engineering for the downstream SWM pond, the same 24-hour SCS design storm was used (as per the *Master Drainage Plan* prepared by MMM Group Ltd., February 2007). In addition to this, the 4-hour Chicago design storm (in accordance with the Town's May 2018 standards) was used to confirm peak flows to the north.

Under existing conditions there is runoff from external areas to the northwest (*Catchments 101 & 102*) draining onto the subject site. As part of the proposed townhouse development for this area, on-site quantity control will be provided to meet the pre-development flow targets. The pre-development flow targets for *Catchment 101* are provided in the first and fourth rows of **Table 4A**, for the 24-hour SCS and 4-hour Chicago design storm distributions, respectively. Since this is a flow-through flow (i.e. it will be conveyed through the subject site but no flow reduction will be provided for this external area), the total flow target to Belle Aire Beach Road will be the sum of the pre-development flow targets of *Catchment 101* and *103*. Additional details regarding the flow targets and quantity control for this development are provided in the *Functional Servicing & Stormwater Management Report, 1357 Belle Aire Beach Road* (Valdor Engineering Inc., December 2017).

Pre-development flows for the 2- to 100-year storm were determined for *Catchment 103* only (flow targets for *Catchment 101* have been established in the *1357 Belle Aire Beach Road FSR & SWM Report* and reported in the first row of **Table 4A**, and flows from *Catchments 102, 105 & 106* have been incorporated as part of the downstream SWM pond design and modelling completed by Cole Engineering).

Based on the results of the modelling, the pre-development 2- to 100-year flows for *Catchment 103* draining north to Belle Aire Beach Road were calculated and summarized in the second and fifth rows of **Table 4A**, for the 24-hour SCS and 4-hour Chicago design storm distributions, respectively. The total pre-development flow north to Belle Aire Beach Road (including the external flow-through) is summarized in the third and sixth rows of **Table 4A**, for the 24-hour SCS and 4-hour Chicago design storm distributions, respectively. A copy of the calculations for the VO5 model parameter values, schematics and output are provided in **Appendix "E"**.

The pre-development flows for *Catchment 105* and *106* are not provided in this report as they have been previously accounted for in the downstream SWM pond design and modelling completed by Cole Engineering.

Table 4A: Pre-Development Peak Storm Flows: North to Belle Aire Beach Rd.

	Peak Flow (L/s) 24-hour SCS					
	2-yr	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**
1. Pre-Development (External Flow-Through Only) *(Catchment 101)*	36	64	85	101	122	144
2. Pre-Development (Subject Site Only) *(Catchment 103)*	38	78	109	139	169	200
3. Pre-Development (Total) *(Catchment 101 & 103)*	74	142	194	240	291	344
	Peak Flow (L/s) 4-hour Chicago					
	2-yr	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**
1. Pre-Development (External Flow-Through Only) *(Catchment 101)*	47	70	85	106	123	140
2. Pre-Development (Subject Site Only) *(Catchment 103)*	29	56	77	107	129	154
3. Pre-Development (Total) *(Catchment 101 & 103)*	76	126	162	213	252	294

Table 4B: Post-Development Peak Storm Flows: North to Belle Aire Beach Rd.

	Peak Flow (L/s) 24-hour SCS					
	2-yr	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**
1. Post-Development (External Flow-Through Only) *(Catchment 201/202 to north)*	33	49	67	83	97	114
2. Post-Development: Unmitigated with External Flow-Through *(Catchment 201/202, 203 & 205)*	153	233	303	352	410	490
3. Post-Development: Mitigated with External Flow Through *(Catchment 201/202, 203 & 205)*	52	104	149	193	241	315
	Peak Flow (L/s) 4-hour Chicago					
	2-yr	**5-yr**	**10-yr**	**25-yr**	**50-yr**	**100-yr**
1. Post-Development (External Flow-Through Only) *(Catchment 201/202 to north)*	41	58	78	102	114	126
2. Post-Development: Unmitigated with External Flow-Through *(Catchment 201/202, 203 & 205)*	221	296	362	438	491	574
3. Post-Development: Mitigated with External Flow Through *(Catchment 201/202, 203 & 205)*	62	104	141	193	229	290

Table 4C: Post-Development Peak Storm Flows: South to Existing SWM Pond

	Peak Flow (L/s) 24-hour SCS					
	2 Yr	**5 Yr**	**10 Yr**	**25 Yr**	**50 Yr**	**100 Yr**
1. Post-Development: Unmitigated with External Flow Through to Ex. Downstream SWM Pond *(Catchment 201/202 & 206)*	244	368	459	519	595	678

4.1.2 Post-Development Flow: Unmitigated

Based on a review of the Architect's site plan, the post-development drainage conditions have been illustrated in **Figure 5**. The proposed surfaces include the roof area of the townhouse blocks, paved driveways and roads and grassed yards. Based on a detailed calculation of the impervious areas, the post-development site will have an imperviousness of 55% (applied to *Catchments 203* and *206*). *Catchments 203* and *205* drain north to Belle Aire Beach Road, *Catchment 206* drains south to the existing pond, and *Catchment 207* drains south along the existing railway ditch.

The unmitigated post-development flows (with the external flow-through) for the 2- to 100-year storm were determined for *Catchment 203* and *Catchment 205* in VO5, and are summarized in the second and fifth rows **Table 4B**, for the 24-hour SCS and 4-hour Chicago design storm distributions, respectively. The unmitigated post-development flows (with the external flow-through) for the 2- to 100-year storm were determined for *Catchment 206* and *Catchment 207* in VO5, and are summarized in the first row **Table 4C** (only the 24-hour SCS storm was modelled to be consistent with the modelling of the downstream SWM pond). The unmitigated flows from these areas has been accounted for in the design of the downstream SWM pond, so no on-site flow mitigation is provided. A copy of the calculations for the VO5 model parameter values, schematics and output are provided in **Appendix "E"**.

4.1.3 Post-Development Flow: Mitigated

Based on a review of the pre- and post-development peak flows in **Table 4A** and **Table 4B**, it is anticipated that the post-development unmitigated flows will be greater than the pre-development rates to Belle Aire Beach Road and on-site stormwater detention is therefore required.

There are several standard methods available to store runoff, including roof top detention, ground surface detention and underground storage. A review of the plans indicates that underground storage within oversized pipes or box sections can provide the required stormwater detention for the site.

The stormwater quantity control analysis was undertaken using the VO5 model by implementing a storage unit (*RouteReservoir* routine) to determine the proposed mitigated flows to Belle Aire Beach Road. Through an iterative assessment of various orifice sizes, underground storage configurations and high-water levels, a detention system was developed. Storm drainage will be discharged from the site to a proposed storm sewer along Belle Aire Beach Road. A 2.4 m wide, 1.8 m high, 100.0 m long box culvert will be installed within the SWM block and parking area located in the north-east corner of the site to provide the required detention volume of 432 m^3. Discharge from the box culvert will be controlled by a box manhole control structure by one orifice (150 mm diameter) and two weirs (both 0.10 m wide, located 0.50 m and 1.50 m above the orifice invert).

The underground storage rating curve calculations are provided in **Table E.5**, provided in **Appendix "E"**. The location of the north outlet to Belle Aire Beach Road and the south outlet to the existing SWM Pond is illustrated in **Figure 6**. A schematic of the stormwater detention system is illustrated in **Figure 7**. VO5 model schematics and output are provided in **Appendix "E"**.

Refer to the *Functional Servicing & Stormwater Management Report, 1357 Belle Aire Beach Road* (Valdor Engineering Inc., December 2017) for additional details regarding the design and modelling of the storage for the external area (i.e. controlling flow from *Catchments 201* and *202*).

No flow mitigation is required for *Catchment 206* draining south to the existing SWM pond. The Cole Engineering report accounted for a 3.15 ha area with an imperviousness of 64% (catchment *"EXT2"*) to the SWM pond. The proposed drainage area is 2.79 ha with an imperviousness of 55%, so the downstream SWM pond will have adequate capacity to service *Catchment 206*.

4.2 Quality Control & Low Impact Development (LID) Measures

In accordance with the requirements of the Town and the LSRCA, stormwater quality treatment is required to protect the local watercourses. In addition to the many parameters of concern, the primary water quality constituent that needs to be controlled is Total Suspended Solids (TSS). In this regard, Enhanced (Level 1) water quality protection is required which stipulates a minimum of 80% TSS removal.

The quality control assessment for the drainage to Belle Aire Beach Road (i.e. runoff from *Catchment 203*) was undertaken using a treatment train approach which considers the quality benefits of Low Impact Development (LID) measures. LID measures such as infiltration trenches and soak-away pits provide a stormwater quality benefit in that runoff is infiltrated into the ground. These LID measures will be supplemented by an oil / grit separator in a treatment train approach. A summary of the proposed treatment measures is provided as follows:

Low Impact Development (LID) Measures

Infiltration trenches and soak-away pits provide effective removal for many pollutants as a result of sedimentation, filtering, and soil adsorption. Treatment of infiltrated runoff continues to occur as it leaves the infiltration trench and moves through the native soil. Standard details for the LID measures are included in **Appendix "G"** and are described as follows:

- **Infiltration Trenches** are typically filled with 50mm diameter clear stone wrapped in a non-woven geotextile filter fabric and the runoff volume is stored within the voids between the stones. Runoff will be captured by rear lot catchbasins which will direct flow to the infiltration trenches. Once the trenches are full, runoff will overflow via the rear lot catchbasin lead to the storm sewer.
- **Soak-away pits:** will be comprised of an excavate pit lined with filter fabric and filled with clear stone. Similar to the infiltration trenches, the voids between the stone will provide the required storage volume for the water that is to be

infiltrated. The soak-away pits will be located in the rear yards and will be supplied by runoff directly from the roof downspouts. The soak-away pits are designed to overflow at the base of the downspout to allow the surplus runoff to escape once the pit is full.

Oil / Grit Separator

For moderately sized developments such as the subject site, this treatment can be provided by an oil / grit separator. Separators are typically in the form of a pre-cast concrete maintenance hole with a deep sump and a special insert which diverts low flows to a lower chamber to capture and store oil and grit from the storm drainage discharge from the site. The insert diverts high flow away from the lower chamber to ensure that captured pollutants do not scour or re-suspend. Treatment is particularly important for sites which have a higher risk for spills of oil, fuel and lubricants and sediment build-up such as large surface parking areas.

The MOE SWM Manual requires that for enhanced protection, oil / grit separators be sized to capture and treat at least 90 % of the runoff volume that occurs for a site on a long-term average basis and meet the 80 % total suspended solids (TSS) removal efficiency. The sizing of the oil / grit separators was completed using the particle size distribution specified in the LSRCA SWM Guidelines, a site area of 1.99 hectares and an imperviousness of 55.0%. To maximize the performance of the oil / grit separator it has been located downstream of the orifice plate such that it will only be subjected to controlled flows.

For this project, a Hydro-International *Up-Flo Filter* type oil / grit separator has been selected as a suitable treatment unit for discharge directed northerly to Belle Aire Beach Road. This separator has been sized in accordance with the manufacturer's recommendations using the *Up-Flo Filter Sizing Calculator v3.0*. Based on the sizing calculator, a 15-module *Up-Flo Filter* has been specified to achieve a TSS removal rate of 80%. The sizing calculator and a standard detail are contained in **Appendix "F"**. The location of the oil / grit separator unit is indicated in **Figure 7**.

Existing Stormwater Management Pond

The discharge directed southerly (i.e. runoff from *Catchment 206*) will be treated in the existing stormwater management pond. In this regard, based on the 2012 Stormwater Management Report prepared by Cole Engineering Group Ltd., the existing SWM Pond has been designed with a permanent pool volume sized to provide Enhanced (Level 1) water quality protection which is a minimum of 80% TSS removal.

Based on the effective TSS removal rates for the various proposed site surfaces, an area weighted average calculation has been undertaken for the site to confirm that the required minimum 80% TSS removal will be achieved. This calculation factors the removal rate for the various mitigation measures in the treatment train together with the area of the various site surfaces. Using a TSS removal rate of 50% for the oil / grit separator and factoring in the benefits of the LID measures, the calculations indicate that the overall TSS removal

rate for the site draining north to Belle Aire Beach Road is 81.9%, as summarized in **Table 5.**

Table 5. Stormwater Quality Treatment Summary (Drainage to Belle Aire Beach Road)

	Area (Ha)	**TSS Removal Efficiency**	**% Area of Site**	**Weighted TSS Removal**
Roof Area	0.253	80%	12.7%	10.2%
Roof Area (Directed to Soak-Away Pits)	0.253	94%	12.7%	12.0%
Pavement Area	0.511	0%	25.7%	0.0%
Landscape Area	0.610	80%	30.7%	24.5%
Landscape Area (Directed to Soak-Away Pits)	0.363	94%	18.2%	17.1%
Total (Before OGS)	**1.990**		**100.0%**	**63.8%**
Oil / Grit Separator provides additional 50% removal rate to the remaining possible TSS removal of 18.6% (ie. 100%-64.9%)		50%		**17.6%**
Sub-Total (After OGS)	**1.990**		**100.0%**	**81.9%**
Treatment Train Calculation				
A. Roof Area/ Landscape Treatment Rate				80%
B. Remaining TSS (100%-(A))				20%
C. Soak-Away Pit Infiltration Treatment Rate				70%
D. Soak-Away Pit TSS Removal (B) x (C)				14%
Total TSS Removal Rate (A) + (D)				**94%**

4.3 Annual Water Balance

The objective of the LSRCA's water balance criteria is to capture and manage annual rainfall on-site to preserve the pre-development hydrology. The water balance consists of runoff, infiltration and evapotranspiration. In accordance with the requirements of the LSRCA, a water balance assessment was undertaken as part of the *Scoped Hydrogeological Evalulation, 1303 Belle Aire Beach Road, Town of Innisfil, Ontario* dated December 2018, prepared by Azimuth Environmental Consulting Inc. Excerpts from Azimuth's report are included in **Appendix "G"**. Their water balance assessment is summarized as follows:

4.3.1 Pre-Development Infiltration Volume

The Azimuth report indicates that the climate-based water budget for the subject site reflects an average annual precipitation over the past 46 years of 908 mm, with an average annual surplus of 424 mm. The moisture surplus will reflect the infiltration and runoff based on the soil properties, slopes, and vegetation within individual catchments. Under the pre-development condition runoff will generally

follow the existing grade and drain to the railway ditch located along the east boundary of the site.

Azimuth's pre-development water budget comprises of two catchments based on the pre-development drainage patterns (the North and South Catchments), both of which reflect an agricultural land use. Based Azimuth's calculations, the total site infiltration is approximately 14,605 m^3/yr, split between the *North Catchment* (5,925 m^3/yr) and the *South Catchment* (8,680 m^3/yr). The results of the annual water balance analysis for the pre-development condition is presented in the first row of **Table 6**.

4.3.2 Post-Development Infiltration Volume: Un-Mitigated

Azimuth's post-development water budget reflects the addition of impervious surfaces related to the proposed dwellings, roads and driveways as well as the required re-grading to accommodate the development. Under the post-development condition all runoff will to be directed towards the proposed storm drainage system.

Without consideration of any proposed mitigation measures, the post-development water budget predicts a total infiltration of 7,585 m^3/yr, representing an infiltration deficit of 7,020 m^3/yr, as summarized in the second row of **Table 6**. This represents 51.9% of the existing infiltration quantity (14,605 m^3/yr). Infiltration mitigation measures are therefore required.

4.3.3 Infiltration Mitigation Measures

As indicated in the Azimuth report, additional infiltration will be achieved through conventional rooftop downspout disconnections conveying roof drainage to the previous lawn areas. Based on Azimuth's calculations, an additional annual infiltration volume of 3,800 m^3/yr will be achieved in this way. The total annual post-development infiltration volume with the inclusion of basic infiltration mitigation measures (i.e. rooftop downspout disconnections) is 11,385 m^3/yr, representing an infiltration deficit of 3,220 m^3/yr (1,590 m^3/yr for the *North Catchment* and 2,210 m^3/yr for the *South Catchment*), as summarized in the third row of **Table 6**.

Enhanced infiltration measures, in the form of infiltration trenches, are proposed in order to make up the remaining infiltration deficit of 3,220 m^3/yr. The infiltration LIDs are sized to infiltrate the runoff volume associated with the 15 mm storm event, which accounts for 90% of the annual rainfall amount, as indicated in the Azimuth report.

The design dimensions of the infiltration measures depend on the percolation rate of the native site soils as well as the size and imperviousness of the contributing drainage area. The site is predominantly underlain by silty sand and silt till, for which we have assumed have an infiltration rate of 10 mm/hr, to be conservative. The storage volume available in the infiltration measures is calculated using the following formula:

$V = L \times W \times d \times n$

where: V = storage volume (m^3)
L = trench length (m)
W = trench width (m)
d = trench depth (m)
n = porosity for clear stone (0.40)

Runoff from rear-lot areas will be conveyed to and captured by rear-lot catch basins (RLCBs), and directed to infiltration trenches will be located along the rear-lot line, as shown in **Figure 8**. The proposed infiltration trenches will be 1.00 m wide and 0.48 m deep, with variable length. A total infiltration trench length of 243 m is provided for the *North Catchment*, and 442 m for the *South Catchment*. Detailed infiltration trench sizing calculations are provided in **Tables G.1** and **G.2** in **Appendix "G"**.

Based on the proposed infiltration trench design, an additional infiltration volume of 1,208 m^3/yr is achieved for the *North Catchment*, and 2,219 m^3/yr for the *South Catchment*. This exceeds the infiltration deficits of 1,120 m^3/yr and 2,100 m^3/yr for the *North* and *South Catchments*, respectively.

The total post-development infiltration volume with enhanced infiltration measures is therefore 14,812 m^3/yr, as summarized in the fourth row of **Table 6**. This represents 101.4% of the pre-development infiltration volume (14,605 m^3/yr). The pre-development annual infiltration volumes are therefore being maintained.

Table 6: Annual Water Balance Summary

Development Condition	Annual Infiltration (m^3/yr)			Percent of Pre-Dev Infiltration (%)
	North Catchment	South Catchment	Total	
Pre-Development	5,925	8,680	14,605	100.0
Post-Development: No Mitigation	3,215	4,370	7,585	51.9
Post-Development: Basic Mitigation	4,805	6,580	11,385	80.0
Post-Development: Enhanced Mitigated	6,013	8,799	14,812	101.4

4.4 Phosphorus Loading

Lake Simcoe is enriched by nutrients from land use activities in its watershed and has, for many years, been the focus of efforts to protect and restore its water quality. In 2009 the Lake Simcoe Protection Plan (LSPP) was approved to regulate inputs of nutrients (specifically phosphorus) to Lake Simcoe.

The intent of policies in the LSPP is that new development in the Lake Simcoe watershed adopts BMP and LID techniques and innovative stormwater management

techniques to achieve sustainable development practices that will reduce the phosphorus loading from new urban development. In this regard the policy requires that the post-development phosphorus loadings on any major development site be reduced by 80%.

In order to establish a method to quantify and compare pre- and post-development phosphorus loadings which reflects differing precipitation patterns, soils and slopes that occur across the Lake Simcoe watershed, the MOE released the *Phosphorus Budget Guidance Tool to Guide New Development in the Lake Simcoe Watershed* in 2012. This "*Tool*" uses estimates of phosphorus export that were developed for specific land uses coupled to standard estimates of phosphorus reduction efficiencies for various BMPs and LID techniques. The following is a summary of the phosphorus analysis for the site using the *Tool*.

4.4.1 Pre-Development Loading

Under pre-development conditions, based on the land use categories of the *Tool*, the 5.14 ha site area is considered to be "Cropland", as illustrated in **Figure H1**, which is contained in **Appendix "H"**. Based on these categories, the Tool indicates that the pre-development phosphorus loading is 0.98 kg/year as summarized in **Table 7**.

The *Tool* output for the pre-development loading is provided in **Appendix "H"** together with tables listing the various export coefficients and land use categories.

Table 7: Phosphorus Loading summary

Land Use	**Area** (Ha)	**Phosphorus Coefficient** (Kg/Ha)	**Phosphorus Load** (Kg/yr)
Pre-Development			
Cropland	5.14	0.19	0.98
Sub-Total:	**5.14**		**0.98**
Post-Development - Unmitigated			
High Intensity Residential	4.44	1.32	5.86
Low Intensity Residential	0.70	0.13	0.09
Sub-Total:	**5.14**		**5.95**
Total: (Net Increase)			**+4.98**
Post-Development - Mitigated (77.0% total P removal efficiency as per **Table H1** in **Appendix H**)			
High Intensity Residential	4.44	1.32 (77.7% total P removal efficiency)	1.31
Low Intensity Residential	0.70	0.13 (33.6% total P removal efficiency)	0.06
Sub-Total:	**5.14**		**1.37**
Total: (Net Increase)			**+0.39**

4.4.2 Post-Development Loading

Under post-development conditions, based on the land use categories of the Tool, the site is primarily "High Intensity Residential", with a small portion along the railway corridor that is "Low Intensity Development (Manicured Open Space)", as illustrated in **Figure H2**, which is provided in **Appendix "H"**. Based on these categories, the Tool indicates that the post-development phosphorus loading is 5.95 kg/year. Based on a review of the results summarized in **Table 7**, it has been determined that there will be a net annual increase of 4.98 kg/year and therefore mitigation measures are required. The *Tool* output for the post-development loading is provided in **Appendix "H"**.

4.4.3 Mitigation Measures

In order to mitigate the potential increase in phosphorus loading a variety of measures were reviewed and assessed based on their documented removal efficiency. In this regard a treatment train approach has been utilized to combine the benefits of the proposed infiltration trenches, stormwater detention tank, *Up-Flo Filter* and existing wet detention pond.

The analysis of the mitigation measures was based on their following removal efficiencies:

Mitigation Measure	Removal Efficiency
Underground Storage	25%
Infiltration Trench:	60%
Wet Detention Pond:	63%
Up-Flo Filter:	72%

The configuration of these mitigation measures, with the contributing areas, is illustrated in **Figure H3**.

Based on the incorporation of these mitigation measures, the *Tool* indicates that the post-development phosphorus loading will be 1.37 kg/year, as summarized in **Table 7**. This represents a post-development phosphorus load reduction of 77.0%. Although the achieved phosphorus load reduction of 77.0% is slightly less than the target reduction of 80.0%, this represents a best-efforts approach to reduce phosphorus loading to the greatest extent possible.

The calculation of the effectiveness of these mitigation measures in combination are summarized in **Table H1** which is contained in **Appendix "H"**, together with the *Tool* output for the mitigated post-development condition.

4.5 Storm Drainage System

The main features of the storm drainage system include surface drainage, roof drainage and foundation drainage as follows:

4.5.1 Minor System

In accordance with the municipal standards, the development will be serviced with a minor storm sewer system that has been designed to convey runoff from the 5-year storm event. Based on the topography, the storm sewer servicing the north part of the site will drain northerly and discharge to the road side ditch on Belle Aire Beach Road. The storm sewer for the south part of the site will drain southerly and discharge to the existing 750mm diameter Bardeau Street storm sewer. Both storm sewer systems will be over-sized to accommodate runoff from the proposed townhouse development to the northwest (Laurel View Homes Inc.)

4.5.2 Major System

Given that the north part of the site will have on-site detention, the flows resulting from a 100-year storm event will be captured in the storm sewer system and stored underground. The major system for the site is mostly comprised of an overland flow route along the private roads to convey flows up to and including the 100-year storm. The overland flow route directs runoff to a low point near the northwest corner of the site. At this low point runoff from the 100-year storm event is to be captured by total capture catchbasins which are to be sized with a factor of safety of 2.0 against blockage. The overland flow route is indicated in **Figure 7**.

The south part of the site will not have on-site detention and therefore the private roads will direct overland flow to the road allowance of Bardeau Street. This existing road allowance will convey flows southerly to the existing stormwater management pond.

4.5.3 Foundation Drainage

Dwellings with conventional basements have foundation weeping tile which are typically drained by either a gravity storm service connection to the storm sewer or by a sump pump. The sump pump is to discharge over a splash pad to a sodded area.

4.5.4 Roof Drainage

Roof downspouts are to discharge over splash pads to sodded ground surface areas where possible. Roof downspouts are not to be directly connected to the storm sewer system.

5.0 VEHICLE & PEDESTRIAN ACCESS

The layout of the proposed subdivision has been developed with consideration for efficient and safe access and circulation of both vehicular and pedestrian traffic.

5.1 Public & Private Roads

The subject site has frontage on Belle Aire Beach Road which is operated and maintained by the Town of Innisfil. This road consists of a two lane paved road with a rural cross section having road side ditches. The proposed extension of Plant Street to connect to Bardeau Street will be in the form of a 20.0m wide municipal road allowance having a 8.5m pavement width.

The vehicular access to the townhouse block will be facilitated by one driveway to Belle Aire Beach Road to the north and two driveways to the proposed municipal road to the south.

The private road network in the townhouse block will have a 6.0m pavement width, crowned with 2% cross fall and edged with concrete curb and gutter. The longitudinal slope of the road will generally be 0.50% with some length of road ranging up to 5.0% slope. Standard details for the municipal road and the private road are included in **Appendix "I"**.

5.2 Driveways & Parking Lots

Each detached dwelling will have a double car garage and an attached double driveway and each townhouse unit will have an attached single car garage and single width driveway. The slope of driveways is to be within the range of 1.0% to 5.0% in accordance with Town criteria. There will be no direct driveway access from the individual units to Belle Aire Beach Road. Additional visitor parking spaces will be provided within the townhouse block.

5.3 Sidewalks, Walkways & Trails

Pedestrian access will be provided by a 1.5m wide concrete sidewalk along Bardeau Street as well as a proposed 3.0m wide multi-use trial to be constructed along the south side of Belle Aire Beach Road. Pedestrian access within the townhouse block will be in the form of 1.5m wide walkways.

This pedestrian system will safely guide residents through the subdivision to provide access to the local parks, schools and the Lake Simcoe shoreline. A standard detail of the sidewalk is included in **Appendix "I"**.

6.0 GRADING

As is typical with all development projects, earthmoving is required, to varying degrees, in order to achieve the municipal design criteria and accommodate the development form. Based on a review of the topographic survey, the site slopes from a high point along the west property line

of approximately 243.50m down to the northeast corner of the site at approximately 236.00m and down to the southeast corner at approximately 233.50m. A reduced copy of the topographic plan prepared by J.D. Barnes Limited dated June 6, 2018 is provided in **Appendix "J"**. The following is a summary of the grading criteria and design

6.1 Grading Criteria

The subject site is to be graded in accordance with the Town of Innisfil grading criteria which dictates that paved areas range from 0.5% to 6.0%, driveways range from 2% to 8% and that sodded swales range from 2.0% to 5.0%. For large grade differentials embankments having a maximum slope 3H : 1V can be utilized. In areas where space is limited, retaining walls can be utilized to accommodate grade differentials, however, their use should be minimized.

6.2 Preliminary Grading Design

Based on the topographic survey, the proposed development configuration and the Town's criteria, a grading design has been prepared. The grading design, considered the following factors:

- Achieve the Town's lot grading criteria.
- Meet the Town's vertical road design parameters.
- Minimize the requirement for retaining walls.
- Match existing grades along the adjacent properties and road allowances.
- Minimize grade change in the area of trees that are to be preserved.
- Provide an overland flow route to direct drainage to a safe outlet.
- Provide sufficient cover over the storm sewer and sanitary sewer.
- Establish a berm along the east limit of the site such that its top elevation is 2.5m above the adjacent railway tracks for safety in the event of a derailment.

The design grades along the front property line are to be established based on the ultimate urbanization of Belle Aire Beach Road. In this regard the proposed elevations along the front property line have been set at 0.20m above the existing centre line of road. Existing grades will be matched along the east property limit.

Based on the established perimeter grades and road grades as well as the proposed housing form, it is anticipated that the lot grading will be in the form of standard split drainage. Based on the preliminary grading design, no significant difficulties are anticipated in achieving the municipal grading design standards. A copy of the **Preliminary Grading Plan** (Dwg PGR-1) is included in the rear pocket of this report.

7.0 EROSION & SEDIMENT CONTROL DURING CONSTRUCTION

Construction activity, especially operations involving the handling of earthen material, dramatically increases the availability of particulate matter for erosion and transport by surface drainage. In order to mitigate the adverse environmental impacts caused by the release of silt-

laden stormwater runoff into receiving watercourses, measures for erosion and sediment control (ESC) are required for construction sites.

The impact of construction on the environment is recognized by the Greater Golden Horseshoe Area Conservation Authorities. In December 2006 they released their document titled “Erosion & Sediment Control Guidelines for Urban Construction”. This document provides guidance for the preparation of effective erosion and sediment control plans.

Control measures must be selected that are appropriate for the erosion potential of the site and it is important that they be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore inspection and maintenance is required. The selection, implementation, inspection and maintenance of the control features are summarized as follows:

7.1 Control Measures

On moderately sized sites, measures for erosion and sediment control typically include the use of silt fencing, a mud mat and sediment traps. The following is a description of the sediment controls to be implemented on the subject site:

- **Silt Fences** are to be installed adjacent to all property limits subject to drainage from the development area prior to topsoil stripping and in other locations, such as at the bases of topsoil stockpiles.
- **Mud Mat** is to be installed at the construction entrance prior to commencing earthworks to minimize the tracking of mud onto municipal roads.
- **Catchbasin Sediment Traps** are to be installed at all catchbasin and area drain locations once the storm sewer system has been constructed to prevent silt laden runoff from entering the municipal storm sewer system.
- **Excavated Sediment Traps** are to be installed with interceptor swales to direct overland flow through them. These will clarify silt-laden runoff by allowing settlement of suspended particles. The excavated sediment traps have been sized in accordance with the ESC Guideline based on a required storage volume of 125 m^3/ha of disturbed area.
- **Rock Check Dams** are to be installed in the interceptor swales and as part of the excavated sediment traps to reduce velocities and trap sediment. The rock check dam spacing has been specified such that the top elevation of the downstream check dam is equal to the base of the upstream check dam.

7.2 Construction Sequencing

The following is the scheduling of construction activities with respect to sediment controls:

Stage 1: Earthworks

1. Install silt fence around work area and a mud mat at the construction entrance.
2. Strip topsoil from the work area and stockpile on site.
3. Construct the temporary excavated sediment traps and the temporary cut-off swales with rock check dams.

4. Rough grade the lots and roads by placing cut material in fill areas. Imported fill to be placed and compacted in fill area.
5. All fill to be placed and compacted to 98% SPD engineered fill standards with lifts not exceeding 0.20m in height under the supervision and testing by the geotechnical engineer.

Stage 2: Servicing

1. Install site servicing.
2. The upstream end of the sewer is to be capped at the end of each working day to prevent silt from entering the pipe.
3. Once the catchbasins are installed they are to be protected with a sediment trap.
4. Silt fence is to be inspected regularly and repaired/maintained as necessary.

Stage 3: Building Construction

1. Regular flushing and sweeping of the private lanes is to be undertaken to ensure that silt is not tracked off site.
2. Silt fence is to be inspected regularly and repaired/maintained as necessary.
3. Catchbasin silt traps are to be inspected and maintained regularly upon completion of house construction.
4. Lots are to be stabilized with sod and driveways are to be paved.

7.3 ESC Inspection & Maintenance

In order to ensure that the erosion and sediment control measures operate effectively, they are to be regularly monitored and they will require periodic cleaning (e.g., removal of accumulated silt), maintenance and/or re-construction.

Inspections of all of the erosion and sediment controls on the construction site should be undertaken with the following frequency:

- On a weekly basis
- After every rainfall event
- After significant snow melt events
- Prior to forecasted rainfall events

If damaged control measures are found they should be repaired and/or replaced within 48 hours. Site inspection staff and construction managers should refer to the Erosion and Sediment Control Inspection Guide (2008) prepared by the Greater Golden Horseshoe Area Conservation Authorities. This Inspection Guide provides information related to the inspection reporting, problem response and proper installation techniques.

8.0 SUMMARY

Based on the discussions contained herein, the proposed development can be adequately serviced with full municipal services (watermain, sanitary and storm) in accordance with the standards of the Town of Innisfil and the Lake Simcoe Region Conservation Authority as follows:

Water

- The subject site will be serviced by a connection to the existing 200mm diameter municipal watermain on Bardeau Street to the south.
- The individual dwelling units will be serviced by individual 25mm diameter water service connections. Water consumption will be measured by water meters to be located in each dwelling unit. The existing drilled well is to be decommissioned in conjunction with the demolition of the existing dwelling.
- Fire protection will be provided by the municipal fire hydrant within the proposed public road allowance and private hydrants within the townhouse block.
- The total water requirement including fire flow plus maximum day demand is 203.1 L/s.

Wastewater

- Based on the topography, the sanitary sewer for the north part of the site will receive flows from the adjacent proposed townhouse development (Laurel View Homes Inc.) and will discharge to the existing 200mm diameter sanitary sewer on Belle Aire Beach Road. The sanitary sewer for the south part of the site will discharge to the existing 200mm diameter Bardeau Street sanitary sewer.
- A 200mm diameter sanitary sewer system will be constructed along public road allowance and along the private roads within the townhouse block to service the proposed dwelling units with individual 125mm diameter service connections.
- The subject development will generate a total wastewater flow of 8.53 L/s.

Storm Drainage

- In accordance with the municipal standards, the development will be serviced with a minor storm sewer system that has been designed to convey runoff from the 5-year storm event.
- Based on the topography, the storm sewer servicing the north part of the site will drain northerly and discharge to the road side ditch on Belle Aire Beach Road. The storm sewer for the south part of the site will drain southerly and discharge to the existing 750mm diameter Bardeau Street storm sewer. Both storm sewer systems will be over-sized to accommodate runoff from the proposed townhouse development to the northwest (Laurel View Homes Inc.).

Stormwater Quantity Control

- The existing stormwater management pond located in the subdivision to the south has been sized to accommodate flows from only the south part of the site. Based on the foregoing, on-site stormwater detention is required for the north part of the site in order to control discharge to pre-development rates. In this regard, a box culvert will be installed under the private road to provide the required detention volume of 432 m^3. Discharge from the box culvert will controlled by a combination orifice plates and weirs.

Stormwater Quality Control & Low Impact Development (LID) Measures

- With regards to stormwater quality control, a treatment train approach indicates that incorporation of Low impact Development (LID) measures in the form of infiltration trenches.
- Discharge directed north to Belle Aire Beach Road will be supplemented with an oil / grit separator (*Up-Flo Filter*) which will provide the required Enhanced (Level 1) treatment which is a minimum of 80% total suspended solids (TSS) removal for at least 90% of the runoff volume. The oil / grit separator will be located downstream of the orifice control to maximize its effectiveness.
- Discharge directed south will receive treatment in the existing SWM Pond which has a permanent pool sized to provide Enhanced (Level 1) treatment which is a minimum of 80% total suspended solids (TSS) removal for at least 90% of the runoff volume.

Annual Water Balance

- In accordance with the requirements of the LSRCA, an annual water balance analysis was undertaken for the site which determined that the annual post-development un-mitigated infiltration volume is 51.9% of the pre-development condition. Mitigation measures are therefore required. In this regard, infiltration trenches have been incorporated as mitigation measures which will result in an annual infiltration volume which is 101.4% of the existing condition.

Phosphorus Loading

- In accordance with the requirements of the LSRCA to reduce 80% of post-development phosphorus loading, a phosphorus loading analysis was completed for the site. A combination of various mitigation BMPs, including infiltration trenches, underground storage, an *Up-Flo Filter* and a wet detention pond are proposed. Based on these mitigation measures, a total phosphorus loading reduction of 77.0% is achieved. Although the achieved phosphorus load reduction of 77.0% is slightly less than the target reduction of 80.0%, this represents a best-efforts approach to reduce phosphorus loading to the greatest extent possible.

Vehicular & Pedestrian Access

- Vehicular access will be provided by the proposed extension of Plant Street to connect to Bardeau Street which will be in the form of a 20.0m wide municipal road allowance having a 8.5m pavement width. The vehicular access to the townhouse block will be facilitated by one driveway to Belle Aire Beach Road to the north and two driveways to the proposed municipal road extension to the south.
- Pedestrian access will be provided by a 1.5m wide concrete sidewalk along Bardeau Street as well as a proposed 3.0m wide multi-use trial to be constructed along the south side of Belle Aire Beach Road. Pedestrian access within the townhouse block will be in the form of 1.5m wide walkways.

Grading

- Based on the preliminary grading plan the development can be integrated into the existing topography with some import of fill material. No significant difficulties are anticipated in achieving the Town of Innisfil grading design criteria.

Erosion & Sediment Control

- Erosion and sediment controls will be implemented during construction to prevent silt laden runoff from leaving the site in accordance with the "Erosion & Sediment Control Guidelines for Urban Construction" (December 2006).

Detailed Engineering Design

- Detailed design for the proposed development is to be prepared at the subdivision engineering stage. This detailed design is to include servicing and grading plans as well as a stormwater management report based on the criteria established in this Functional Servicing Report.

9.0 REFERENCES & BIBLIOGRAPHY

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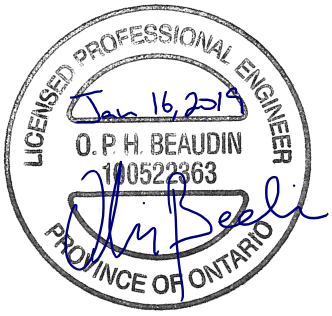
Respectfully Submitted,

VALDOR ENGINEERING INC.



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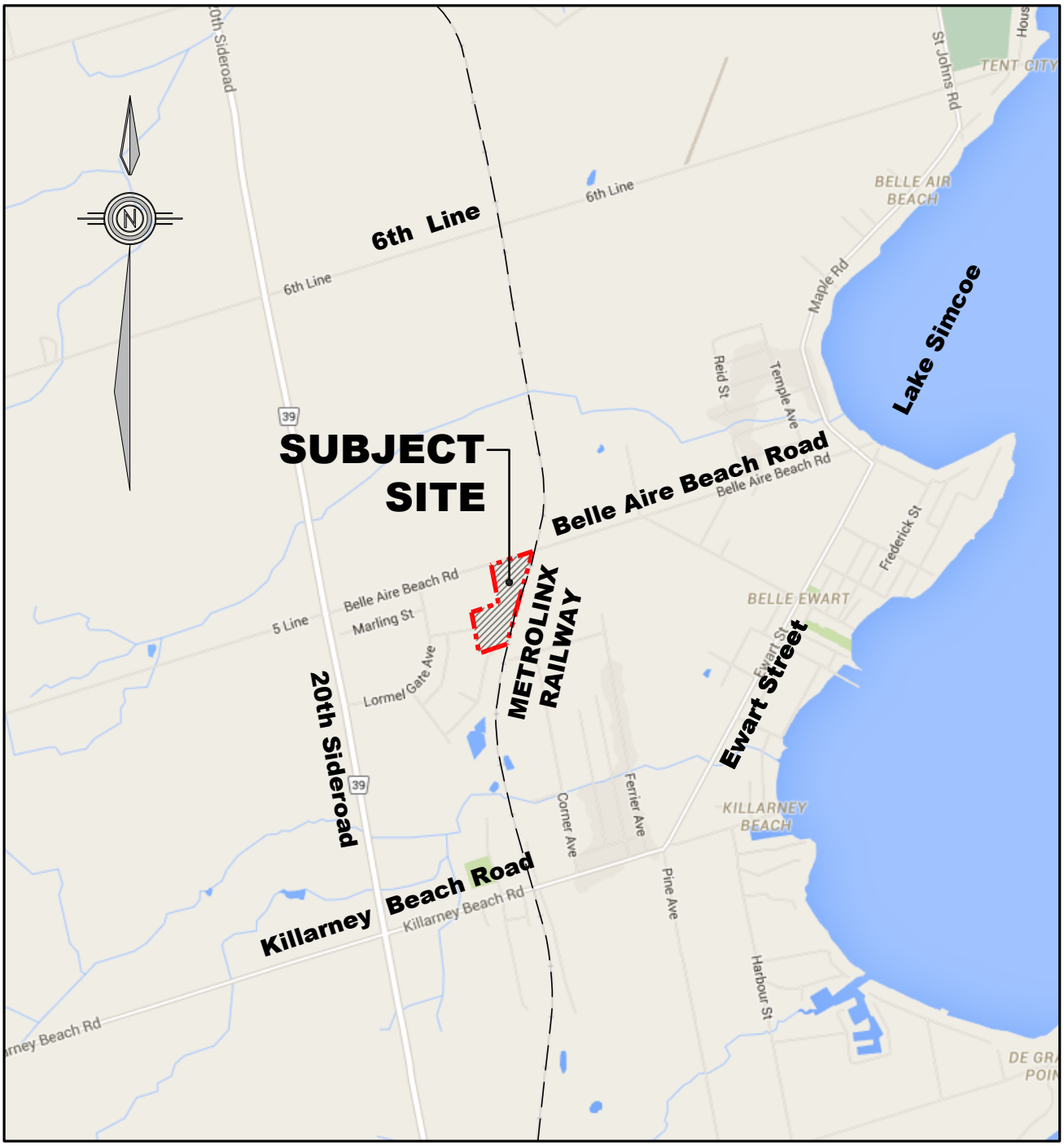

BELLE AIRE BEACH SUBDIVISION

SITE LOCATION MAP

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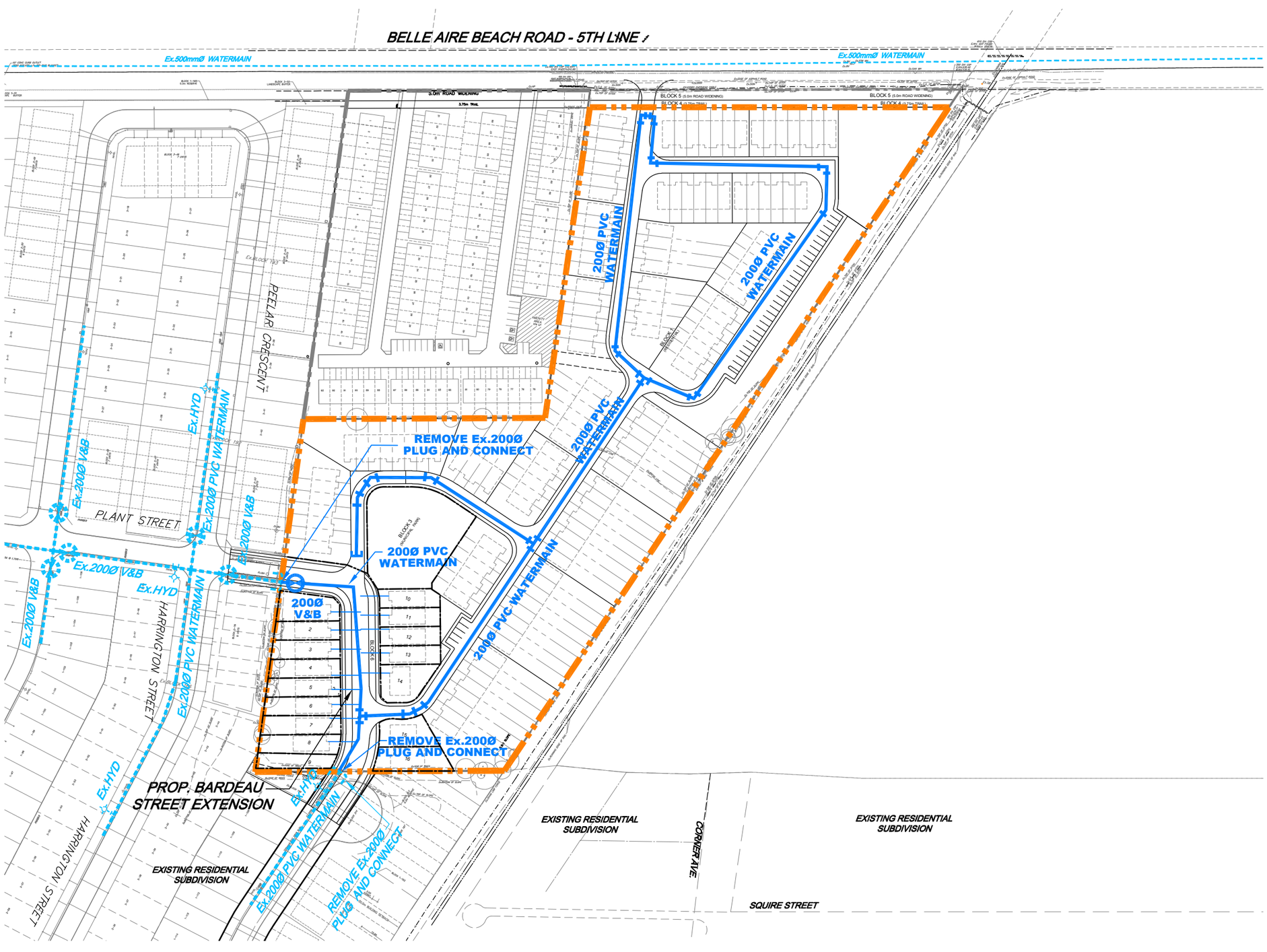
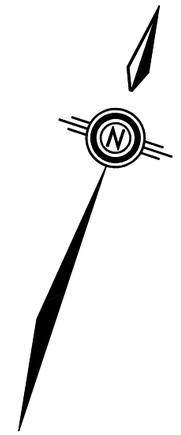
SCALE:	N.T.S.	DRAWN.BY:	D.Z.	DWG:	**FIGURE 1**
DATE:	JANUARY 2019	CKD.BY:	D.G.	PROJECT:	**15149**

S:\Projects\2015\15149\Drawings\Working\Figures_15149.dwg, Fig-1 (Site Location), 1/9/2019 1:43:25 PM, dzivanovic, ANSI_A_(8.50_x_11.00_Inches), 1:254





LEGEND

- SITE BOUNDARY
- EXISTING WATERMAIN
- PROPOSED WATERMAIN
- Ex. VALVE & CHAMBER
- PROP. VALVE & CHAMBER
- PROPERTY LINE
- FREEHOLD WM CONNECTION

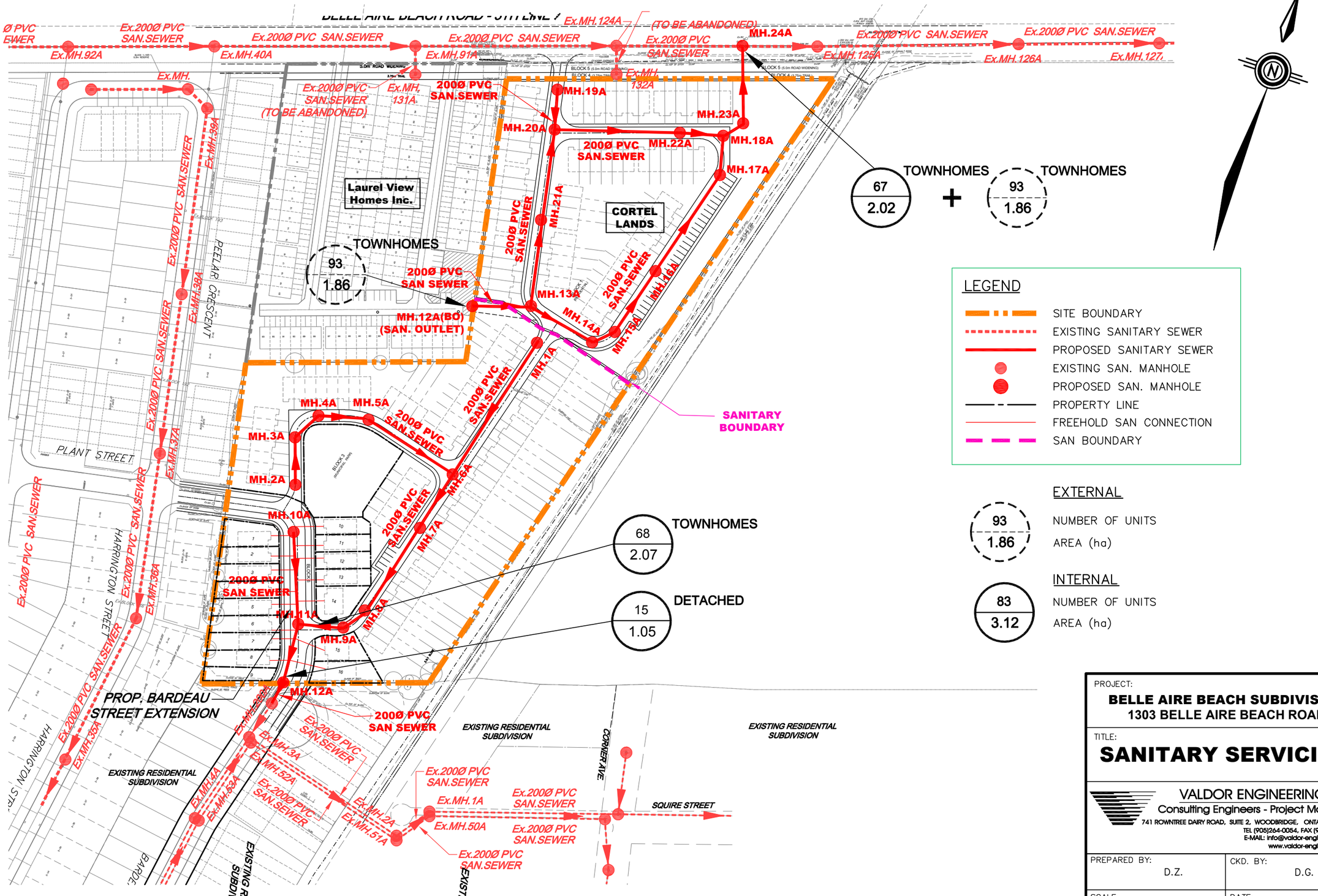
PROJECT:
BELLE AIRE BEACH SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE:
WATER SERVICING

VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
741 ROWNTREE DAIRY ROAD, SUITE 2, WOODBRIDGE, ONTARIO, L4L 5T9
TEL (905)264-0054, FAX (905)264-0069
E-MAIL: info@valdor-engineering.com
www.valdor-engineering.com

PREPARED BY:	CKD. BY:
D.Z.	D.G.
SCALE: 1:2000	DATE: JANUARY 2019
PROJECT: **15149**	**FIGURE 2**

S:\Projects\2015\15149\Drawings\Working\Figures\Figures_1-2-3-6-7_15149.dwg, FIG-2 (Water Servicing), 1/9/2019 2:06:01 PM, dzivanovic, ANSI_B_(11.00_x_17.00_Inches), 1:25.4



LEGEND

- SITE BOUNDARY
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING SAN. MANHOLE
- PROPOSED SAN. MANHOLE
- PROPERTY LINE
- FREEHOLD SAN CONNECTION
- SAN BOUNDARY

EXTERNAL

93 / 1.86

NUMBER OF UNITS

AREA (ha)

INTERNAL

83 / 3.12

NUMBER OF UNITS

AREA (ha)

PROJECT:
BELLE AIRE BEACH SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE:
SANITARY SERVICING

VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
741 ROWNTREE DAIRY ROAD, SUITE 2, WOODBRIDGE, ONTARIO, L4L 5T9
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www.valdor-engineering.com

PREPARED BY:	CKD. BY:
D.Z.	D.G.
SCALE: 1:2000	DATE: JANUARY 2019
PROJECT: **15149**	**FIGURE 3**

S:\Projects\2015\15149\Drawings\Working\Figures\Figures_1-2-3-6-7_15149.dwg, FIG-3 (San Servicing), 1/9/2019 2:09:49 PM, dzivanovic, ANSI_B_(11.00_x_17.00_Inches), 1:25.4

LEGEND

- 101 / 0.95 — VO5 CATCHMENT ID / AREA (ha)
- CATCHMENT BOUNDARY
- OVERLAND FLOW

PROJECT

BELLE AIRE SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE

PRE-DEVELOPMENT DRAINAGE PLAN

VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
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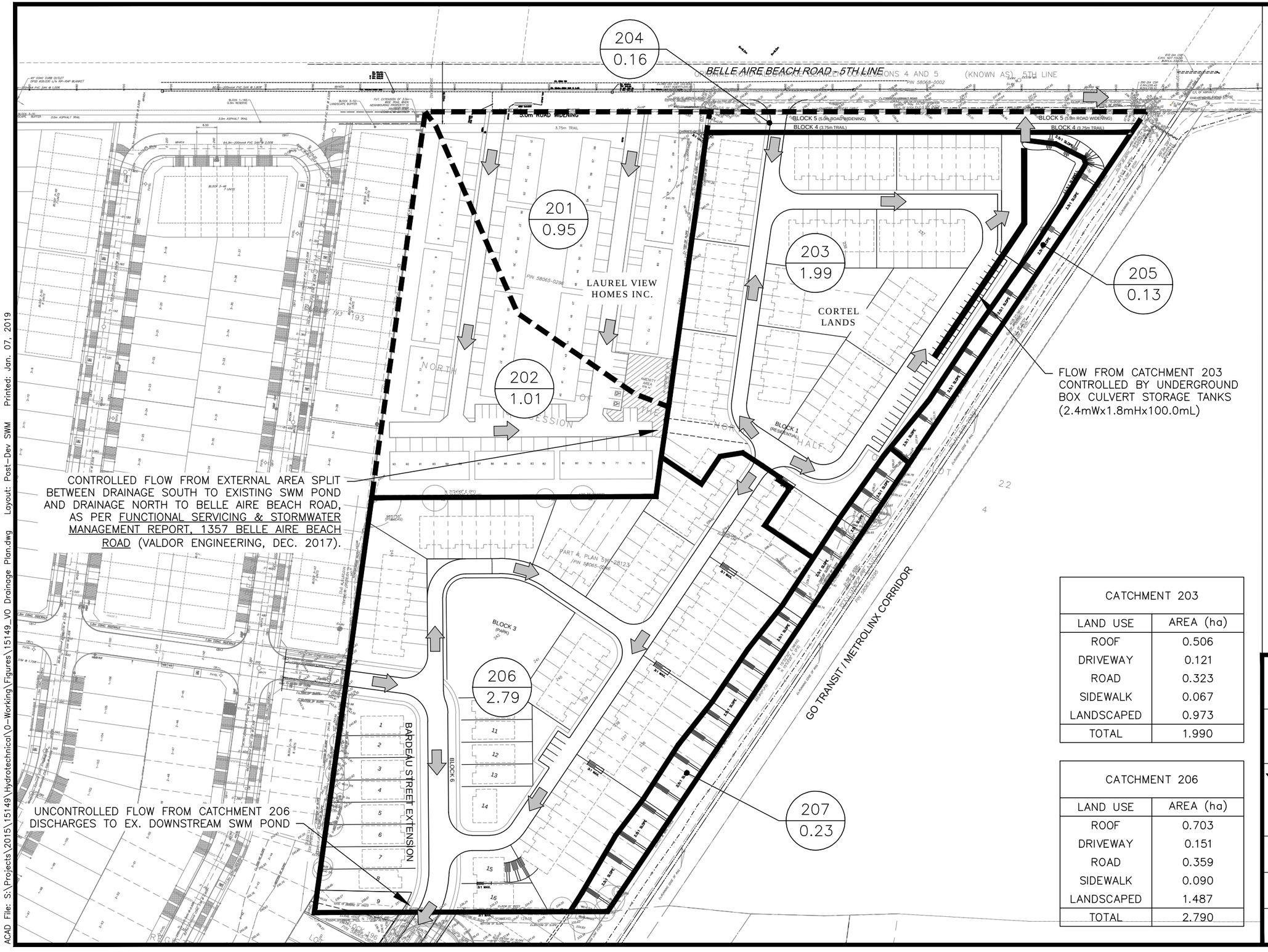
www.valdor-engineering.com

PREPARED BY	CKD. BY
O.B.	D.G.
SCALE	DATE
1:1000	JANUARY 2019
PROJECT	
15149	FIGURE 4

ACAD File: S:\Projects\2015\15149\Hydrotechnical\3-Submission 1_Jan 2019\Figures\15149_V0 Drainage Plan.dwg Layout: Pre-Dev SWM Printed: Jan. 08, 2019



LEGEND

201 / 0.95 — VO5 CATCHMENT ID / AREA (ha)

CATCHMENT BOUNDARY

OVERLAND FLOW

CATCHMENT 203	
LAND USE	AREA (ha)
ROOF	0.506
DRIVEWAY	0.121
ROAD	0.323
SIDEWALK	0.067
LANDSCAPED	0.973
TOTAL	1.990

CATCHMENT 206	
LAND USE	AREA (ha)
ROOF	0.703
DRIVEWAY	0.151
ROAD	0.359
SIDEWALK	0.090
LANDSCAPED	1.487
TOTAL	2.790

PROJECT
BELLE AIRE SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE
POST-DEVELOPMENT DRAINAGE PLAN

VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
741 ROWNTREE DAIRY ROAD, SUITE 2, WOODBRIDGE, ONTARIO, L4L 5T9
TEL (905)264-0054, FAX (905)264-0069
E-MAIL: info@valdor-engineering.com
www.valdor-engineering.com

PREPARED BY	CKD. BY
O.B.	D.G.
SCALE: 1:1000	DATE: JANUARY 2019
PROJECT: 15149	FIGURE 5

ACAD File: S:\Projects\2015\15149\Hydrotechnical\0-Working\Figures\15149_VO Drainage Plan.dwg Layout: Post-Dev SWM Printed: Jan. 07, 2019

PROP. STORM OUTLET

PROP. STM SEWER

CONTROL MH (QUANTITY CONTROL)

PROP. UNDERGROUND BOX CULVERT STORAGE TANK (2.4m W x 1.8m H x 100m L)

TREATMENT UNIT (QUALITY AND PHOSPHORUS CONTROL)

CORTEL LANDS

GO TRANSIT / METROLINX CORRIDOR

SQUIRE STREET

CORNER AVE.

EXISTING RESIDENTIAL SUBDIVISION

EXISTING RESIDENTIAL SUBDIVISION

EXISTING RESIDENTIAL SUBDIVISION

BELLE AIRE BEACH ROAD - 5TH LINE /

Laurel View Homes Inc.

OIL/GRIT SEPARATOR

CONTROL MH.

2.4m W X 1.2m H X 56.3m L BOX CULVERT (SWM DETENTION)

PEELAR CRESCENT

HARRINGTON STREET

PLANT STREET

PROP. BARDEAU STREET EXTENSION

BARDEAU STREET

RAINEY GATE

EXISTING SWM POND

Ex.MH 74

Ex.MH 73

Ex.MH 72

Ex.MH 71

Ex.MH 70

Ex.MH 69

Ex.MH 68

Ex.MH 75

Ex.MH 76

Ex.MH 77

Ex.MH 1

Ex.MH 2

Ex.MH 82

Ex.MH 83

Ex.MH 84

Ex.375Ø PVC STM.SEWER

Ex.450Ø PVC STM.SEWER

Ex.525Ø CONC. STM.SEWER

Ex.675Ø CONC. STM.SEWER

Ex.1050Ø CONC. STM.SEWER

Ex.750Ø CONC. STM.SEWER

Ex.900Ø CONC. STM.SEWER

Ex.1200Ø CONC. STM.SEWER

Ex.600Ø CONC. STM.SEWER

LEGEND

- SITE BOUNDARY
- EXISTING STM. SEWER
- PROPOSED STM. SEWER
- EXISTING STM. MANHOLE
- PROPOSED STM. MANHOLE
- PROPOSED OVERLAND FLOW DIRECTION

PROJECT:
BELLE AIRE BEACH SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE:
STORM SERVICING

VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
741 ROWNTREE DAIRY ROAD, SUITE 2, WOODBRIDGE, ONTARIO, L4L 5T9
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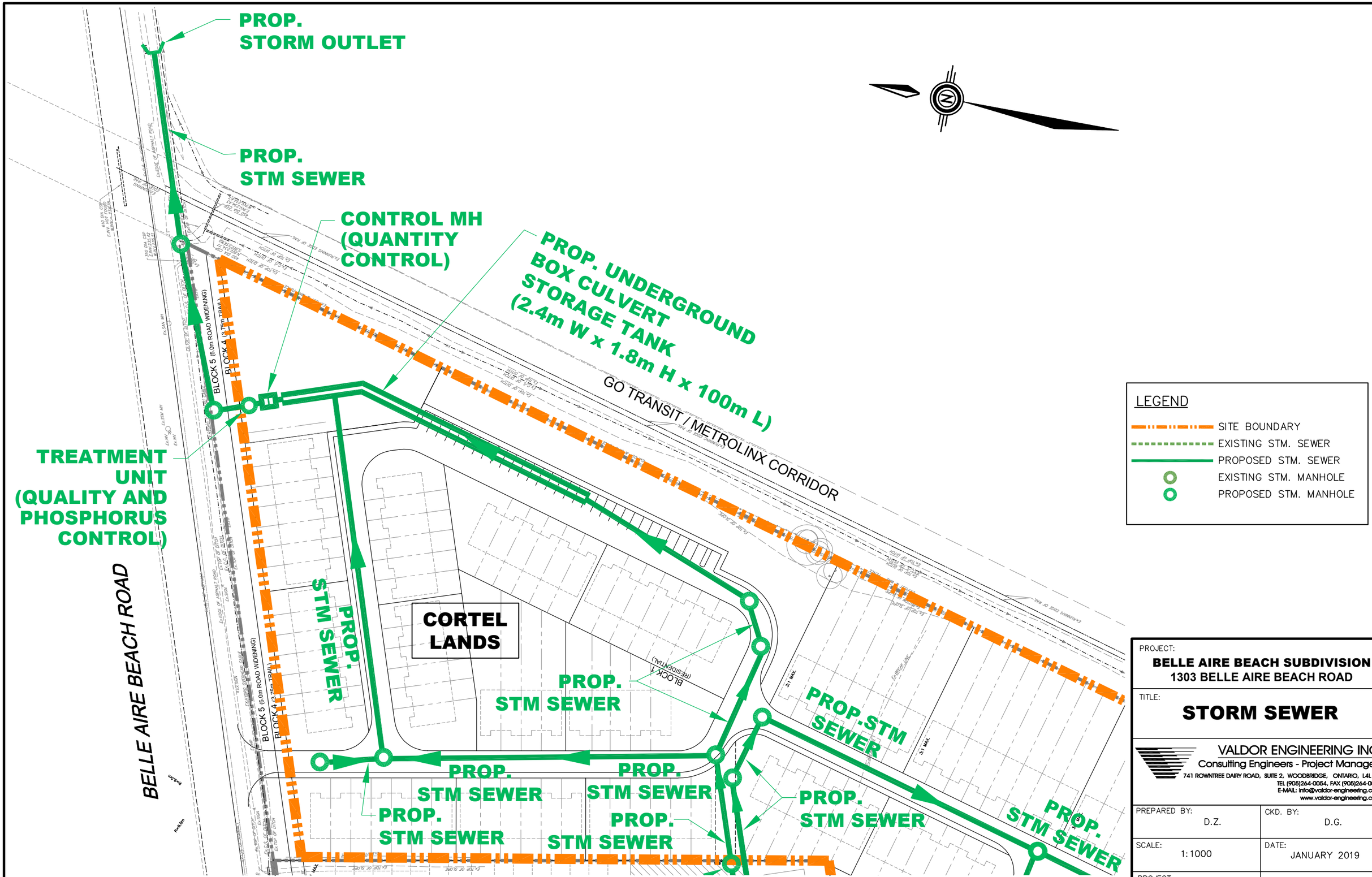
www.valdor-engineering.com

PREPARED BY:	CKD. BY:
D.Z.	D.G.
SCALE: 1:1250	DATE: JANUARY 2019
PROJECT: 15149	FIGURE 6

S:\Projects\2015\15149\Drawings\Working\Figures\Figures_1-2-3-6-7_15149.dwg, FIG-6 (Strm Servicing), 1/9/2019 3:25:11 PM, dzivanovic, ANSI_B_(11.00_x_17.00_Inches), 1:25.4



PROJECT:
BELLE AIRE BEACH SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE:
STORM SEWER

VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
741 ROWNTREE DAIRY ROAD, SUITE 2, WOODBRIDGE, ONTARIO, L4L 5T9
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E-MAIL: info@valdor-engineering.com
www.valdor-engineering.com

PREPARED BY:	CKD. BY:
D.Z.	D.G.
SCALE: 1:1000	DATE: JANUARY 2019
PROJECT: 15149	FIGURE 7

S:\Projects\2015\15149\Drawings\Working\Figures\Figures_1-2-3-6-7_15149.dwg, FIG-7 (Storm Sewer), 1/9/2019 3:27:25 PM, dzivanovic, ANSI_B_(11.00_x_17.00_Inches), 1:25.4

INFILTRATION TRENCH #1
60m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #2
37m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #3
30m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #4
90m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #5
26m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #6
90m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #7
40m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #8
65m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #9
190m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #10
27m LONG, 1.0m WIDE, 0.48m DEEP

INFILTRATION TRENCH #11
30m LONG, 1.0m WIDE, 0.48m DEEP

BELLE AIRE BEACH ROAD - 5TH LINE

BARDEAU STREET EXTENSION

GO TRANSIT / METROLINX CORRIDOR

BLOCK 1 (RESIDENTIAL)

BLOCK 3 (PARK)

BLOCK 6

BLOCK 5 (5.0m ROAD WIDENING)

BLOCK 4 (3.75m TRAIL)

5.0m ROAD WIDENING

3.75m TRAIL

LEGEND

PROP. INFILTRATION TRENCH

PROJECT
BELLE AIRE SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE
INFILTRATION TRENCH LOCATION PLAN

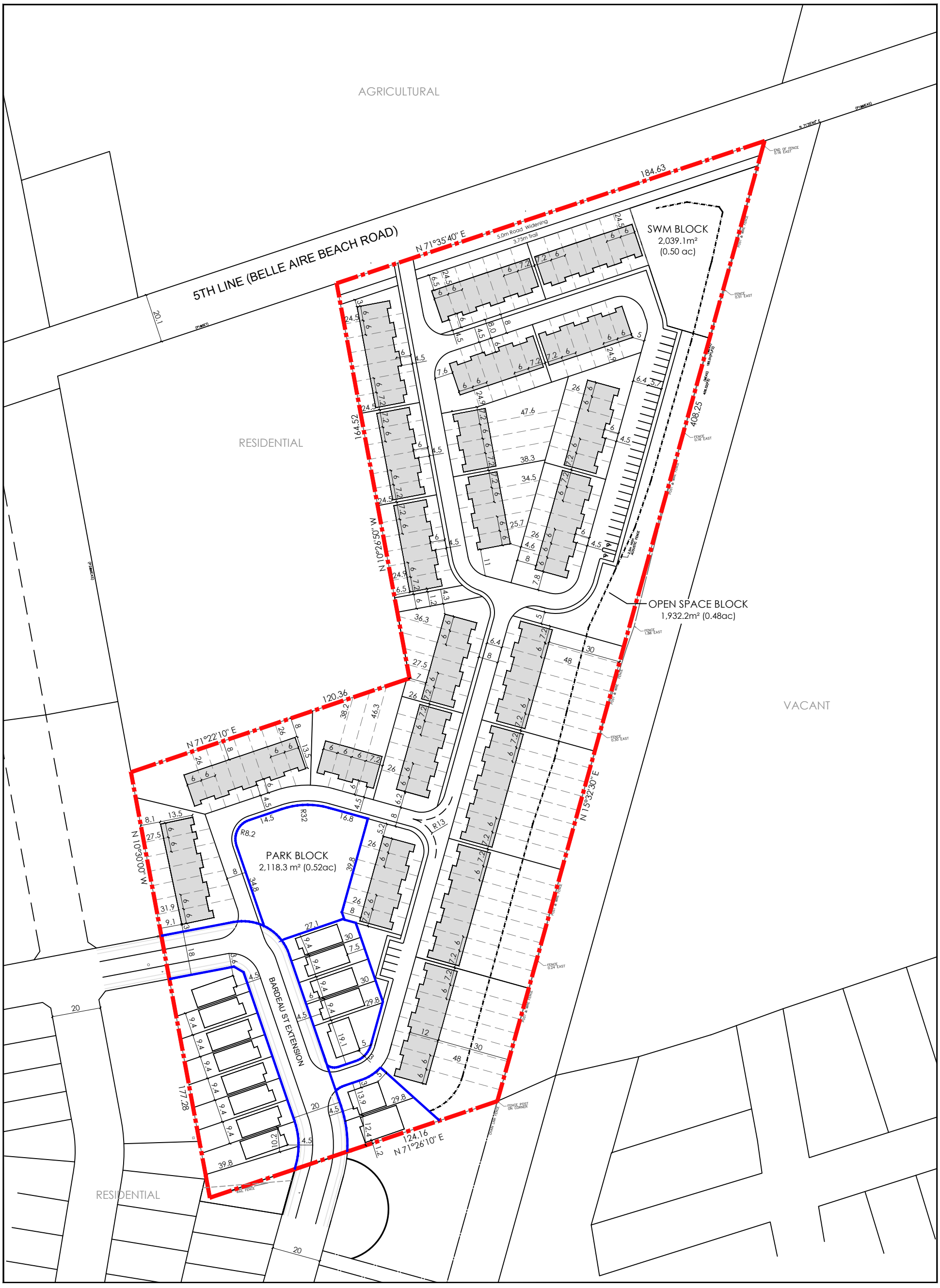
VALDOR ENGINEERING INC.
Consulting Engineers - Project Managers
741 ROWNTREE DAIRY ROAD, SUITE 2, WOODBRIDGE, ONTARIO, L4L 5T9
TEL (905)264-0054, FAX (905)264-0069
E-MAIL: info@valdor-engineering.com
www.valdor-engineering.com

PREPARED BY	CKD. BY
O.B.	D.G.
SCALE	DATE
1:1000	JANUARY 2019
PROJECT	
15149	FIGURE 8

ACAD File: S:\Projects\2015\15149\Hydrotechnical\3-Submission 1_Jan 2019\Figures\15149_V0 Drainage Plan.dwg Layout: Infiltration Trenches Printed: Jan. 09, 2019

APPENDIX "A"

Preliminary Site Plan & Building Elevations



CONCEPTUAL SITE PLAN 'K'
151 Units

1303 BELLE AIRE BEACH RD,
TOWN OF INNISFIL

LEGEND

- Subject Lands
- 6.0m Townhouse (135 Units)
- 9.0m Single Detached (15+1 Lots)
- Block Boundaries
- 2.5m High Acoustic Fence

Source: Topographic Plan prepared by JD Barnes Ltd, dated Jan. 19, 2016.
Note: This drawing is for discussion purposes only.
The information shown is approximate and subject to change.

0 25 50 75m

N

Date:	September 25, 2018	Scale:	1 : 1,500
File:	15-584	Drawn By:	AM

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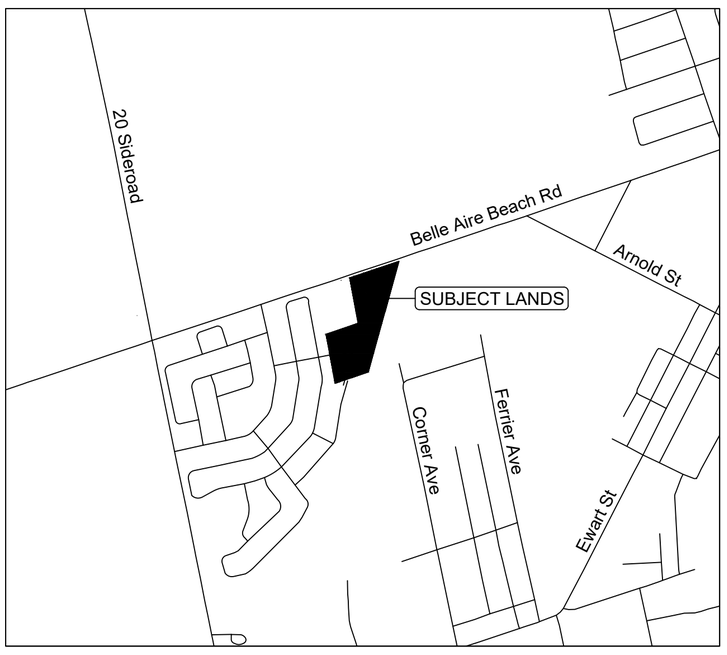

KEY MAP

Scale 1:15,000

AGRICULTURAL

5TH LINE (BELLE AIRE BEACH ROAD)
ORIGINAL ROAD ALLOWANCE BETWEEN CONCESSIONS 4 AND 5

PIN 58068-0002

N 71°35'40" E (MEAS)

184.63
6.03
4.52
20.11
5
3.75
181.91
179.91

BLOCK 4
3.75m TRAIL
0.068ha (0.17ac)

BLOCK 5
5.0m ROAD WIDENING
0.092ha (0.23ac)

5.05
3.79

RAILWAY LANDS

FENCE 0.51 EAST

FUTURE RESIDENTIAL

FUTURE RESIDENTIAL

FUTURE RESIDENTIAL

PIN 58065-0296

194.52
155.64
N 10°28'50" W (MEAS)

408.25 (MEAS)
408.30 (P3)

FENCE 0.16 EAST

POST & WIRE FENCE

51M-1014

BLOCK 193

PLAN

NORTH HALF OF THE NORTH HALF OF LOT 22

CONCESSION 4

VACANT

BLOCK 1
RESIDENTIAL
4.127 ha (10.20 ac)

FENCE 0.70 EAST

FENCE 1.86 EAST

397.59

POST & WIRE FENCE

PIN 58065-0295

FENCE 0.30 EAST

120.36 (P1&MEAS)

N 71°22'10" E (MEAS)

FOUND SIB(1370) BENT
SET SIB

PIN 58065-0246

R31.95

R8.15

14.46
19.06
16.84

BLOCK 3
PARK
0.212 ha (0.52 ac)

34.85
39.17
3.22
4.85
27.08
12.7
9.29
R20
30.20
18
68.13
N 10°30'00" W (MEAS)

BLOCK 2
FUTURE
RESIDENTIAL
0.004 ha (0.01 ac)

17.67
17.76
4.27

N 71°26'10" E

BLOCK 6
BARDEAU ST EXTENSION
0.253ha (0.63ac)

1 31.95
2 33.33
3 34.63
4 36.02
5 37.4
6 38.79
7 40.51
8 39.81
9
10 30.00
11 30.00
12 30.00
13 29.83
14
15 29.80
16
9.4
10.11
10.29
R30
20
177.28 (MEAS)
177.30 (P1)
34.2
18.31
19.06
14.05
8.56
8.54
9.51
9.23
32.53
13.89
12.41
39.81
124.16 (P1&MEAS)
24.99

FENCE POST ON CORNER

FENCE 0.24 EAST

POST & WIRE FENCE

PLANT STREET

17.6

FUTURE RESIDENTIAL

BLOCK 166

PIN 58065-0629

BLOCK 196

PIN 58065-0639

BLOCK 200
(0.30 RESERVE)
PIN 58065-0663

BLOCK 214

BLOCK 213
(0.30 RESERVE)

BLOCK 197

PIN 58065-0660

RESIDENTIAL

VACANT

RAILWAY LANDS

N 15°32'30" E (MEAS)
N 15°32'25" E (P3)
222.27
222.81(P1,P3)

20

HARRINGTON STREET

LOT 107

REGISTERED PLAN 51M-1014

20.0

BARDEAU STREET

LOT 109

LOT 110

BLOCK 162

REGISTERED PLAN 51M-1014

BLOCK 192

PIN 58065-0655

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE THIS DRAFT PLAN OF SUBDIVISION AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE

SIGNING OFFICER
1602850 ONTARIO INC.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE

PIER DE ROSA, O.L.S.
J.D. BARNES LIMITED

LAND USE S CHEDULE

LAND USE	BLOCK	UNITS	AREA ha	AREA ac	%
Residential Condominium	Block 1	135	4.127	10.20	77.8
Single Detached Residential	Lots 1-16	16	0.547	1.35	10.3
Future Residential	Block 2		0.004	0.01	0.1
Open Space	Block 3		0.212	0.52	4.0
Trail	Block 4		0.068	0.17	1.3
Road Widening	Block 5		0.092	0.23	1.7
Street	Block 6		0.253	0.63	4.8
TOTAL		151	5.303	13.10	100

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT

a) SHOWN ON PLAN
b) SHOWN ON PLAN
c) SHOWN ON PLAN
d) SHOWN ON PLAN
e) SHOWN ON PLAN
f) SHOWN ON PLAN
f1) NONE
g) SHOWN ON PLAN
h) MUNICIPAL WATER
i) BONDHEAD SANDY LOAM
j) TBD
k) ALL MUNICIPAL SERVICES
l) NONE

DRAFT PLAN OF SUBDIVISION

THE NORTH HALF OF LOT 22, CONCESSION 4
GEOGRAPHIC TOWNSHIP OF INNISFIL
NOW IN THE
TOWN OF INNISFIL
COUNTY OF SIMCOE

0 5 10 15 20 25 50 75 100m

INNOVATIVE PLANNING SOLUTIONS
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150 DUNLOP STREET EAST, SUITE 201, BARRIE, ONTARIO L4M 1B1
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FILE NAME:	15-584	SCALE:	1 : 750
DATE :	November 6, 2018	DRAWN BY:	AM

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, ON L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069 info@valdor-engineering.com
www.valdor-engineering.com

TABLE: A1

EQUIVALENT POPULATION

Project Name: **1303 Belle Aire Beach Road, Innisfil**
File: 15149
Date: January 2019

Criteria	**Population Density** (persons per unit)	**Residential Units**	**Equivalent Population**
Townhouse	3.0	135	405.0
Detached Dwellings	3.0	16	48.0
Total			**453.0**

APPENDIX "B"

Water Distribution System Calculations

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, ON L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069 info@valdor-engineering.com
www.valdor-engineering.com

TABLE: B1

WATER DEMAND CALCULATION

Project Name: **1303 Belle Aire Beach Road, Innisfil**

File: 15149

Date: January 2019

Demand Critera:

	Base Demand		Peaking Factors	
Residential	325	L/capita/day	Max Day	1.80
			Peak Hour	4.00

	Equivalent Population	Average Day (L/day)	Average Day (L/min)	Max Day (L/min)	Peak Hour (L/min)
Residential	453.0	147,225	102.2	184.0	409.0

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, ON L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069 info@valdor-engineering.com
www.valdor-engineering.com

TABLE: B2a

REQUIRED FIRE FLOW CALCULATION

In accordance to Water Supply for Public Fire Protection, Fire Underwriters Survey 1999

Project Name: **1303 Belle Aire Beach Road, Innisfil**
File: 15149
Date: January 2019

Notes: **Townhouse Block with Firewall**
4 Units

Type of Construction - Wood Frame

$C =$ 1.5

Total Floor Area:	540	sq.m
$A =$	540	sq.m

(Total Floor Area includes all storeys, but excludes basements at least 50 percent below grade)

$$F = 220\ C\ \sqrt{A}$$

$F =$ 7,669 L/min
$F =$ 8,000 (to nearest 1,000 Lmin)

Occupancy Factor

		Charge
Type:	Limited Combustible	-15%
	$f_1 =$	-15%

Sprinkler Credit

		Charge
NFPA 13 Sprinkler Standard:	NO	0%
Standard Water Supply:	NO	0%
Fully Supervised System:	NO	0%
Total Charge to Fire Flow:	$f_2 =$	0%

$$F' = F \times (1+f_1) \times (1+f_2)$$

$F' =$ 6,800 L/min

Exposure Factor

		Charge
Side 1 - Distance to Building (m):	0 to 3m	25%
Side 2 - Distance to Building (m):	30.1 to 45m	5%
Side 3 - Distance to Building (m):	0 to 3m	25%
Side 4 - Distance to Building (m):	10.1 to 20m	15%
	$f_3 =$	70% (maximum of 75%)

$$F'' = F' \times (1+f_3)$$

$F'' =$ 11,560 L/min

REQUIRED FIRE FLOW

$F'' =$ **12,000** **L/min** (to nearest 1,000 L/min)

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, ON L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069 info@valdor-engineering.com
www.valdor-engineering.com

TABLE: B2b

REQUIRED FIRE FLOW CALCULATION

In accordance to Water Supply for Public Fire Protection, Fire Underwriters Survey 1999

Project Name: **1303 Belle Aire Beach Road, Innisfil**
File: 15149
Date: January 2019

Notes: **Fully Detached House**

Type of Construction - Wood Frame

$C =$ 1.5

Total Floor Area:	302.00	sq.m
$A =$	302	sq.m

(Total Floor Area includes all storeys, but excludes basements at least 50 percent below grade)

$$F = 220\ C\ \sqrt{A}$$

$F =$ 5,735 L/min
$F =$ 6,000 (to nearest 1,000 Lmin)

Occupancy Factor

		Charge
Type:	Limited Combustible	-15%
	$f_1 =$	-15%

Sprinkler Credit

		Charge
NFPA 13 Sprinkler Standard:	NO	0%
Standard Water Supply:	NO	0%
Fully Supervised System:	NO	0%
Total Charge to Fire Flow:	$f_2 =$	0%

$$F' = F \times (1+f_1) \times (1+f_2)$$

$F' =$ 5,100 L/min

Exposure Factor

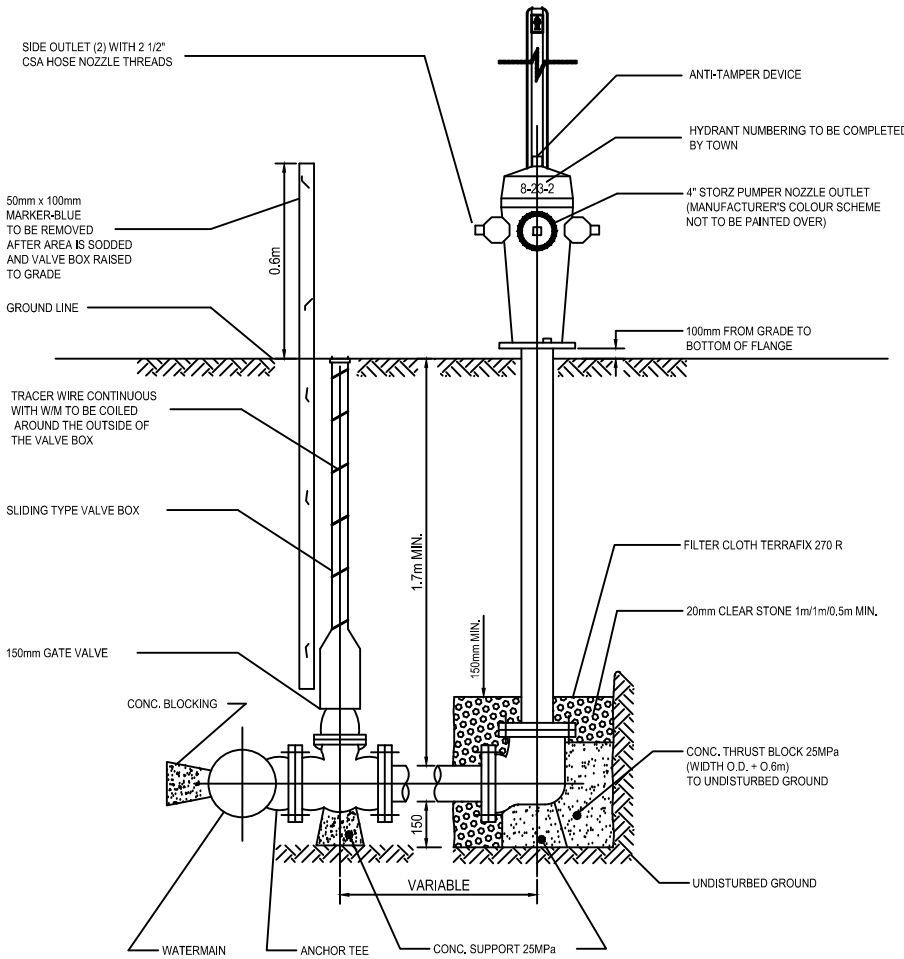
		Charge
Side 1 - Distance to Building (m):	0 to 3m	25%
Side 2 - Distance to Building (m):	10.1 to 20m	15%
Side 3 - Distance to Building (m):	3.1 to 10m	20%
Side 4 - Distance to Building (m):	20.1 to 30m	10%
	$f_3 =$	70% (maximum of 75%)

$$F'' = F' \times (1+f_3)$$

$F'' =$ 8,670 L/min

REQUIRED FIRE FLOW

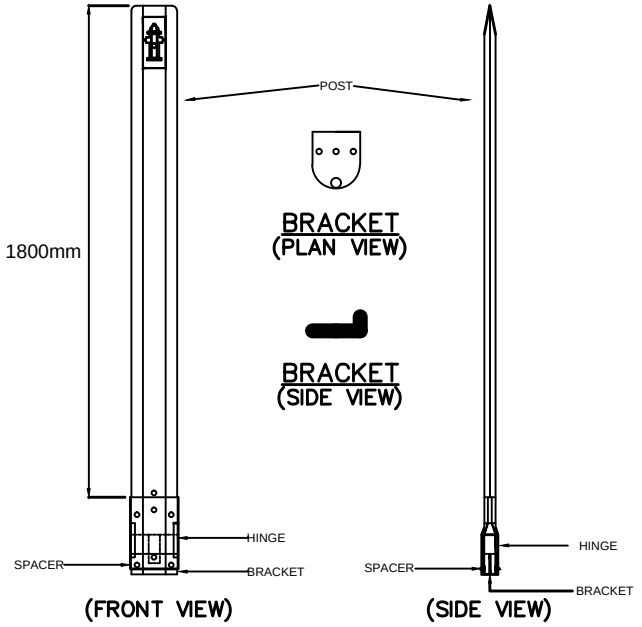
$F'' =$ **9,000** **L/min** (to nearest 1,000 L/min)



NOTES

1. REFER TO TOWN DESIGN STANDARDS FOR APPROVED MATERIALS.
2. REFER TO TOWN DESIGN STANDARDS FOR HYDRANT PAINTING REQUIREMENTS.
3. ALL HYDRANTS ARE SELF DRAINING UNLESS OTHERWISE SPECIFIED.
4. HYDRANT MARKER SIGN TO BE 1800mm (72") IN HEIGHT AND FLUORESCENT YELLOW IN COLOUR. MARKER IS TO BE ATTACHED TO FLANGE AT REAR OF HYDRANT.
5. ALL MECHANICAL JOINTS TO BE RESTRAINED.
6. PROVIDE BOND BREAKER BETWEEN CONCRETE AND FITTINGS.

HYDRANT SIGN POST



Innisfil

TYPICAL HYDRANT DETAIL

NO.	REVISIONS	APR'D	DATE
2	MODIFIED TRACER WIRE	TOI	MAY 2016
1	MODIFIED HYDRANT SIGN AND FLANGE ELEVATION	TOI	APRIL 2015

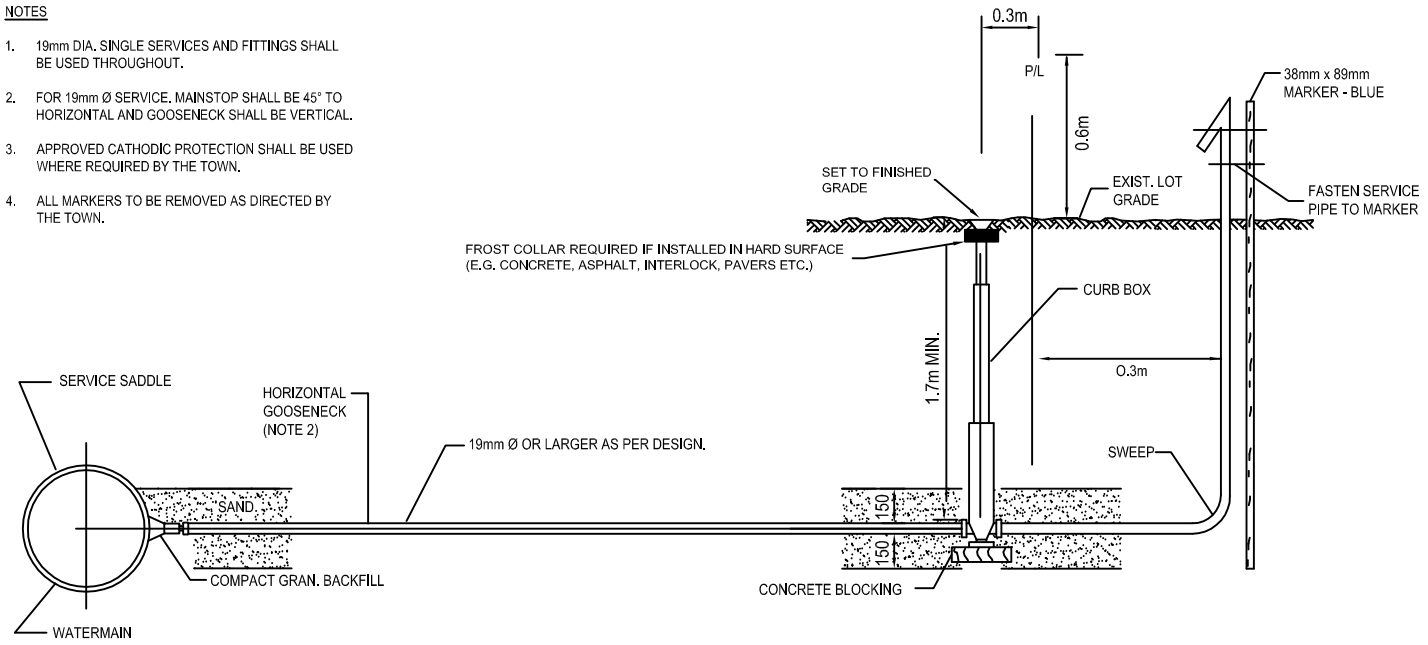
DRAWN: A&A | APR'D:
SCALE: N.T.S. | DATE: JUNE 2011

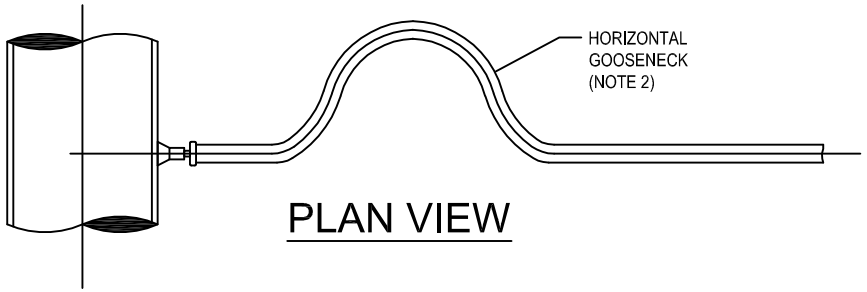
METRIC
ALL DIMENSIONS IN mm
UNLESS OTHERWISE NOTED

TOISD
703

NOTES

1. 19mm DIA. SINGLE SERVICES AND FITTINGS SHALL BE USED THROUGHOUT.
2. FOR 19mm Ø SERVICE. MAINSTOP SHALL BE 45° TO HORIZONTAL AND GOOSENECK SHALL BE VERTICAL.
3. APPROVED CATHODIC PROTECTION SHALL BE USED WHERE REQUIRED BY THE TOWN.
4. ALL MARKERS TO BE REMOVED AS DIRECTED BY THE TOWN.





PLAN VIEW

Innisfil

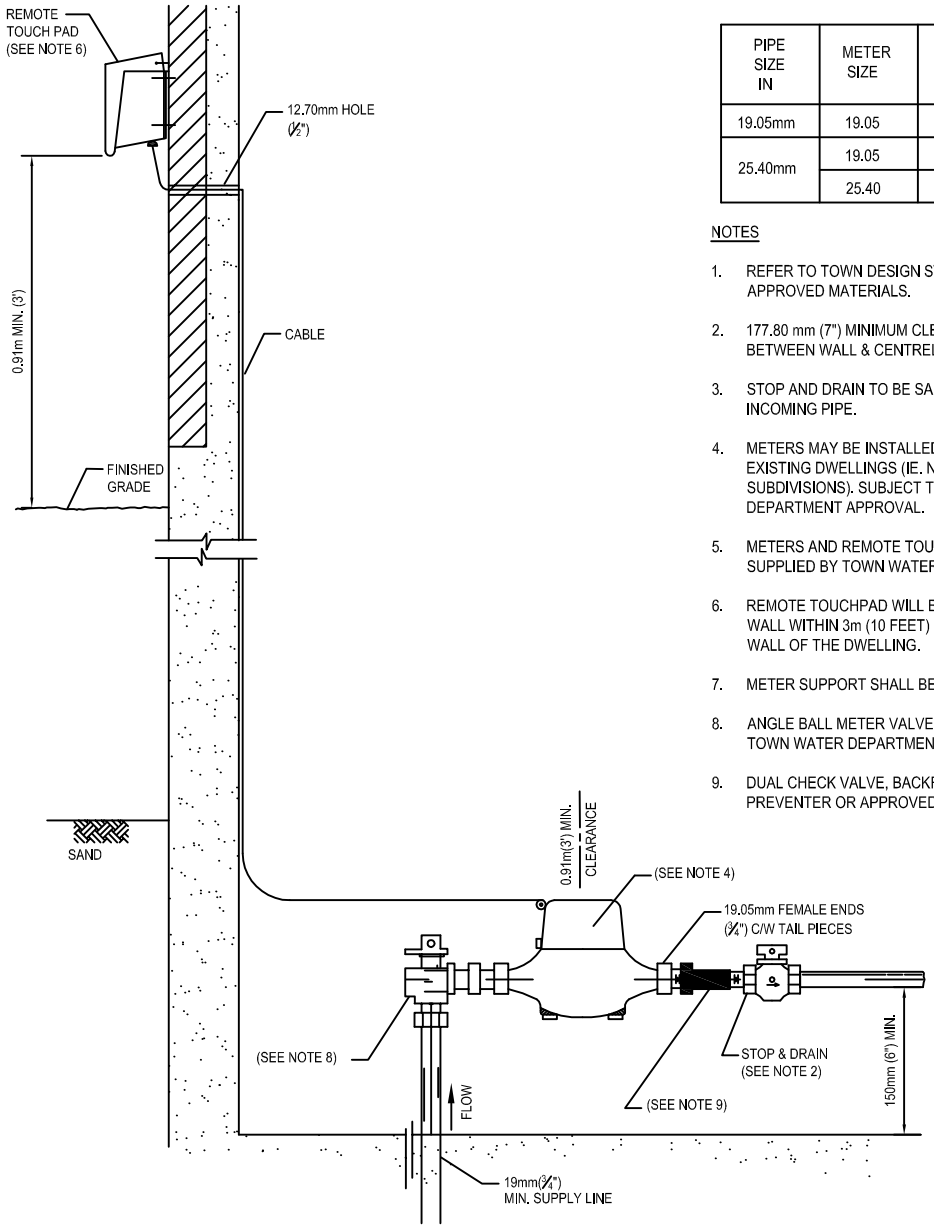
WATER SERVICE CONNECTION DETAIL RESIDENTIAL EXTENSION

DRAWN: A&A	APR'D:
SCALE: N.T.S.	DATE: JUNE 2011

NO.	REVISIONS	APR'D	DATE
1	ADDED FROST COLLAR WITH NOTE	TOI	APRIL 2015

METRIC
ALL DIMENSIONS IN mm
UNLESS OTHERWISE NOTED

TOISD
705



PIPE SIZE IN	METER SIZE	PIPE SIZE OUT
19.05mm	19.05	19.05
25.40mm	19.05	19.05
	25.40	25.40

NOTES

1. REFER TO TOWN DESIGN STANDARDS FOR APPROVED MATERIALS.
2. 177.80 mm (7") MINIMUM CLEARANCE BETWEEN WALL & CENTRELINE OF METER.
3. STOP AND DRAIN TO BE SAME SIZE AS INCOMING PIPE.
4. METERS MAY BE INSTALLED VERTICAL IN EXISTING DWELLINGS (IE. NOT NEW SUBDIVISIONS). SUBJECT TO TOWN WATER DEPARTMENT APPROVAL.
5. METERS AND REMOTE TOUCHPAD SUPPLIED BY TOWN WATER DEPARTMENT.
6. REMOTE TOUCHPAD WILL BE ON A SIDE WALL WITHIN 3m (10 FEET) OFF THE FRONT WALL OF THE DWELLING.
7. METER SUPPORT SHALL BE REQUIRED.
8. ANGLE BALL METER VALVE SUPPLIED BY TOWN WATER DEPARTMENT.
9. DUAL CHECK VALVE, BACKFLOW PREVENTER OR APPROVED EQUAL.

NO.	REVISIONS	APR'D	DATE
1.	REVISED TOWN LOGO	TOI	APRIL 2015

Innisfil

TYPICAL METER INSTALLATION (19mm TO 25mm)

DRAWN: A&A | APR'D:

SCALE: N.T.S. | DATE: JUNE 2011

METRIC
ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

TOISD 706

APPENDIX "C"

Wastewater System Calculations

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, ON L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069 info@valdor-engineering.com
www.valdor-engineering.com

TABLE: C1

WASTEWATER LOADING CALCULATION

Project Name: **1303 Belle Aire Beach Road, Innisfil**
File: 15149
Date: January 2019

Criteria:

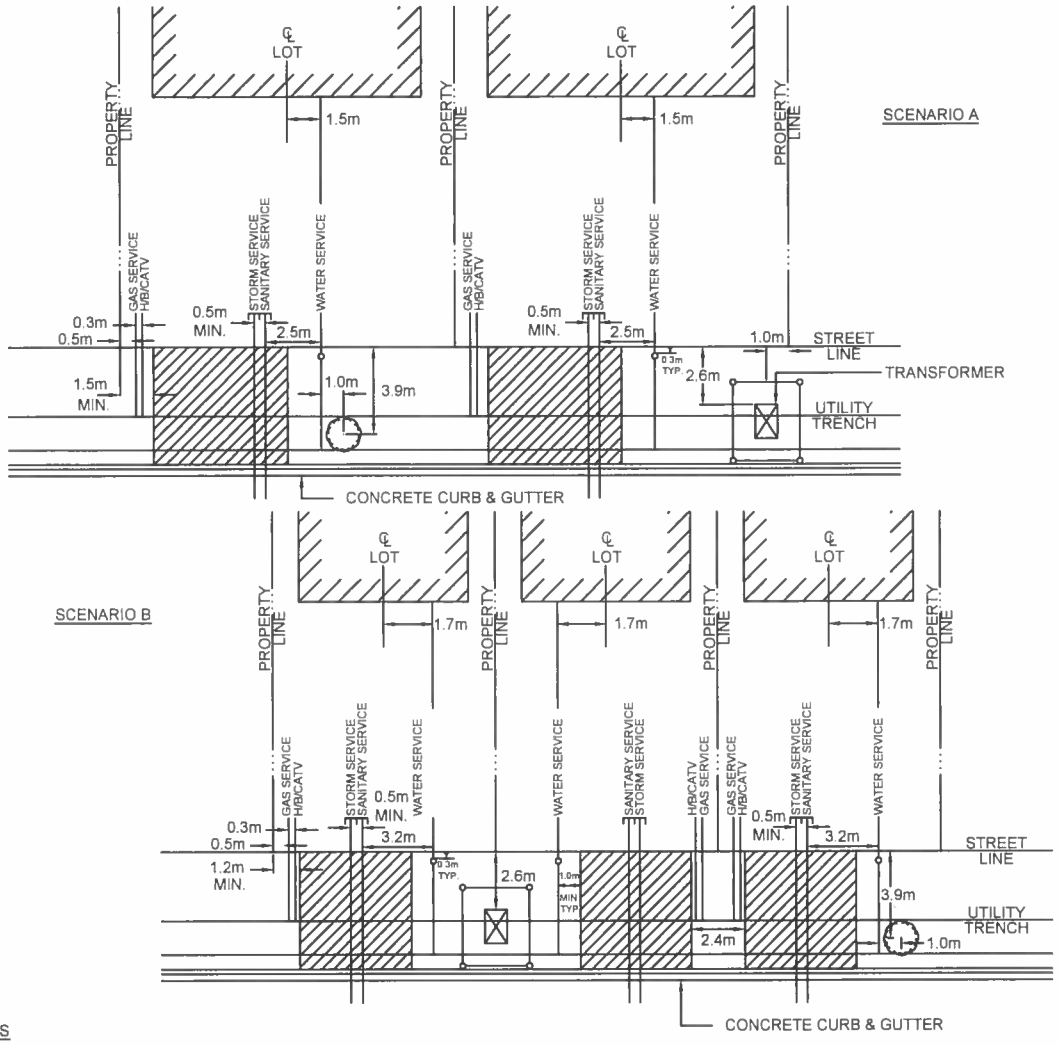
Peak flow design parameters

Avg. Flow Rate (Residential): 350 L/person/day

Infiltration Rate: 0.231 L/s/ha

Residential Peaking Factor: 1 + (14 / (4+(P/1000)^0.5)) where P is population in thousands
(Min = 2.0, Max = 4.0)

	Site Area (ha.)	Residential				Infiltration (L/s)	Total Peak Flow (L/s)
		Equivalent Population	Average Flow (L/s)	Peaking Factor	Peak Flow (L/s)		
Outlet North to Belle Aire Beach Rd	2.02	201.0	0.81	4.00	3.26	0.47	**3.72**
Outlet South to Bardeau Street	3.12	252.0	1.02	4.00	4.08	0.72	**4.81**
Total:	5.14	453.0	1.84		7.34	1.19	**8.53**



NOTES

1. TYPICAL DRIVEWAY MAXIMUM WIDTH IS 60% OF LOT FRONTAGE BUT NOT MORE THAN 9m. ZONING BY-LAW REGULATIONS APPLY.
2. TRANSFORMER SPACE TO BE USED ALTERNATIVELY BY HYDRANTS OR STREET LIGHTS.
3. SERVICE LATERALS TO BE INSTALLED PERPENDICULAR TO THE MAINS.
4. REFER TO TOISD 605 FOR SANITARY AND STORM SERVICE CONNECTION DETAIL.
5. REFER TO TOISD 705 FOR WATER SERVICE CONNECTION DETAIL.
6. FOR LOTS LESS THAN 14.0m WIDE & WHERE ROAD GRADE IS 2.5% OR LESS, DRIVEWAYS MUST BE PAIRED AS PER SCENARIO B.
7. FOR LOTS 14.0m AND GREATER IN WIDTH OR WHERE ROAD GRADE EXCEEDS 2.5%, DRIVEWAYS MUST BE AS PER SCENARIO A.
8. WATER SERVICE LINES MUST BE POSITIONED MIN. 0.5m ABOVE SANITARY AND STORM SERVICE LEVEL IF HORIZONTAL SEPARATION IS LESS THAN 2.5m.

NO.	REVISIONS	APR'D	DATE
3.	TO REFLECT TOWN STANDARDS	TOI	APRIL 2018
2.	TO REFLECT TOWN STANDARDS	TOI	MAY 2016
1.	REVISED WATER LATERAL LENGTH	TOI	APRIL 2015

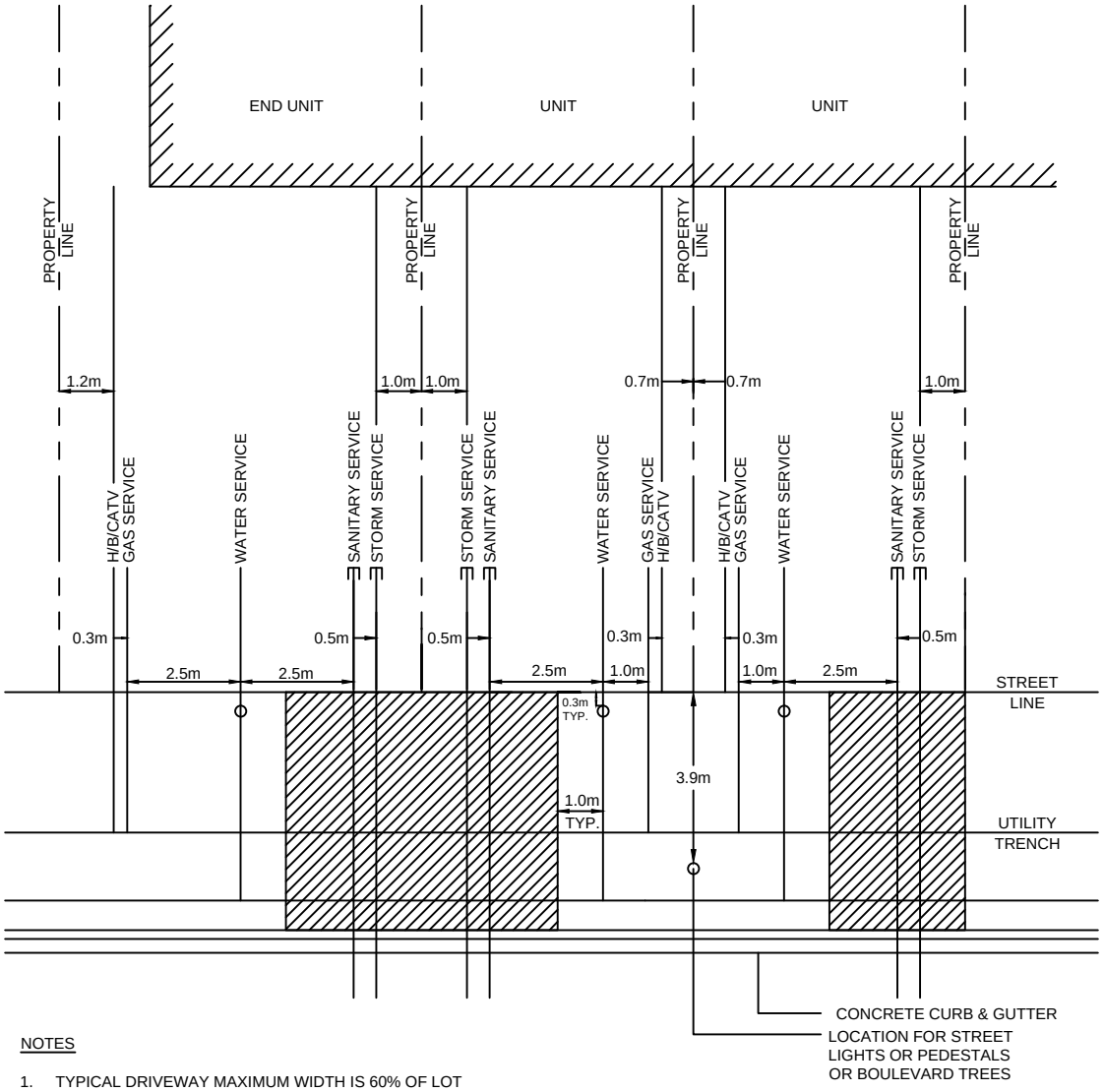
Innisfil

TYPICAL DETACHED UNIT SERVICE ARRANGEMENT

METRIC
ALL DIMENSIONS IN mm
UNLESS OTHERWISE NOTED

DRAWN: A&A	APR'D:
SCALE: N.T.S.	DATE: JUNE 2011

TOISD
601



NOTES

1. TYPICAL DRIVEWAY MAXIMUM WIDTH IS 60% OF LOT FRONTAGE BUT NOT MORE THAN 9m. ZONING BY-LAW REGULATIONS APPLY.
2. TRANSFORMER SPACE TO BE USED ALTERNATIVELY BY HYDRANTS OR STREET LIGHTS.
3. SERVICE LATERALS TO BE INSTALLED PERPENDICULAR TO THE MAINS.
4. REFER TO TOISD 605 FOR SANITARY AND STORM SERVICE CONNECTION DETAIL.
5. REFER TO TOISD 705 FOR WATER SERVICE CONNECTION DETAIL.
6. **WATER SERVICE LINES MUST BE POSITIONED MIN. 0.5M ABOVE SANITARY AND STORM SERVICE LEVEL IF HORIZONTAL SEPARATION IS LESS THAN 2.5M.**

NO.	REVISIONS	APR'D	DATE
2	TO REFLECT TOWN STANDARDS	TOI	MAY 2016
1	REVISED WATER LATERAL LENGTH	TOI	APRIL 2015

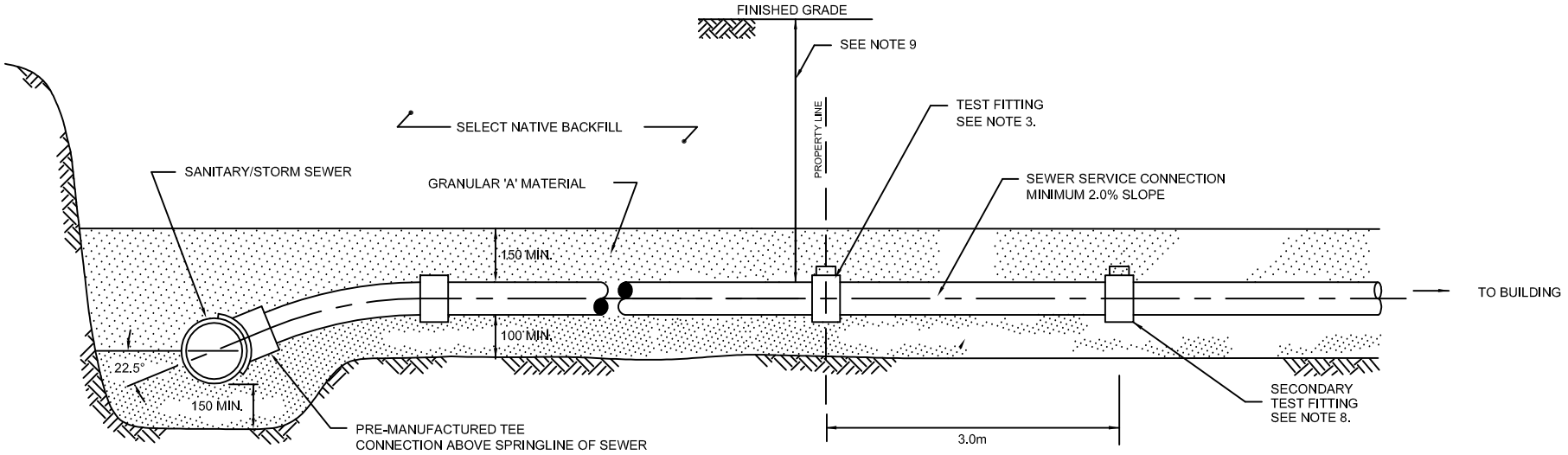
Innisfil

TYPICAL TOWNHOUSE UNIT SERVICE ARRANGEMENT

METRIC
ALL DIMENSIONS IN mm UNLESS OTHERWISE NOTED

DRAWN: A&A	APR'D:
SCALE: N.T.S.	DATE: JUNE 2011

TOISD
604



NOTES:

1. FOR SINGLE RESIDENTIAL DWELLINGS:
   USE 125mm DIAMETER FOR SANITARY SERVICES
   USE 100mm DIAMETER FOR STORM SERVICES
2. MAXIMUM SANITARY SERVICE CONNECTION SIZE FOR SINGLE COMMERCIAL / INDUSTRIAL / INSTITUTIONAL BUILDING TO BE 150mm DIAMETER.
3. TEST FITTING SIZE TO BE:
   125mm x 100mm FOR SANITARY SERVICES TO SINGLE RESIDENTIAL DWELLING
   150mm x 150mm FOR SANITARY SERVICES TO SINGLE COMMERCIAL BUILDING
   100mm x 100mm FOR STORM SERVICES TO RESIDENTIAL SUMP PUMP DISCHARGE
4. COLOUR OF SANITARY SERVICE PIPE TO BE GREEN OR BLACK.
5. COLOUR OF STORM SERVICE PIPE TO BE WHITE OR GREY.
6. GENERAL BACKFILL TO BE SELECT NATIVE BACKFILL MATERIAL.
7. REFER TO TOWN DESIGN STANDARDS FOR APPROVED MATERIALS.
8. SECONDARY TEST FITTING, 100mm x 100mm IN SIZE, TO BE USED WHEN SERVICE LATERAL INSTALLATION EXTENDS INTO LOT AT THE TIME OF INITIAL SERVICE LATERAL INSTALLATION.
9. MINIMUM DEPTH OF COVER AS PER TOWN DESIGN STANDARDS.

Innisfil

TYPICAL SEWER SERVICE LATERAL CONNECTION DETAIL RESIDENTIAL EXTENSION

DRAWN: A&A	APR'D:	1.	REVISED TOWN LOGO	TOI	APRIL 2015
SCALE: N.T.S.	DATE: JUNE 2011	NO.	REVISIONS	APR'D	DATE

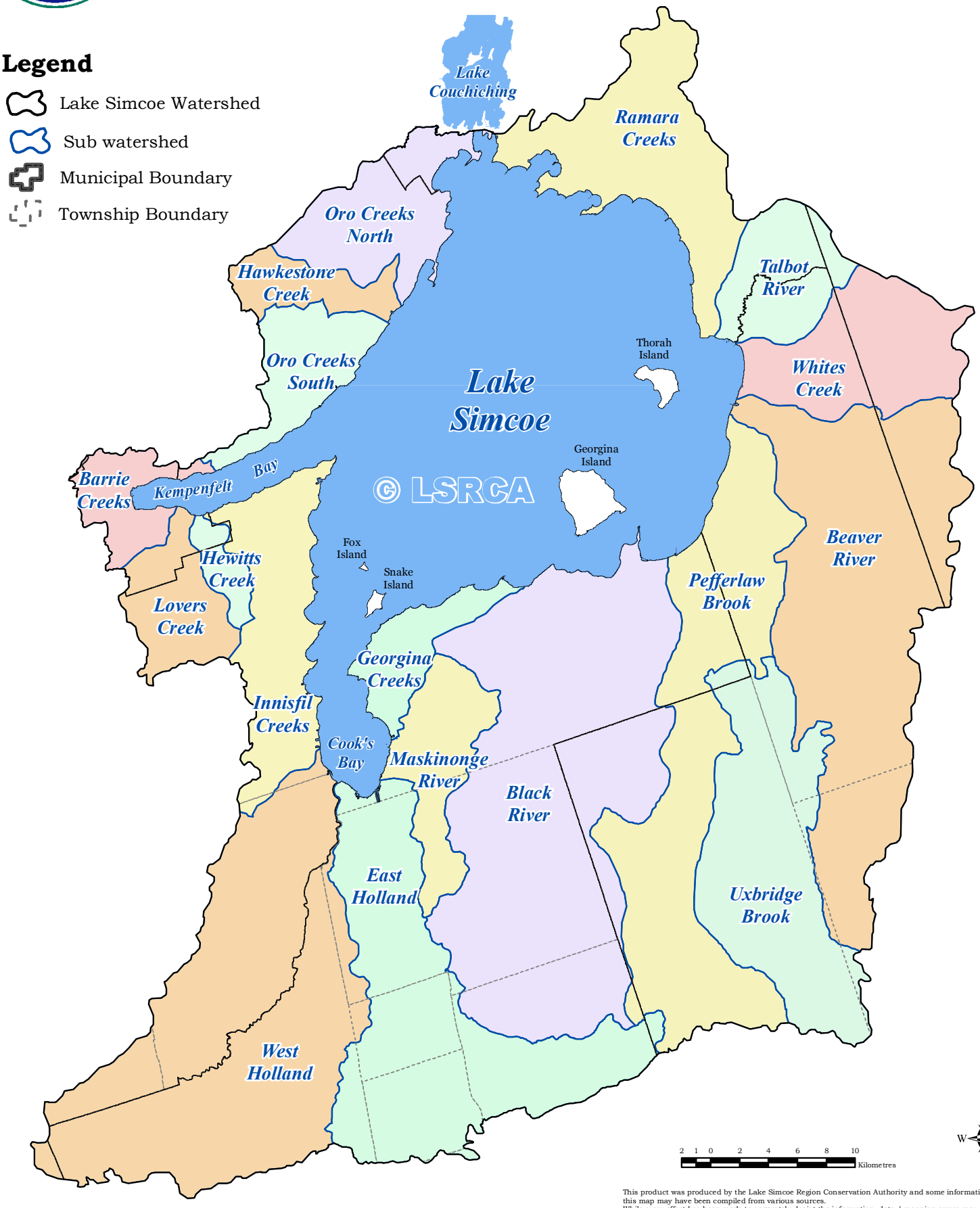
METRIC
ALL DIMENSIONS IN mm
UNLESS OTHERWISE NOTED

TOISD
605

APPENDIX "D"

Watershed Map, Regulation Map & IDF Data

Lake Simcoe Region Conservation Authority
Sub - Watersheds



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While every effort has been made to accurately depict the information, data / mapping errors may exist.
This map has been produced for illustrative purposes only.
LSRCA GIS Services DRAFT printed July 2008.
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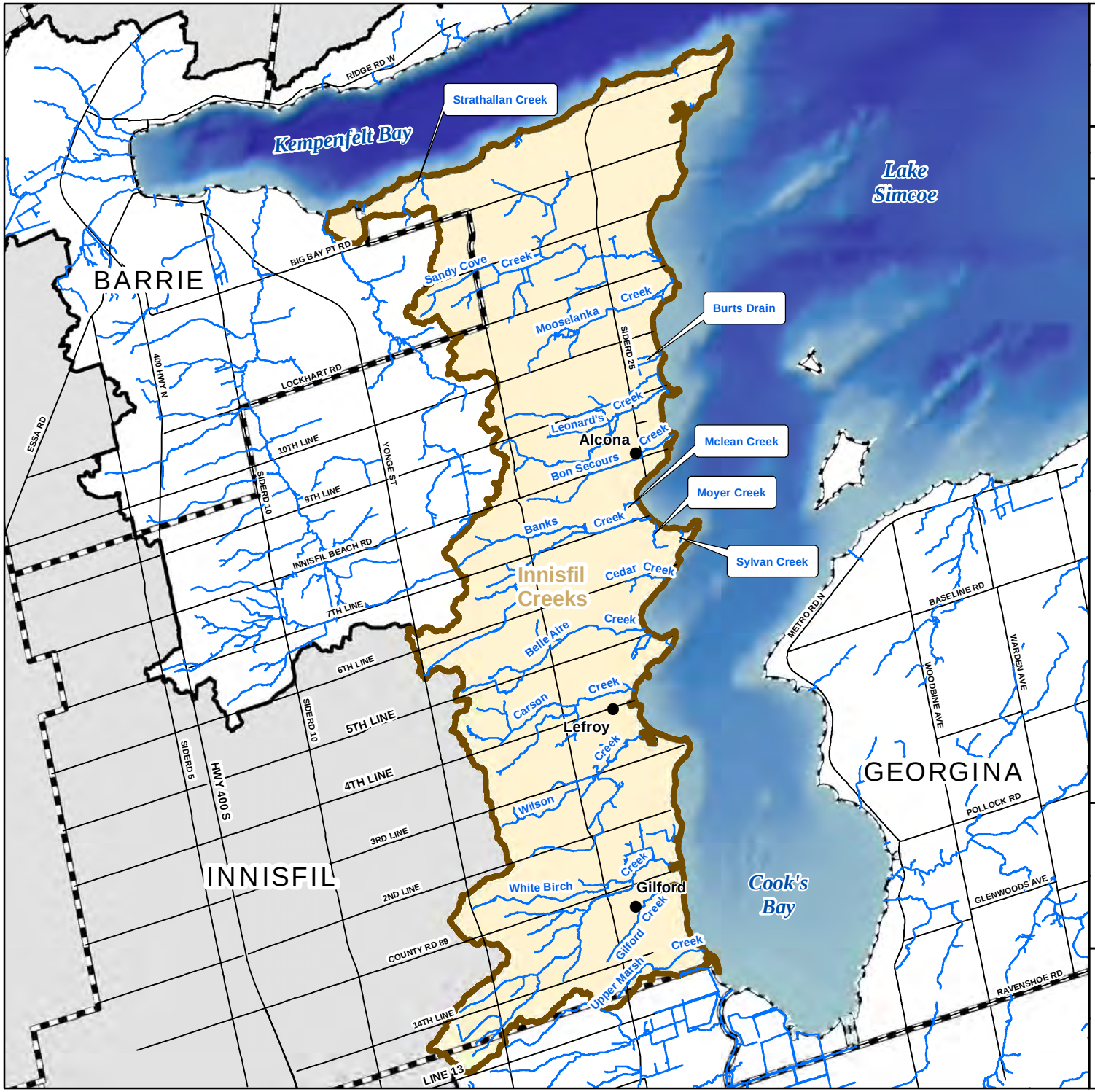

The Innisfil Creeks subwatershed

Figure 2-1

Legend

- Road
- Municipal Boundary
- Watercourse
- Innisfil Creeks Subwatershed

Lake Simcoe Region Conservation Authority

0 0.5 1 2 3 4 5 Kilometres

N

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LSRCA GIS Services DRAFT created July 2010.
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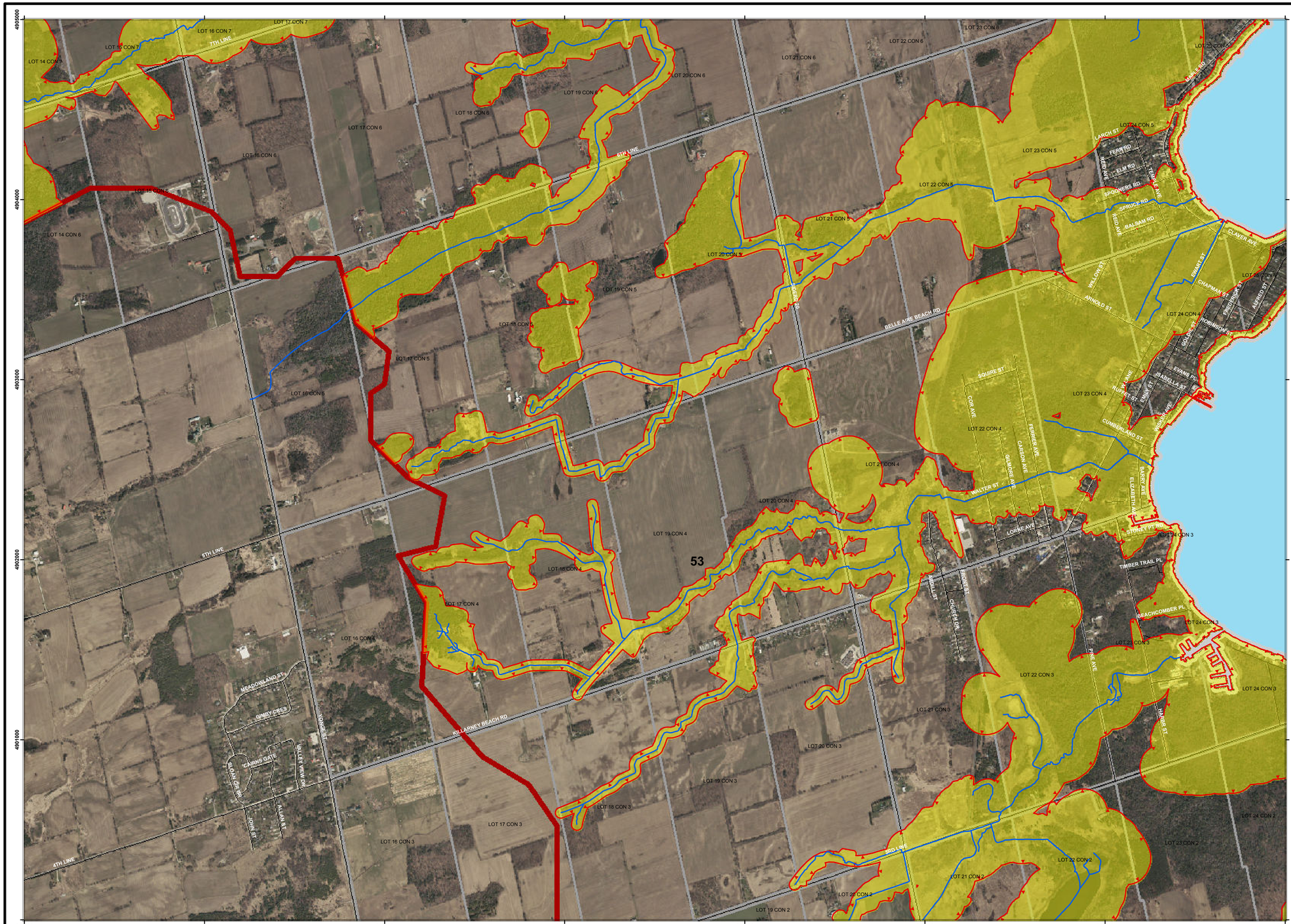

Lake Simcoe Region conservation authority

THIS PRODUCT WAS PRODUCED BY THE LAKE SIMCOE REGION CONSERVATION AUTHORITY AND SOME INFORMATION DEPICTED ON THIS MAP MAY HAVE BEEN COMPILED FROM VARIOUS SOURCES. WHILE EVERY EFFORT HAS BEEN MADE TO ACCURATELY DEPICT THE INFORMATION, DATA/MAPPING ERRORS MAY EXIST.
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THE FOLLOWING DATA SETS OF MUNICIPAL BOUNDARY, LOT_CONCESSION ARE © QUEEN'S PRINTER FOR ONTARIO (2014). REPRODUCED WITH PERMISSION.
ORTHOPHOTOGRAPHY 2013, 2012, 2002 © J.D. BARNES LIMITED

RIVERINE HAZARDS WERE BASED ON EXISTING FLOOD PLAIN MAPPING. FLOOD PLAIN LIMITS WHERE ENGINEERING PRODUCTS DID NOT EXIST WERE DETERMINED BY LSRCA STAFF.
RIVERINE EROSION HAZARDS WERE DETERMINED BY LSRCA STAFF. A 15-METER SETBACK WAS APPLIED FROM THE LIMITS OF ALL RIVERINE HAZARDS.
SHORELINE FLOOD HAZARDS WERE DETERMINED BY LSRCA STAFF BY APPLYING THE EQUATIONS PREVIOUSLY DEVELOPED THROUGH AN ENGINEERING STUDY.
SHORELINE EROSION HAZARDS WERE DETERMINED BY LSRCA STAFF.
WETLANDS WERE DELINEATED BY THE MINISTRY OF NATURAL RESOURCES. SETBACKS OF 120-M FROM PROVINCIALLY SIGNIFICANT WETLANDS (PSWs) AND 30-M FROM ALL OTHER WETLANDS WERE APPLIED.
MEANDERBELT WIDTHS WERE ESTABLISHED THROUGH A STUDY. IN THE ABSENCE OF A STUDY, MEANDERBELT WIDTHS WERE CALCULATED AS 20 TIMES THE BANKFULL WIDTHS ESTIMATED FROM THE CORRESPONDING DRAINAGE AREAS.

PLEASE REFER TO "REFERENCE MANUAL FOR DETERMINATION OF REGULATION LIMITS" (LSRCA, 2005) OR CONTACT LSRCA (905-895-1281) FOR MORE INFORMATION

1:10,000

0 0.225 0.45 0.9 1.35 1.8

Kilometers

NO.	REVISIONS	DATE
0	ONTARIO REGULATION 179/06 APPROVED	MAY 8, 2006
1	Mapping revisions to the regulation limit have been completed as referenced in the document "Regulation Limit Changes, May 2007"	SEPTEMBER 28, 2007
2	Mapping revisions to the regulation limit have been completed as referenced in the document "Regulation Limit Changes, April 2009". Ortho imagery changed to reflect most recent imagery available. Map/data disclaimer changed to reflect most current disclaimers in use.	APRIL 24, 2009
3	Mapping revisions to the regulation limit have been completed as referenced in the document "Regulation Limit Changes, July 2013". Ortho imagery changed to reflect most recent imagery available. Map/data disclaimer changed to reflect most current disclaimers in use.	JULY 26, 2013
4	Mapping revisions to the regulation limit have been completed as referenced in the document "Regulation Limit Changes, September 2014". Ortho imagery reflects most recent imagery available. Map/data disclaimer changed to reflect most current information.	SEPTEMBER 26, 2014

CHECKED - NATURAL HERITAGE: KB
CHECKED - REGULATIONS: JP
CHECKED - ENGINEERING: JP
APPROVED: TH
DATE: JANUARY 2006
MAPPED BY: JB

(ONTARIO REGULATION 97/04)

REGULATION OF DEVELOPMENT, INTERFERENCE WITH WETLANDS AND ALTERATIONS TO SHORELINES AND WATERCOURSES.

ONTARIO REGULATION 179/06

PLOT DATE: SEPTEMBER 2014 FILE LOCATION:

SHEET NO. 53 OF 117

Lake Simcoe Region
conservation authority

Features

- Regulation Map Index
- LSRCA Watershed Boundary
- Lake Couchiching
- Regulated Area Boundary
- Regulated Area
- Assessment Parcel

Printed On:
11/17/2017

WGS_1984_Web_Mercator_
Auxiliary_Sphere

Mapped By:

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Scale 1: 9,160

Meters

465 0 233 465

c) Complete single event and continuous (if required) simulation rainfall/runoff event models to establish the baseline quality and quantity of stormwater runoff originating from the development area under existing conditions as a framework for evaluating combinations of structural LID components with conventional end-of-pipe controls;
d) Prepare an assessment of the various combinations and sizing requirements of LID components and end-of pipe controls based on their suitability for achieving the stormwater management control targets under typical post development conditions accounting for snow accumulation and frozen ground conditions;
e) Select a preferred alternative for achieving stormwater management control targets for consideration by the Town and the governing Conservation Authority prior to proceeding to detailed design; and
f) Prepare a monitoring program to assess the performance of the proposed design.

The assessment and recommendations can be included in the project SWM Report or be submitted as a separate document.

The implementation of any design that employs the use of Low Impact Development practices will be subject to Town and Conservation Authority Approval.

4.3 NUTRIENT MANAGEMENT STRATEGY AND WATER BALANCE

The Town, as an environmental leader, supports the reduction of phosphorous contributions from Greenfield development into the streams and lakes of the watershed within the Town. To achieve this goal, the Town encourages that effective measures be taken to mitigate and reduce phosphorous contributions from new developments wherever possible.

The Town also recognizes that reduced groundwater recharge because of new development can impact stream baseflows needed to sustain aquatic life and result in increased stream erosion.

As such, the Town will require that stormwater management design for new developments incorporate the most recent advances in phosphorus reduction and water balance technologies or strategies within the development proposal as per the most recent guidelines and standards as set out by the MOECC and relevant Conservation Authority.

4.4 RAINFALL DATA

Stormwater management facilities should be designed based on the IDF tables developed by Environment Canada for Barrie WPCC based on rain gauge data for the period 1979 - 2003 including a 15% increase in rainfall intensity data to account for climate change. The adjusted Chicago distribution parameters for different return periods are provided below.

Barrie WPCC IDF Curve Parameters –Adjusted for Climate Change

Parameter	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
A	678.085	853.608	975.865	1146.275	1236.152	1426.408
B	4.699	4.699	4.699	4.922	4.699	5.273
C	0.781	0.766	0.760	0.757	0.751	0.759

Rainfall Intensity, I (mm/hr) = $A/(t+B)^C$, where t is time duration in minutes
Parameters based on rain gauge data for the period 1979 – 2003 for the Barrie WPCC Station #6110557

Based on a review of the literature, the IDF intensity values for Barrie WPCC Station were increased by 15% before calculating a, b, c values to account for climate change.

Barrie WPCC 2003 Rainfall Intensity (mm/hr) + 15 % to Account for Climate Change

	Duration (min)								
Return Period	5	10	15	30	60	120	360	720	1440
2 years	115.5	81.5	67.4	43.1	25.3	15.5	7	3.9	2.3
5 years	150	107.9	89.9	56.2	32.8	21.9	9.9	5.4	3.2
10 years	173	125.5	104.9	65.1	37.6	26.1	11.8	6.3	3.8
25 years	201.8	147.4	123.7	76	43.8	31.4	14.3	7.6	4.5
50 years	223.3	163.9	137.7	84.3	48.4	35.4	16	8.5	5.1
100 years	244.7	180.1	151.6	92.3	53	39.3	17.7	9.4	5.5

Barrie WPCC 2003 Rainfall Depth (mm) + 15 % to Account for Climate Change

	Duration (min)								
Return Period	5	10	15	30	60	120	360	720	1440
2 years	9.7	13.6	16.8	21.5	25.3	31.1	42.3	46.7	55
5 years	12.5	17.9	22.4	28.2	32.8	43.8	59.5	64.3	76
10 years	14.4	20.9	26.2	32.5	37.6	52.2	70.8	76	89.9
25 years	16.8	24.6	30.9	38.1	43.8	62.9	85.2	90.7	107.5
50 years	18.6	27.3	34.4	42.1	48.4	70.7	95.9	101.7	120.6
100 years	20.4	30	37.8	46.2	53	78.5	106.5	112.5	133.6

4.5 STORMWATER MANAGEMENT SYSTEM - MINOR

Generally, storm drainage shall be accommodated by a system of curb and gutters as well as storm sewers, with the exception of rural roadways or estate residential subdivisions, where an open ditch system may be permitted if minimum design criteria can be realized.

Underground storm sewers are to be designed to convey a minimum of the 1:5 year storm without surcharge. However, when the major storm drainage system is inadequate, the Town may consider the approval of an underground storm sewer system designed to carry additional flows.

4.5.1 Service Area

The system shall be designed to accommodate all on-site drainage areas as well as all external tributary areas to their maximum future development capacity in accordance with the Town's Official Plan.

4.5.2 Design Flows

The design flows used to size the storm sewer system or small developments (drainage area ≤ 50ha) are to be calculated using the Rational Method, as follows:

$$Q = \frac{(c)(i)(A)}{360}$$

where:
- Q = design flow (m^3/s)
- c = runoff coefficient (dimensionless)
- i = average rainfall intensity (mm/hr)
- A = drainage area (ha)

The average rainfall intensity is to be derived from the IDF curve from the Atmospheric Environment Service Branch of Environment Canada for the Barrie WPCC station, as follows:

$$I\ (mm/hr) = A/(t+B)^C$$

where:
- i = average rainfall intensity (mm/hr)
- A = coefficient for the 5 year return period
- t = time (minutes)
- B = exponent for the 5 year return period
- C = exponent for the 5 year return period

The time of concentration is to be calculated as the sum of the initial inlet and the travel time in the pipe, where the initial inlet time is to be ten (10) minutes for the five (5) year storm.

This shall apply where the upstream drainage area does not include large open space areas. Where peak flows from external areas enter a subdivision sewer system, the more critical case based on either the time of concentration including the external area or the time of concentration excluding the external area shall be used. Actual velocities of computed peak flows shall be used to estimate time of concentration.

A design evaluation of inlet times must be submitted to justify inlet times different from those specified above.

Runoff coefficients are given by components of surface treatment and by land use. The land use values are intended as a guide only and the designer is expected to develop an appropriate coefficient using an arithmetic composite calculation as shown below:

$$C = \frac{(A_1C_1)+ (A_2C_2)+ \ldots}{A_t}$$

where:
- C = composite runoff coefficient (dimensionless)
- $A_{1,2...}$ = area corresponding to specific land use or soils type (ha)
- $C_{1,2...}$ = runoff coefficient corresponding to $A_{1,2...}$ (dimensionless)
- A_t = total drainage area (ha)

Source: adapted from the Ministry of Transportation Drainage Management Manual, 1997, Equation 8.10.

APPENDIX “E”

Stormwater Management - Quantity Calculations

VALDOR ENGINEERING INC.
Project: 1303 Belle Aire Beach Road
File: 15149
Date: January 2019

Table E.1: VO5 Model Parameters - Existing Condition

Catchment	Area (ha)	VO5 Routine	DT (min)	TIMP	XIMP	CN II	CN II*	IA (mm)	Tp (hr)
101[1]	0.95	StandHyd	5	0.45	0.20	50	40	5.0	-
102[2]	1.01	N/A[2]							
103	1.87	NasHyd	5	-	-	77	77	7.0	0.39
104[3]	0.16	N/A[3]							
105[4]	0.12	N/A[4]							
106[5]	3.15	N/A[5]							
Total	**7.26**								

Notes:
1) *Catchment 101* is part of an external drainage area (1357 Belle Aire Beach Road) draining east onto *Catchment 103* of the subject site. *Catchment 101* is to be developed into a townhome development (*Catchment 201* on **Table E.2**) which will provide its own on-site controls to match pre-development flow targets. Further details on the on-site controls provided for this development are provided in the *Functional Servicing & Stormwater Management Report, 1357 Belle Aire Beach Road* (Valdor Engineering Inc., December 2017).
2) *Catchment 102* is part of an external drainage area (1357 Belle Aire Beach Road) draining southeast onto *Catchments 105 & 106* of the subject site. As per the modelling previously completed in the *Stormwater Management Report for Parcel P1, Lefroy* (Cole Engineering Group Ltd., March 2012), the flow target for this catchment is 180 L/s/ha (*Catchment 102* accounts for 1.01 ha of 1.13 ha in Cole catchment "EXT1"). Therefore, no pre-development modelling is required for *Catchment 10* 2.
3) *Catchment 104* will be transfered to the town as part of a road widening and trail block (*Catchment 204* on **Table E.2**), and will drain directly to Belle Aire Beach Road. This area is not considered as part of the pre-development flow targets for proposed development.
4) As per the modelling previously completed in the *Stormwater Management Report for Parcel P1, Lefroy* (Cole Engineering Group Ltd., March 2012), the flow target for *Catchment 105* is 180 L/s/ha (Catchment 105 accounts for 0.12 ha of 1.13 ha in Cole catchment "EXT1"). Therefore, no pre-development modelling is required for *Catchment 105* .
5) The pre-development drainage from *Catchment 106* was accounted for in the modelled previously completed in the Stormwater Management Report for Parcel P1, Lefroy (Cole Engineering Group Ltd., March 2012) as part of Cole catchment "EXT2" (3.15 ha). Therefore, no pre-development modelling is required for *Catchment 106.*

VALDOR ENGINEERING INC.
Project: 1303 Belle Aire Beach Road
File: 15149
Date: January 2019

Table E.2: VO5 Model Parameters - Proposed Condition

Catchment	Area (ha)	VO5 Routine	DT (min)	TIMP	XIMP	CN II	CN II*	IA (mm)	Tp (hr)
201[1]	0.95	StandHyd	5	0.60	0.45	50	40	5.0	-
202[1]	1.01	StandHyd	5	0.60	0.45	50	40	5.0	-
203	1.99	StandHyd	5	0.55	0.40	50	40	5.0	-
204[2]	0.16	N/A[2]							
205	0.13	NasHyd	5	-	-	50	40	5.0	0.47
206	2.79	StandHyd	5	0.55	0.40	50	40	5.0	-
207	0.23	NasHyd	5	-	-	50	40	5.0	0.43
Total	**7.26**								

VALDOR ENGINEERING INC.
Project: 1303 Belle Aire Beach Road
File: 15149
Date: January 2019

Table E.3: Calculation of CN Values, Initial Abstractions and Runoff Coefficients

Subcatchment	Area (ha)	Land Use and Land Cover		CN II	Area Weighted CN II	Area Weighted CN II*	IA (mm)	Area Weighted IA (mm)	C-Value	Area Weighted C-Value
		Type	Area (ha)							
		Woods (HSG 'AB')	0.00	40			**10**		0.08	
		Meadows (HSG 'AB')	0.00	44			**8**		0.10	
103	1.87	Cultivated (HSG 'AB')	1.87	77	**77**		**7**	**7.0**	0.22	**0.22**
		Lawns (HSG 'AB')	0.00	50			**5**		0.10	
		Other Impervious	0.00	100			**2**		0.95	

VALDOR ENGINEERING INC.
Project: 1303 Belle Aire Beach Road
File: 15149
Date: January 2019

Table E.4: Calculation of Time to Peak (Airport Method)

Subcatchment	C Runoff Coefficient (Area Weighted)	L(m) Catchment Length	Highest Elevation (m)	Lowest Elevation (m)	S(%) Catchment Slope	T_c (min)	T_p (hr)
103	0.22	228	240.34	235.79	2.00	34.6	0.39
205	0.10	173	238.80	236.97	1.06	42.2	0.47
207	0.10	232	238.80	233.75	2.18	38.5	0.43

Note:

1) T_p calculation is based on Airport Method $T_c = 3.26 \times (1.1 - C) \times L^{0.5} / S_w^{0.33}$ and $T_P = 0.67 T_c$

Table E.5
BOX CULVERT STAGE-STORAGE-DISCHARGE TABLE

Project Name: 1303 Belle Aire Beach Road
Municipality: Town of Innisfil
Project No.: 15149
Date: January 2019

Stage Storage Curve					Outlet Structure						
Elevation (m)	Sec Area (m^2)	Avg Area (m^2)	Sec Volume (m^3)	Cumulative Volume (m^3)		Stage Active (m^3)	Orifice #1	Weir #1	Weir #2	Total Flow	**Comments:**
					Invert Elevation (m)		234.80	235.30	236.30		
					Diameter (mm)/Length (m)		150	0.10	0.10		
					Height (m)		-	-	-		
					Orifice Area (m^2)		0.0177				
											Weir Equation: $Q=1.7xLxH^{1.5}$
											Orifice Equation: $Q = 0.6A(2gH)^{0.5}$
234.80	**240**	**-**	**-**	**0**	**Bottom of Storage**	0.00	0.000			**0.000**	**Bottom of Storage**
234.90	**240**	**240**	**24**	**24**		0.10	0.008			**0.008**	
235.00	**240**	**240**	**24**	**48**		0.20	0.017			**0.017**	
235.10	**240**	**240**	**24**	**72**		0.30	0.022			**0.022**	
235.20	**240**	**240**	**24**	**96**		0.40	0.027			**0.027**	
235.30	**240**	**240**	**24**	**120**		0.50	0.031	0.000		**0.031**	
235.40	**240**	**240**	**24**	**144**		0.60	0.034	0.005		**0.039**	
235.50	**240**	**240**	**24**	**168**		0.70	0.037	0.015		**0.052**	
235.60	**240**	**240**	**24**	**192**		0.80	0.040	0.028		**0.068**	
235.70	**240**	**240**	**24**	**216**		0.90	0.043	0.043		**0.086**	
235.80	**240**	**240**	**24**	**240**		1.00	0.045	0.060		**0.105**	
235.90	**240**	**240**	**24**	**264**		1.10	0.048	0.079		**0.127**	
236.00	**240**	**240**	**24**	**288**		1.20	0.050	0.100		**0.149**	
236.10	**240**	**240**	**24**	**312**		1.30	0.052	0.122		**0.174**	
236.20	**240**	**240**	**24**	**336**		1.40	0.054	0.145		**0.199**	
236.30	**240**	**240**	**24**	**360**		1.50	0.056	0.170	0.000	**0.226**	
236.40	**240**	**240**	**24**	**384**		1.60	0.058	0.196	0.005	**0.260**	
236.50	**240**	**240**	**24**	**408**		1.70	0.060	0.223	0.015	**0.299**	
236.60	**240**	**240**	**24**	**432**	**Top of Storage**	1.80	0.062	0.252	0.028	**0.342**	**Top of Storage**

Figure E.1: VO5 Model Schematic – Existing Condition

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

       V    V   I    SSSSS  U   U    A    L              (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\acbcdb68-d720-4617-9056-a94829b83d63\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\acbcdb68-d720-4617-9056-a94829b83d63\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : Run 01: 2yr 24hr SCS Barrie   **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              7c8e810f-ec01-439c-a075-3a414101d737\b55a5618
| Ptotal= 46.11 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

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

--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

        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	0.92	12.083	9.18	18.08	0.92
0.167	0.46	6.167	0.92	12.167	9.18	18.17	0.92
0.250	0.46	6.250	0.92	12.250	7.12	18.25	0.92
0.333	0.46	6.333	0.92	12.333	5.74	18.33	0.92
0.417	0.46	6.417	0.92	12.417	5.42	18.42	0.92
0.500	0.46	6.500	0.92	12.500	4.13	18.50	0.92
0.583	0.46	6.583	0.92	12.583	4.13	18.58	0.92
0.667	0.46	6.667	0.92	12.667	3.95	18.67	0.92
0.750	0.46	6.750	0.92	12.750	3.90	18.75	0.92
0.833	0.46	6.833	0.92	12.833	3.44	18.83	0.92
0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92
1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46
3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46

3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46
4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

Unit Hyd Qpeak (cms)= 0.183

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 13.302
TOTAL RAINFALL (mm)= 46.112
RUNOFF COEFFICIENT = 0.288

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

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\7c8e810f-ec01-439c-a075-3a414101d737\b55a5618
Ptotal= 46.11 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

CALIB | STANDHYD (0101) | ID= 1 DT= 5.0 min | Area (ha)= 0.95 Total Imp(%)= 45.00 Dir. Conn.(%)= 20.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.43	0.52
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	5.00
Length	(m)=	20.00	30.00
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	0.92	12.083	9.18	18.08	0.92
0.167	0.46	6.167	0.92	12.167	9.18	18.17	0.92
0.250	0.46	6.250	0.92	12.250	7.12	18.25	0.92
0.333	0.46	6.333	0.92	12.333	5.74	18.33	0.92
0.417	0.46	6.417	0.92	12.417	5.42	18.42	0.92
0.500	0.46	6.500	0.92	12.500	4.13	18.50	0.92
0.583	0.46	6.583	0.92	12.583	4.13	18.58	0.92
0.667	0.46	6.667	0.92	12.667	3.95	18.67	0.92
0.750	0.46	6.750	0.92	12.750	3.90	18.75	0.92
0.833	0.46	6.833	0.92	12.833	3.44	18.83	0.92
0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92
1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46

3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46
3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46
4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

Max.Eff.Inten.(mm/hr)=	52.80	9.82	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.26 (ii)	12.67 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.08	
			TOTALS
PEAK FLOW (cms)=	0.03	0.01	0.036 (iii)
TIME TO PEAK (hrs)=	12.00	12.17	12.00
RUNOFF VOLUME (mm)=	44.11	5.98	13.60
TOTAL RAINFALL (mm)=	46.11	46.11	46.11
RUNOFF COEFFICIENT =	0.96	0.13	0.29

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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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V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
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 5.1\VO2\voin.dat
Output filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-f5aac60dd9b6\ab74c4fd-4627-48a4-8dbf-ba8e531a343a\scena
Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-f5aac60dd9b6\ab74c4fd-4627-48a4-8dbf-ba8e531a343a\scena

DATE: 01-09-2019 TIME: 03:02:47

USER:

COMMENTS: _____

** SIMULATION : Run 02: 5yr 24hr SCS Barrie **

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\7c8e810f-ec01-439c-a075-3a414101d737\84e2ffe4
Ptotal= 66.81 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.67	6.20	1.33	12.20	13.30	18.20	1.33
0.40	0.67	6.40	1.33	12.40	8.32	18.40	1.33
0.60	0.67	6.60	1.33	12.60	5.98	18.60	1.33
0.80	0.67	6.80	1.33	12.80	5.65	18.80	1.33
1.00	0.67	7.00	1.33	13.00	3.98	19.00	1.33
1.20	0.67	7.20	1.33	13.20	3.33	19.20	1.00
1.40	0.67	7.40	1.33	13.40	3.33	19.40	1.00
1.60	0.67	7.60	1.33	13.60	3.33	19.60	1.00
1.80	0.67	7.80	1.33	13.80	3.33	19.80	1.00
2.00	0.67	8.00	1.33	14.00	3.33	20.00	1.00
2.20	0.67	8.20	2.00	14.20	2.00	20.20	1.00
2.40	0.67	8.40	2.00	14.40	2.00	20.40	1.00
2.60	0.67	8.60	2.00	14.60	2.00	20.60	1.00
2.80	0.67	8.80	2.00	14.80	2.00	20.80	1.00
3.00	0.67	9.00	2.00	15.00	2.00	21.00	1.00
3.20	0.67	9.20	2.00	15.20	2.00	21.20	0.67
3.40	0.67	9.40	2.00	15.40	2.00	21.40	0.67
3.60	0.67	9.60	2.00	15.60	2.00	21.60	0.67
3.80	0.67	9.80	2.00	15.80	2.00	21.80	0.67
4.00	0.67	10.00	2.00	16.00	2.00	22.00	0.67
4.20	1.33	10.20	3.65	16.20	1.33	22.20	0.67
4.40	1.33	10.40	3.65	16.40	1.33	22.40	0.67
4.60	1.33	10.60	3.65	16.60	1.33	22.60	0.67
4.80	1.33	10.80	3.65	16.80	1.33	22.80	0.67
5.00	1.33	11.00	3.65	17.00	1.33	23.00	0.67
5.20	1.33	11.20	4.98	17.20	1.33	23.20	0.67
5.40	1.33	11.40	7.32	17.40	1.33	23.40	0.67
5.60	1.33	11.60	16.62	17.60	1.33	23.60	0.67
5.80	1.33	11.80	36.50	17.80	1.33	23.80	0.67
6.00	1.33	12.00	76.48	18.00	1.33	24.00	0.67

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| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

        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    0.67 | 6.083    1.33 |12.083   13.31 | 18.08    1.33
0.167    0.67 | 6.167    1.33 |12.167   13.30 | 18.17    1.33
0.250    0.67 | 6.250    1.33 |12.250   10.31 | 18.25    1.33
0.333    0.67 | 6.333    1.33 |12.333    8.32 | 18.33    1.33
0.417    0.67 | 6.417    1.33 |12.417    7.85 | 18.42    1.33
0.500    0.67 | 6.500    1.33 |12.500    5.98 | 18.50    1.33
0.583    0.67 | 6.583    1.33 |12.583    5.98 | 18.58    1.33
0.667    0.67 | 6.667    1.33 |12.667    5.72 | 18.67    1.33
0.750    0.67 | 6.750    1.33 |12.750    5.65 | 18.75    1.33
0.833    0.67 | 6.833    1.33 |12.833    4.98 | 18.83    1.33
0.917    0.67 | 6.917    1.33 |12.917    3.98 | 18.92    1.33
1.000    0.67 | 7.000    1.33 |13.000    3.98 | 19.00    1.33
1.083    0.67 | 7.083    1.33 |13.083    3.33 | 19.08    1.00
1.167    0.67 | 7.167    1.33 |13.167    3.33 | 19.17    1.00
1.250    0.67 | 7.250    1.33 |13.250    3.33 | 19.25    1.00
1.333    0.67 | 7.333    1.33 |13.333    3.33 | 19.33    1.00
1.417    0.67 | 7.417    1.33 |13.417    3.33 | 19.42    1.00
1.500    0.67 | 7.500    1.33 |13.500    3.33 | 19.50    1.00
1.583    0.67 | 7.583    1.33 |13.583    3.33 | 19.58    1.00
1.667    0.67 | 7.667    1.33 |13.667    3.33 | 19.67    1.00
1.750    0.67 | 7.750    1.33 |13.750    3.33 | 19.75    1.00
1.833    0.67 | 7.833    1.33 |13.833    3.33 | 19.83    1.00
1.917    0.67 | 7.917    1.33 |13.917    3.33 | 19.92    1.00
2.000    0.67 | 8.000    1.33 |14.000    3.33 | 20.00    1.00
2.083    0.67 | 8.083    2.00 |14.083    2.00 | 20.08    1.00
2.167    0.67 | 8.167    2.00 |14.167    2.00 | 20.17    1.00
2.250    0.67 | 8.250    2.00 |14.250    2.00 | 20.25    1.00
2.333    0.67 | 8.333    2.00 |14.333    2.00 | 20.33    1.00
2.417    0.67 | 8.417    2.00 |14.417    2.00 | 20.42    1.00
2.500    0.67 | 8.500    2.00 |14.500    2.00 | 20.50    1.00
2.583    0.67 | 8.583    2.00 |14.583    2.00 | 20.58    1.00
2.667    0.67 | 8.667    2.00 |14.667    2.00 | 20.67    1.00
2.750    0.67 | 8.750    2.00 |14.750    2.00 | 20.75    1.00
2.833    0.67 | 8.833    2.00 |14.833    2.00 | 20.83    1.00
2.917    0.67 | 8.917    2.00 |14.917    2.00 | 20.92    1.00
3.000    0.67 | 9.000    2.00 |15.000    2.00 | 21.00    1.00
3.083    0.67 | 9.083    2.00 |15.083    2.00 | 21.08    0.67
3.167    0.67 | 9.167    2.00 |15.167    2.00 | 21.17    0.67
3.250    0.67 | 9.250    2.00 |15.250    2.00 | 21.25    0.67
3.333    0.67 | 9.333    2.00 |15.333    2.00 | 21.33    0.67
3.417    0.67 | 9.417    2.00 |15.417    2.00 | 21.42    0.67
3.500    0.67 | 9.500    2.00 |15.500    2.00 | 21.50    0.67
3.583    0.67 | 9.583    2.00 |15.583    2.00 | 21.58    0.67
3.667    0.67 | 9.667    2.00 |15.667    2.00 | 21.67    0.67
3.750    0.67 | 9.750    2.00 |15.750    2.00 | 21.75    0.67
3.833    0.67 | 9.833    2.00 |15.833    2.00 | 21.83    0.67
3.917    0.67 | 9.917    2.00 |15.917    2.00 | 21.92    0.67
4.000    0.67 |10.000    2.00 |16.000    2.00 | 22.00    0.67
4.083    1.33 |10.083    3.65 |16.083    1.33 | 22.08    0.67
4.167    1.33 |10.167    3.65 |16.167    1.33 | 22.17    0.67
4.250    1.33 |10.250    3.65 |16.250    1.33 | 22.25    0.67
4.333    1.33 |10.333    3.65 |16.333    1.33 | 22.33    0.67
4.417    1.33 |10.417    3.65 |16.417    1.33 | 22.42    0.67
4.500    1.33 |10.500    3.65 |16.500    1.33 | 22.50    0.67
4.583    1.33 |10.583    3.65 |16.583    1.33 | 22.58    0.67
4.667    1.33 |10.667    3.65 |16.667    1.33 | 22.67    0.67
4.750    1.33 |10.750    3.65 |16.750    1.33 | 22.75    0.67
4.833    1.33 |10.833    3.65 |16.833    1.33 | 22.83    0.67
4.917    1.33 |10.917    3.65 |16.917    1.33 | 22.92    0.67
5.000    1.33 |11.000    3.65 |17.000    1.33 | 23.00    0.67
5.083    1.33 |11.083    4.98 |17.083    1.33 | 23.08    0.67
5.167    1.33 |11.167    4.98 |17.167    1.33 | 23.17    0.67
5.250    1.33 |11.250    6.38 |17.250    1.33 | 23.25    0.67
5.333    1.33 |11.333    7.32 |17.333    1.33 | 23.33    0.67
5.417    1.33 |11.417    9.18 |17.417    1.33 | 23.42    0.67
5.500    1.33 |11.500   16.62 |17.500    1.33 | 23.50    0.67
5.583    1.33 |11.583   16.62 |17.583    1.33 | 23.58    0.67
5.667    1.33 |11.667   32.52 |17.667    1.33 | 23.67    0.67
5.750    1.33 |11.750   36.50 |17.750    1.33 | 23.75    0.67
5.833    1.33 |11.833   52.49 |17.833    1.33 | 23.83    0.67
5.917    1.33 |11.917   76.48 |17.917    1.33 | 23.92    0.67
6.000    1.33 |12.000   76.48 |18.000    1.33 | 24.00    0.67

    Unit Hyd Qpeak  (cms)=   0.183

    PEAK FLOW       (cms)=   0.078 (i)
    TIME TO PEAK    (hrs)=  12.250
    RUNOFF VOLUME    (mm)=  26.358
    TOTAL RAINFALL   (mm)=  66.806
    RUNOFF COEFFICIENT   =   0.395

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

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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              7c8e810f-ec01-439c-a075-3a414101d737\84e2ffe4
| Ptotal= 66.81 mm |    Comments:
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.67 |  6.20    1.33 | 12.20   13.30 | 18.20    1.33
                0.40    0.67 |  6.40    1.33 | 12.40    8.32 | 18.40    1.33
                0.60    0.67 |  6.60    1.33 | 12.60    5.98 | 18.60    1.33
                0.80    0.67 |  6.80    1.33 | 12.80    5.65 | 18.80    1.33
                1.00    0.67 |  7.00    1.33 | 13.00    3.98 | 19.00    1.33
                1.20    0.67 |  7.20    1.33 | 13.20    3.33 | 19.20    1.00
                1.40    0.67 |  7.40    1.33 | 13.40    3.33 | 19.40    1.00
                1.60    0.67 |  7.60    1.33 | 13.60    3.33 | 19.60    1.00
                1.80    0.67 |  7.80    1.33 | 13.80    3.33 | 19.80    1.00
                2.00    0.67 |  8.00    1.33 | 14.00    3.33 | 20.00    1.00
                2.20    0.67 |  8.20    2.00 | 14.20    2.00 | 20.20    1.00
                2.40    0.67 |  8.40    2.00 | 14.40    2.00 | 20.40    1.00
                2.60    0.67 |  8.60    2.00 | 14.60    2.00 | 20.60    1.00
                2.80    0.67 |  8.80    2.00 | 14.80    2.00 | 20.80    1.00
                3.00    0.67 |  9.00    2.00 | 15.00    2.00 | 21.00    1.00
                3.20    0.67 |  9.20    2.00 | 15.20    2.00 | 21.20    0.67
                3.40    0.67 |  9.40    2.00 | 15.40    2.00 | 21.40    0.67
                3.60    0.67 |  9.60    2.00 | 15.60    2.00 | 21.60    0.67
                3.80    0.67 |  9.80    2.00 | 15.80    2.00 | 21.80    0.67
                4.00    0.67 | 10.00    2.00 | 16.00    2.00 | 22.00    0.67
                4.20    1.33 | 10.20    3.65 | 16.20    1.33 | 22.20    0.67
                4.40    1.33 | 10.40    3.65 | 16.40    1.33 | 22.40    0.67
                4.60    1.33 | 10.60    3.65 | 16.60    1.33 | 22.60    0.67
                4.80    1.33 | 10.80    3.65 | 16.80    1.33 | 22.80    0.67
                5.00    1.33 | 11.00    3.65 | 17.00    1.33 | 23.00    0.67
                5.20    1.33 | 11.20    4.98 | 17.20    1.33 | 23.20    0.67
                5.40    1.33 | 11.40    7.32 | 17.40    1.33 | 23.40    0.67
                5.60    1.33 | 11.60   16.62 | 17.60    1.33 | 23.60    0.67
                5.80    1.33 | 11.80   36.50 | 17.80    1.33 | 23.80    0.67
                6.00    1.33 | 12.00   76.48 | 18.00    1.33 | 24.00    0.67

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--------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.43         0.52
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         5.00
     Length            (m)=      20.00        30.00
     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	0.67	6.083	1.33	12.083	13.31	18.08	1.33
0.167	0.67	6.167	1.33	12.167	13.30	18.17	1.33
0.250	0.67	6.250	1.33	12.250	10.31	18.25	1.33
0.333	0.67	6.333	1.33	12.333	8.32	18.33	1.33
0.417	0.67	6.417	1.33	12.417	7.85	18.42	1.33
0.500	0.67	6.500	1.33	12.500	5.98	18.50	1.33
0.583	0.67	6.583	1.33	12.583	5.98	18.58	1.33
0.667	0.67	6.667	1.33	12.667	5.72	18.67	1.33
0.750	0.67	6.750	1.33	12.750	5.65	18.75	1.33
0.833	0.67	6.833	1.33	12.833	4.98	18.83	1.33
0.917	0.67	6.917	1.33	12.917	3.98	18.92	1.33
1.000	0.67	7.000	1.33	13.000	3.98	19.00	1.33
1.083	0.67	7.083	1.33	13.083	3.33	19.08	1.00
1.167	0.67	7.167	1.33	13.167	3.33	19.17	1.00
1.250	0.67	7.250	1.33	13.250	3.33	19.25	1.00
1.333	0.67	7.333	1.33	13.333	3.33	19.33	1.00
1.417	0.67	7.417	1.33	13.417	3.33	19.42	1.00
1.500	0.67	7.500	1.33	13.500	3.33	19.50	1.00
1.583	0.67	7.583	1.33	13.583	3.33	19.58	1.00
1.667	0.67	7.667	1.33	13.667	3.33	19.67	1.00
1.750	0.67	7.750	1.33	13.750	3.33	19.75	1.00
1.833	0.67	7.833	1.33	13.833	3.33	19.83	1.00
1.917	0.67	7.917	1.33	13.917	3.33	19.92	1.00
2.000	0.67	8.000	1.33	14.000	3.33	20.00	1.00
2.083	0.67	8.083	2.00	14.083	2.00	20.08	1.00
2.167	0.67	8.167	2.00	14.167	2.00	20.17	1.00
2.250	0.67	8.250	2.00	14.250	2.00	20.25	1.00
2.333	0.67	8.333	2.00	14.333	2.00	20.33	1.00
2.417	0.67	8.417	2.00	14.417	2.00	20.42	1.00
2.500	0.67	8.500	2.00	14.500	2.00	20.50	1.00
2.583	0.67	8.583	2.00	14.583	2.00	20.58	1.00
2.667	0.67	8.667	2.00	14.667	2.00	20.67	1.00
2.750	0.67	8.750	2.00	14.750	2.00	20.75	1.00
2.833	0.67	8.833	2.00	14.833	2.00	20.83	1.00
2.917	0.67	8.917	2.00	14.917	2.00	20.92	1.00
3.000	0.67	9.000	2.00	15.000	2.00	21.00	1.00
3.083	0.67	9.083	2.00	15.083	2.00	21.08	0.67
3.167	0.67	9.167	2.00	15.167	2.00	21.17	0.67
3.250	0.67	9.250	2.00	15.250	2.00	21.25	0.67
3.333	0.67	9.333	2.00	15.333	2.00	21.33	0.67
3.417	0.67	9.417	2.00	15.417	2.00	21.42	0.67
3.500	0.67	9.500	2.00	15.500	2.00	21.50	0.67
3.583	0.67	9.583	2.00	15.583	2.00	21.58	0.67
3.667	0.67	9.667	2.00	15.667	2.00	21.67	0.67
3.750	0.67	9.750	2.00	15.750	2.00	21.75	0.67
3.833	0.67	9.833	2.00	15.833	2.00	21.83	0.67
3.917	0.67	9.917	2.00	15.917	2.00	21.92	0.67
4.000	0.67	10.000	2.00	16.000	2.00	22.00	0.67
4.083	1.33	10.083	3.65	16.083	1.33	22.08	0.67
4.167	1.33	10.167	3.65	16.167	1.33	22.17	0.67
4.250	1.33	10.250	3.65	16.250	1.33	22.25	0.67
4.333	1.33	10.333	3.65	16.333	1.33	22.33	0.67
4.417	1.33	10.417	3.65	16.417	1.33	22.42	0.67
4.500	1.33	10.500	3.65	16.500	1.33	22.50	0.67
4.583	1.33	10.583	3.65	16.583	1.33	22.58	0.67
4.667	1.33	10.667	3.65	16.667	1.33	22.67	0.67
4.750	1.33	10.750	3.65	16.750	1.33	22.75	0.67
4.833	1.33	10.833	3.65	16.833	1.33	22.83	0.67
4.917	1.33	10.917	3.65	16.917	1.33	22.92	0.67
5.000	1.33	11.000	3.65	17.000	1.33	23.00	0.67
5.083	1.33	11.083	4.98	17.083	1.33	23.08	0.67
5.167	1.33	11.167	4.98	17.167	1.33	23.17	0.67
5.250	1.33	11.250	6.38	17.250	1.33	23.25	0.67
5.333	1.33	11.333	7.32	17.333	1.33	23.33	0.67
5.417	1.33	11.417	9.18	17.417	1.33	23.42	0.67
5.500	1.33	11.500	16.62	17.500	1.33	23.50	0.67
5.583	1.33	11.583	16.62	17.583	1.33	23.58	0.67
5.667	1.33	11.667	32.52	17.667	1.33	23.67	0.67
5.750	1.33	11.750	36.50	17.750	1.33	23.75	0.67
5.833	1.33	11.833	52.49	17.833	1.33	23.83	0.67
5.917	1.33	11.917	76.48	17.917	1.33	23.92	0.67
6.000	1.33	12.000	76.48	18.000	1.33	24.00	0.67

```
     Max.Eff.Inten.(mm/hr)=      76.48        24.18
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.08 (ii)    9.04 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.02          0.064 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      64.81        12.34          22.83
     TOTAL RAINFALL   (mm)=      66.81        66.81          66.81
     RUNOFF COEFFICIENT   =       0.97         0.18           0.34

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\70927eb8-345a-41f2-9c5d-267a1fdfe216\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\70927eb8-345a-41f2-9c5d-267a1fdfe216\scena
```

```
DATE: 01-09-2019                          TIME: 03:02:47

USER:


COMMENTS: _____________________________________________________

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  ************************************************
  ** SIMULATION : Run 03: 10yr 24hr SCS Barrie  **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              7c8e810f-ec01-439c-a075-3a414101d737\40932aba
| Ptotal= 80.55 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.80 |  6.20    1.61 | 12.20   16.04 | 18.20    1.61
                0.40    0.80 |  6.40    1.61 | 12.40   10.03 | 18.40    1.61
                0.60    0.80 |  6.60    1.61 | 12.60    7.22 | 18.60    1.61
                0.80    0.80 |  6.80    1.61 | 12.80    6.81 | 18.80    1.61
                1.00    0.80 |  7.00    1.61 | 13.00    4.80 | 19.00    1.61
                1.20    0.80 |  7.20    1.61 | 13.20    4.02 | 19.20    1.20
                1.40    0.80 |  7.40    1.61 | 13.40    4.02 | 19.40    1.20
                1.60    0.80 |  7.60    1.61 | 13.60    4.02 | 19.60    1.20
                1.80    0.80 |  7.80    1.61 | 13.80    4.02 | 19.80    1.20
                2.00    0.80 |  8.00    1.61 | 14.00    4.02 | 20.00    1.20
                2.20    0.80 |  8.20    2.41 | 14.20    2.41 | 20.20    1.20
                2.40    0.80 |  8.40    2.41 | 14.40    2.41 | 20.40    1.20
                2.60    0.80 |  8.60    2.41 | 14.60    2.41 | 20.60    1.20
                2.80    0.80 |  8.80    2.41 | 14.80    2.41 | 20.80    1.20
                3.00    0.80 |  9.00    2.41 | 15.00    2.41 | 21.00    1.20
                3.20    0.80 |  9.20    2.41 | 15.20    2.41 | 21.20    0.80
                3.40    0.80 |  9.40    2.41 | 15.40    2.41 | 21.40    0.80
                3.60    0.80 |  9.60    2.41 | 15.60    2.41 | 21.60    0.80
                3.80    0.80 |  9.80    2.41 | 15.80    2.41 | 21.80    0.80
                4.00    0.80 | 10.00    2.41 | 16.00    2.41 | 22.00    0.80
                4.20    1.61 | 10.20    4.40 | 16.20    1.61 | 22.20    0.80
                4.40    1.61 | 10.40    4.40 | 16.40    1.61 | 22.40    0.80
                4.60    1.61 | 10.60    4.40 | 16.60    1.61 | 22.60    0.80
                4.80    1.61 | 10.80    4.40 | 16.80    1.61 | 22.80    0.80
                5.00    1.61 | 11.00    4.40 | 17.00    1.61 | 23.00    0.80
                5.20    1.61 | 11.20    6.01 | 17.20    1.61 | 23.20    0.80
                5.40    1.61 | 11.40    8.82 | 17.40    1.61 | 23.40    0.80
                5.60    1.61 | 11.60   20.04 | 17.60    1.61 | 23.60    0.80
                5.80    1.61 | 11.80   44.11 | 17.80    1.61 | 23.80    0.80
                6.00    1.61 | 12.00   92.23 | 18.00    1.61 | 24.00    0.80

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| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

        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   0.80 |  6.083   1.61 |12.083   16.05 | 18.08    1.61
                0.167   0.80 |  6.167   1.61 |12.167   16.04 | 18.17    1.61
                0.250   0.80 |  6.250   1.61 |12.250   12.43 | 18.25    1.61
                0.333   0.80 |  6.333   1.61 |12.333   10.03 | 18.33    1.61
                0.417   0.80 |  6.417   1.61 |12.417    9.47 | 18.42    1.61
                0.500   0.80 |  6.500   1.61 |12.500    7.22 | 18.50    1.61
                0.583   0.80 |  6.583   1.61 |12.583    7.22 | 18.58    1.61
                0.667   0.80 |  6.667   1.61 |12.667    6.89 | 18.67    1.61
                0.750   0.80 |  6.750   1.61 |12.750    6.81 | 18.75    1.61
                0.833   0.80 |  6.833   1.61 |12.833    6.01 | 18.83    1.61
                0.917   0.80 |  6.917   1.61 |12.917    4.80 | 18.92    1.61
                1.000   0.80 |  7.000   1.61 |13.000    4.80 | 19.00    1.61
                1.083   0.80 |  7.083   1.61 |13.083    4.02 | 19.08    1.20
                1.167   0.80 |  7.167   1.61 |13.167    4.02 | 19.17    1.20
                1.250   0.80 |  7.250   1.61 |13.250    4.02 | 19.25    1.20
                1.333   0.80 |  7.333   1.61 |13.333    4.02 | 19.33    1.20
                1.417   0.80 |  7.417   1.61 |13.417    4.02 | 19.42    1.20
                1.500   0.80 |  7.500   1.61 |13.500    4.02 | 19.50    1.20
                1.583   0.80 |  7.583   1.61 |13.583    4.02 | 19.58    1.20
                1.667   0.80 |  7.667   1.61 |13.667    4.02 | 19.67    1.20
                1.750   0.80 |  7.750   1.61 |13.750    4.02 | 19.75    1.20
                1.833   0.80 |  7.833   1.61 |13.833    4.02 | 19.83    1.20
                1.917   0.80 |  7.917   1.61 |13.917    4.02 | 19.92    1.20
                2.000   0.80 |  8.000   1.61 |14.000    4.02 | 20.00    1.20
                2.083   0.80 |  8.083   2.41 |14.083    2.41 | 20.08    1.20
                2.167   0.80 |  8.167   2.41 |14.167    2.41 | 20.17    1.20
                2.250   0.80 |  8.250   2.41 |14.250    2.41 | 20.25    1.20
                2.333   0.80 |  8.333   2.41 |14.333    2.41 | 20.33    1.20
                2.417   0.80 |  8.417   2.41 |14.417    2.41 | 20.42    1.20
                2.500   0.80 |  8.500   2.41 |14.500    2.41 | 20.50    1.20
                2.583   0.80 |  8.583   2.41 |14.583    2.41 | 20.58    1.20
                2.667   0.80 |  8.667   2.41 |14.667    2.41 | 20.67    1.20
                2.750   0.80 |  8.750   2.41 |14.750    2.41 | 20.75    1.20
                2.833   0.80 |  8.833   2.41 |14.833    2.41 | 20.83    1.20
                2.917   0.80 |  8.917   2.41 |14.917    2.41 | 20.92    1.20
                3.000   0.80 |  9.000   2.41 |15.000    2.41 | 21.00    1.20
                3.083   0.80 |  9.083   2.41 |15.083    2.41 | 21.08    0.80
                3.167   0.80 |  9.167   2.41 |15.167    2.41 | 21.17    0.80
                3.250   0.80 |  9.250   2.41 |15.250    2.41 | 21.25    0.80
                3.333   0.80 |  9.333   2.41 |15.333    2.41 | 21.33    0.80
                3.417   0.80 |  9.417   2.41 |15.417    2.41 | 21.42    0.80
                3.500   0.80 |  9.500   2.41 |15.500    2.41 | 21.50    0.80
                3.583   0.80 |  9.583   2.41 |15.583    2.41 | 21.58    0.80
                3.667   0.80 |  9.667   2.41 |15.667    2.41 | 21.67    0.80
                3.750   0.80 |  9.750   2.41 |15.750    2.41 | 21.75    0.80
                3.833   0.80 |  9.833   2.41 |15.833    2.41 | 21.83    0.80
                3.917   0.80 |  9.917   2.41 |15.917    2.41 | 21.92    0.80
                4.000   0.80 | 10.000   2.41 |16.000    2.41 | 22.00    0.80
                4.083   1.61 | 10.083   4.40 |16.083    1.61 | 22.08    0.80
                4.167   1.61 | 10.167   4.40 |16.167    1.61 | 22.17    0.80
                4.250   1.61 | 10.250   4.40 |16.250    1.61 | 22.25    0.80
                4.333   1.61 | 10.333   4.40 |16.333    1.61 | 22.33    0.80
                4.417   1.61 | 10.417   4.40 |16.417    1.61 | 22.42    0.80
                4.500   1.61 | 10.500   4.40 |16.500    1.61 | 22.50    0.80
                4.583   1.61 | 10.583   4.40 |16.583    1.61 | 22.58    0.80
                4.667   1.61 | 10.667   4.40 |16.667    1.61 | 22.67    0.80
                4.750   1.61 | 10.750   4.40 |16.750    1.61 | 22.75    0.80
                4.833   1.61 | 10.833   4.40 |16.833    1.61 | 22.83    0.80
                4.917   1.61 | 10.917   4.40 |16.917    1.61 | 22.92    0.80
                5.000   1.61 | 11.000   4.40 |17.000    1.61 | 23.00    0.80
                5.083   1.61 | 11.083   6.01 |17.083    1.61 | 23.08    0.80
                5.167   1.61 | 11.167   6.01 |17.167    1.61 | 23.17    0.80
                5.250   1.61 | 11.250   7.70 |17.250    1.61 | 23.25    0.80
                5.333   1.61 | 11.333   8.82 |17.333    1.61 | 23.33    0.80
                5.417   1.61 | 11.417  11.06 |17.417    1.61 | 23.42    0.80
                5.500   1.61 | 11.500  20.04 |17.500    1.61 | 23.50    0.80
                5.583   1.61 | 11.583  20.04 |17.583    1.61 | 23.58    0.80
                5.667   1.61 | 11.667  39.29 |17.667    1.61 | 23.67    0.80
                5.750   1.61 | 11.750  44.11 |17.750    1.61 | 23.75    0.80
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5.833	1.61	11.833	63.35	17.833	1.61	23.83	0.80
5.917	1.61	11.917	92.23	17.917	1.61	23.92	0.80
6.000	1.61	12.000	92.23	18.000	1.61	24.00	0.80

Unit Hyd Qpeak (cms)= 0.183

PEAK FLOW (cms)= 0.109 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 36.200
TOTAL RAINFALL (mm)= 80.552
RUNOFF COEFFICIENT = 0.449

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

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\7c8e810f-ec01-439c-a075-3a414101d737\40932aba
Ptotal= 80.55 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.80	6.20	1.61	12.20	16.04	18.20	1.61
0.40	0.80	6.40	1.61	12.40	10.03	18.40	1.61
0.60	0.80	6.60	1.61	12.60	7.22	18.60	1.61
0.80	0.80	6.80	1.61	12.80	6.81	18.80	1.61
1.00	0.80	7.00	1.61	13.00	4.80	19.00	1.61
1.20	0.80	7.20	1.61	13.20	4.02	19.20	1.20
1.40	0.80	7.40	1.61	13.40	4.02	19.40	1.20
1.60	0.80	7.60	1.61	13.60	4.02	19.60	1.20
1.80	0.80	7.80	1.61	13.80	4.02	19.80	1.20
2.00	0.80	8.00	1.61	14.00	4.02	20.00	1.20
2.20	0.80	8.20	2.41	14.20	2.41	20.20	1.20
2.40	0.80	8.40	2.41	14.40	2.41	20.40	1.20
2.60	0.80	8.60	2.41	14.60	2.41	20.60	1.20
2.80	0.80	8.80	2.41	14.80	2.41	20.80	1.20
3.00	0.80	9.00	2.41	15.00	2.41	21.00	1.20
3.20	0.80	9.20	2.41	15.20	2.41	21.20	0.80
3.40	0.80	9.40	2.41	15.40	2.41	21.40	0.80
3.60	0.80	9.60	2.41	15.60	2.41	21.60	0.80
3.80	0.80	9.80	2.41	15.80	2.41	21.80	0.80
4.00	0.80	10.00	2.41	16.00	2.41	22.00	0.80
4.20	1.61	10.20	4.40	16.20	1.61	22.20	0.80
4.40	1.61	10.40	4.40	16.40	1.61	22.40	0.80
4.60	1.61	10.60	4.40	16.60	1.61	22.60	0.80
4.80	1.61	10.80	4.40	16.80	1.61	22.80	0.80
5.00	1.61	11.00	4.40	17.00	1.61	23.00	0.80
5.20	1.61	11.20	6.01	17.20	1.61	23.20	0.80
5.40	1.61	11.40	8.82	17.40	1.61	23.40	0.80
5.60	1.61	11.60	20.04	17.60	1.61	23.60	0.80
5.80	1.61	11.80	44.11	17.80	1.61	23.80	0.80
6.00	1.61	12.00	92.23	18.00	1.61	24.00	0.80

CALIB | STANDHYD (0101) | ID= 1 DT= 5.0 min | Area (ha)= 0.95 | Total Imp(%)= 45.00 | Dir. Conn.(%)= 20.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.43	0.52
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	5.00
Length	(m)=	20.00	30.00
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	0.80	6.083	1.61	12.083	16.05	18.08	1.61
0.167	0.80	6.167	1.61	12.167	16.04	18.17	1.61
0.250	0.80	6.250	1.61	12.250	12.43	18.25	1.61
0.333	0.80	6.333	1.61	12.333	10.03	18.33	1.61
0.417	0.80	6.417	1.61	12.417	9.47	18.42	1.61
0.500	0.80	6.500	1.61	12.500	7.22	18.50	1.61
0.583	0.80	6.583	1.61	12.583	7.22	18.58	1.61
0.667	0.80	6.667	1.61	12.667	6.89	18.67	1.61
0.750	0.80	6.750	1.61	12.750	6.81	18.75	1.61
0.833	0.80	6.833	1.61	12.833	6.01	18.83	1.61
0.917	0.80	6.917	1.61	12.917	4.80	18.92	1.61
1.000	0.80	7.000	1.61	13.000	4.80	19.00	1.61
1.083	0.80	7.083	1.61	13.083	4.02	19.08	1.20
1.167	0.80	7.167	1.61	13.167	4.02	19.17	1.20
1.250	0.80	7.250	1.61	13.250	4.02	19.25	1.20
1.333	0.80	7.333	1.61	13.333	4.02	19.33	1.20
1.417	0.80	7.417	1.61	13.417	4.02	19.42	1.20
1.500	0.80	7.500	1.61	13.500	4.02	19.50	1.20
1.583	0.80	7.583	1.61	13.583	4.02	19.58	1.20
1.667	0.80	7.667	1.61	13.667	4.02	19.67	1.20
1.750	0.80	7.750	1.61	13.750	4.02	19.75	1.20
1.833	0.80	7.833	1.61	13.833	4.02	19.83	1.20
1.917	0.80	7.917	1.61	13.917	4.02	19.92	1.20
2.000	0.80	8.000	1.61	14.000	4.02	20.00	1.20
2.083	0.80	8.083	2.41	14.083	2.41	20.08	1.20
2.167	0.80	8.167	2.41	14.167	2.41	20.17	1.20
2.250	0.80	8.250	2.41	14.250	2.41	20.25	1.20
2.333	0.80	8.333	2.41	14.333	2.41	20.33	1.20
2.417	0.80	8.417	2.41	14.417	2.41	20.42	1.20
2.500	0.80	8.500	2.41	14.500	2.41	20.50	1.20
2.583	0.80	8.583	2.41	14.583	2.41	20.58	1.20
2.667	0.80	8.667	2.41	14.667	2.41	20.67	1.20
2.750	0.80	8.750	2.41	14.750	2.41	20.75	1.20
2.833	0.80	8.833	2.41	14.833	2.41	20.83	1.20
2.917	0.80	8.917	2.41	14.917	2.41	20.92	1.20
3.000	0.80	9.000	2.41	15.000	2.41	21.00	1.20
3.083	0.80	9.083	2.41	15.083	2.41	21.08	0.80
3.167	0.80	9.167	2.41	15.167	2.41	21.17	0.80
3.250	0.80	9.250	2.41	15.250	2.41	21.25	0.80
3.333	0.80	9.333	2.41	15.333	2.41	21.33	0.80
3.417	0.80	9.417	2.41	15.417	2.41	21.42	0.80
3.500	0.80	9.500	2.41	15.500	2.41	21.50	0.80
3.583	0.80	9.583	2.41	15.583	2.41	21.58	0.80
3.667	0.80	9.667	2.41	15.667	2.41	21.67	0.80
3.750	0.80	9.750	2.41	15.750	2.41	21.75	0.80
3.833	0.80	9.833	2.41	15.833	2.41	21.83	0.80
3.917	0.80	9.917	2.41	15.917	2.41	21.92	0.80
4.000	0.80	10.000	2.41	16.000	2.41	22.00	0.80
4.083	1.61	10.083	4.40	16.083	1.61	22.08	0.80
4.167	1.61	10.167	4.40	16.167	1.61	22.17	0.80
4.250	1.61	10.250	4.40	16.250	1.61	22.25	0.80
4.333	1.61	10.333	4.40	16.333	1.61	22.33	0.80
4.417	1.61	10.417	4.40	16.417	1.61	22.42	0.80
4.500	1.61	10.500	4.40	16.500	1.61	22.50	0.80
4.583	1.61	10.583	4.40	16.583	1.61	22.58	0.80
4.667	1.61	10.667	4.40	16.667	1.61	22.67	0.80
4.750	1.61	10.750	4.40	16.750	1.61	22.75	0.80
4.833	1.61	10.833	4.40	16.833	1.61	22.83	0.80
4.917	1.61	10.917	4.40	16.917	1.61	22.92	0.80
5.000	1.61	11.000	4.40	17.000	1.61	23.00	0.80
5.083	1.61	11.083	6.01	17.083	1.61	23.08	0.80
5.167	1.61	11.167	6.01	17.167	1.61	23.17	0.80
5.250	1.61	11.250	7.70	17.250	1.61	23.25	0.80
5.333	1.61	11.333	8.82	17.333	1.61	23.33	0.80
5.417	1.61	11.417	11.06	17.417	1.61	23.42	0.80

```
              5.500    1.61 |11.500   20.04 |17.500    1.61 | 23.50    0.80
              5.583    1.61 |11.583   20.04 |17.583    1.61 | 23.58    0.80
              5.667    1.61 |11.667   39.29 |17.667    1.61 | 23.67    0.80
              5.750    1.61 |11.750   44.11 |17.750    1.61 | 23.75    0.80
              5.833    1.61 |11.833   63.35 |17.833    1.61 | 23.83    0.80
              5.917    1.61 |11.917   92.23 |17.917    1.61 | 23.92    0.80
              6.000    1.61 |12.000   92.23 |18.000    1.61 | 24.00    0.80

     Max.Eff.Inten.(mm/hr)=      92.23        34.44
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.00 (ii)    7.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                  *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.04          0.085 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00          12.00
     RUNOFF VOLUME    (mm)=      78.55        17.54          29.74
     TOTAL RAINFALL   (mm)=      80.55        80.55          80.55
     RUNOFF COEFFICIENT   =       0.98         0.22           0.37

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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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================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\8be8ce91-e420-48dc-be23-3802849608eb\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\8be8ce91-e420-48dc-be23-3802849608eb\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:



COMMENTS: _____________________________________________________________


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  ********************************************
  ** SIMULATION : Run 04: 25yr 24hr SCS Barrie  **
  ********************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              7c8e810f-ec01-439c-a075-3a414101d737\349c9367
| Ptotal= 95.55 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.97 |  6.20    1.95 | 12.20   19.48 | 18.20    1.95
                0.40    0.97 |  6.40    1.95 | 12.40   12.18 | 18.40    1.95
                0.60    0.97 |  6.60    1.95 | 12.60    8.76 | 18.60    1.95
                0.80    0.97 |  6.80    1.95 | 12.80    8.28 | 18.80    1.95
                1.00    0.97 |  7.00    1.95 | 13.00    5.83 | 19.00    1.95
                1.20    0.97 |  7.20    1.95 | 13.20    4.88 | 19.20    1.46
                1.40    0.97 |  7.40    1.95 | 13.40    4.88 | 19.40    1.46
                1.60    0.97 |  7.60    1.95 | 13.60    4.88 | 19.60    1.46
                1.80    0.97 |  7.80    1.95 | 13.80    4.88 | 19.80    1.46
                2.00    0.97 |  8.00    1.95 | 14.00    4.88 | 20.00    1.46
                2.20    0.97 |  8.20    2.93 | 14.20    2.92 | 20.20    1.46
                2.40    0.97 |  8.40    2.93 | 14.40    2.92 | 20.40    1.46
                2.60    0.97 |  8.60    2.93 | 14.60    2.92 | 20.60    1.46
                2.80    0.97 |  8.80    2.93 | 14.80    2.92 | 20.80    1.46
                3.00    0.97 |  9.00    2.93 | 15.00    2.92 | 21.00    1.46
                3.20    0.97 |  9.20    2.93 | 15.20    2.92 | 21.20    0.97
                3.40    0.97 |  9.40    2.93 | 15.40    2.92 | 21.40    0.97
                3.60    0.97 |  9.60    2.93 | 15.60    2.92 | 21.60    0.97
                3.80    0.97 |  9.80    2.93 | 15.80    2.92 | 21.80    0.97
                4.00    0.97 | 10.00    2.93 | 16.00    2.92 | 22.00    0.97
                4.20    1.95 | 10.20    5.35 | 16.20    1.95 | 22.20    0.97
                4.40    1.95 | 10.40    5.35 | 16.40    1.95 | 22.40    0.97
                4.60    1.95 | 10.60    5.35 | 16.60    1.95 | 22.60    0.97
                4.80    1.95 | 10.80    5.35 | 16.80    1.95 | 22.80    0.97
                5.00    1.95 | 11.00    5.35 | 17.00    1.95 | 23.00    0.97
                5.20    1.95 | 11.20    7.30 | 17.20    1.95 | 23.20    0.97
                5.40    1.95 | 11.40   10.72 | 17.40    1.95 | 23.40    0.97
                5.60    1.95 | 11.60   24.35 | 17.60    1.95 | 23.60    0.97
                5.80    1.95 | 11.80   53.57 | 17.80    1.95 | 23.80    0.97
                6.00    1.95 | 12.00  100.81 | 18.00    1.95 | 24.00    0.97

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| CALIB           |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.39

        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    0.97 | 6.083    1.95 |12.083   19.49 | 18.08    1.95
             0.167    0.97 | 6.167    1.95 |12.167   19.48 | 18.17    1.95
             0.250    0.97 | 6.250    1.95 |12.250   15.10 | 18.25    1.95
             0.333    0.97 | 6.333    1.95 |12.333   12.18 | 18.33    1.95
             0.417    0.97 | 6.417    1.95 |12.417   11.50 | 18.42    1.95
             0.500    0.97 | 6.500    1.95 |12.500    8.76 | 18.50    1.95
             0.583    0.97 | 6.583    1.95 |12.583    8.76 | 18.58    1.95
             0.667    0.97 | 6.667    1.95 |12.667    8.38 | 18.67    1.95
             0.750    0.97 | 6.750    1.95 |12.750    8.28 | 18.75    1.95
             0.833    0.97 | 6.833    1.95 |12.833    7.30 | 18.83    1.95
             0.917    0.97 | 6.917    1.95 |12.917    5.83 | 18.92    1.95
             1.000    0.97 | 7.000    1.95 |13.000    5.83 | 19.00    1.95
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1.083	0.97	7.083	1.95	13.083	4.88	19.08	1.46
1.167	0.97	7.167	1.95	13.167	4.88	19.17	1.46
1.250	0.97	7.250	1.95	13.250	4.88	19.25	1.46
1.333	0.97	7.333	1.95	13.333	4.88	19.33	1.46
1.417	0.97	7.417	1.95	13.417	4.88	19.42	1.46
1.500	0.97	7.500	1.95	13.500	4.88	19.50	1.46
1.583	0.97	7.583	1.95	13.583	4.88	19.58	1.46
1.667	0.97	7.667	1.95	13.667	4.88	19.67	1.46
1.750	0.97	7.750	1.95	13.750	4.88	19.75	1.46
1.833	0.97	7.833	1.95	13.833	4.88	19.83	1.46
1.917	0.97	7.917	1.95	13.917	4.88	19.92	1.46
2.000	0.97	8.000	1.95	14.000	4.88	20.00	1.46
2.083	0.97	8.083	2.93	14.083	2.92	20.08	1.46
2.167	0.97	8.167	2.93	14.167	2.92	20.17	1.46
2.250	0.97	8.250	2.93	14.250	2.92	20.25	1.46
2.333	0.97	8.333	2.93	14.333	2.92	20.33	1.46
2.417	0.97	8.417	2.93	14.417	2.92	20.42	1.46
2.500	0.97	8.500	2.93	14.500	2.92	20.50	1.46
2.583	0.97	8.583	2.93	14.583	2.92	20.58	1.46
2.667	0.97	8.667	2.93	14.667	2.92	20.67	1.46
2.750	0.97	8.750	2.93	14.750	2.92	20.75	1.46
2.833	0.97	8.833	2.93	14.833	2.92	20.83	1.46
2.917	0.97	8.917	2.93	14.917	2.92	20.92	1.46
3.000	0.97	9.000	2.93	15.000	2.92	21.00	1.46
3.083	0.97	9.083	2.93	15.083	2.92	21.08	0.97
3.167	0.97	9.167	2.93	15.167	2.92	21.17	0.97
3.250	0.97	9.250	2.93	15.250	2.92	21.25	0.97
3.333	0.97	9.333	2.93	15.333	2.92	21.33	0.97
3.417	0.97	9.417	2.93	15.417	2.92	21.42	0.97
3.500	0.97	9.500	2.93	15.500	2.92	21.50	0.97
3.583	0.97	9.583	2.93	15.583	2.92	21.58	0.97
3.667	0.97	9.667	2.93	15.667	2.92	21.67	0.97
3.750	0.97	9.750	2.93	15.750	2.92	21.75	0.97
3.833	0.97	9.833	2.93	15.833	2.92	21.83	0.97
3.917	0.97	9.917	2.93	15.917	2.92	21.92	0.97
4.000	0.97	10.000	2.93	16.000	2.92	22.00	0.97
4.083	1.95	10.083	5.35	16.083	1.95	22.08	0.97
4.167	1.95	10.167	5.35	16.167	1.95	22.17	0.97
4.250	1.95	10.250	5.35	16.250	1.95	22.25	0.97
4.333	1.95	10.333	5.35	16.333	1.95	22.33	0.97
4.417	1.95	10.417	5.35	16.417	1.95	22.42	0.97
4.500	1.95	10.500	5.35	16.500	1.95	22.50	0.97
4.583	1.95	10.583	5.35	16.583	1.95	22.58	0.97
4.667	1.95	10.667	5.35	16.667	1.95	22.67	0.97
4.750	1.95	10.750	5.35	16.750	1.95	22.75	0.97
4.833	1.95	10.833	5.35	16.833	1.95	22.83	0.97
4.917	1.95	10.917	5.35	16.917	1.95	22.92	0.97
5.000	1.95	11.000	5.35	17.000	1.95	23.00	0.97
5.083	1.95	11.083	7.30	17.083	1.95	23.08	0.97
5.167	1.95	11.167	7.30	17.167	1.95	23.17	0.97
5.250	1.95	11.250	9.35	17.250	1.95	23.25	0.97
5.333	1.95	11.333	10.72	17.333	1.95	23.33	0.97
5.417	1.95	11.417	13.44	17.417	1.95	23.42	0.97
5.500	1.95	11.500	24.35	17.500	1.95	23.50	0.97
5.583	1.95	11.583	24.35	17.583	1.95	23.58	0.97
5.667	1.95	11.667	47.72	17.667	1.95	23.67	0.97
5.750	1.95	11.750	53.57	17.750	1.95	23.75	0.97
5.833	1.95	11.833	72.46	17.833	1.95	23.83	0.97
5.917	1.95	11.917	100.81	17.917	1.95	23.92	0.97
6.000	1.95	12.000	100.81	18.000	1.95	24.00	0.97

Unit Hyd Qpeak (cms)= 0.183

PEAK FLOW (cms)= 0.139 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 47.680
TOTAL RAINFALL (mm)= 95.546
RUNOFF COEFFICIENT = 0.499

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\7c8e810f-ec01-439c-a075-3a414101d737\349c9367
Ptotal= 95.55 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.97	6.20	1.95	12.20	19.48	18.20	1.95
0.40	0.97	6.40	1.95	12.40	12.18	18.40	1.95
0.60	0.97	6.60	1.95	12.60	8.76	18.60	1.95
0.80	0.97	6.80	1.95	12.80	8.28	18.80	1.95
1.00	0.97	7.00	1.95	13.00	5.83	19.00	1.95
1.20	0.97	7.20	1.95	13.20	4.88	19.20	1.46
1.40	0.97	7.40	1.95	13.40	4.88	19.40	1.46
1.60	0.97	7.60	1.95	13.60	4.88	19.60	1.46
1.80	0.97	7.80	1.95	13.80	4.88	19.80	1.46
2.00	0.97	8.00	1.95	14.00	4.88	20.00	1.46
2.20	0.97	8.20	2.93	14.20	2.92	20.20	1.46
2.40	0.97	8.40	2.93	14.40	2.92	20.40	1.46
2.60	0.97	8.60	2.93	14.60	2.92	20.60	1.46
2.80	0.97	8.80	2.93	14.80	2.92	20.80	1.46
3.00	0.97	9.00	2.93	15.00	2.92	21.00	1.46
3.20	0.97	9.20	2.93	15.20	2.92	21.20	0.97
3.40	0.97	9.40	2.93	15.40	2.92	21.40	0.97
3.60	0.97	9.60	2.93	15.60	2.92	21.60	0.97
3.80	0.97	9.80	2.93	15.80	2.92	21.80	0.97
4.00	0.97	10.00	2.93	16.00	2.92	22.00	0.97
4.20	1.95	10.20	5.35	16.20	1.95	22.20	0.97
4.40	1.95	10.40	5.35	16.40	1.95	22.40	0.97
4.60	1.95	10.60	5.35	16.60	1.95	22.60	0.97
4.80	1.95	10.80	5.35	16.80	1.95	22.80	0.97
5.00	1.95	11.00	5.35	17.00	1.95	23.00	0.97
5.20	1.95	11.20	7.30	17.20	1.95	23.20	0.97
5.40	1.95	11.40	10.72	17.40	1.95	23.40	0.97
5.60	1.95	11.60	24.35	17.60	1.95	23.60	0.97
5.80	1.95	11.80	53.57	17.80	1.95	23.80	0.97
6.00	1.95	12.00	100.81	18.00	1.95	24.00	0.97

CALIB	
STANDHYD (0101)	Area (ha)= 0.95
ID= 1 DT= 5.0 min	Total Imp(%)= 45.00 Dir. Conn.(%)= 20.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.43	0.52
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	5.00
Length	(m)=	20.00	30.00
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	0.97	6.083	1.95	12.083	19.49	18.08	1.95
0.167	0.97	6.167	1.95	12.167	19.48	18.17	1.95
0.250	0.97	6.250	1.95	12.250	15.10	18.25	1.95
0.333	0.97	6.333	1.95	12.333	12.18	18.33	1.95
0.417	0.97	6.417	1.95	12.417	11.50	18.42	1.95
0.500	0.97	6.500	1.95	12.500	8.76	18.50	1.95
0.583	0.97	6.583	1.95	12.583	8.76	18.58	1.95
0.667	0.97	6.667	1.95	12.667	8.38	18.67	1.95

```
 0.750    0.97 | 6.750    1.95 |12.750    8.28 | 18.75    1.95
 0.833    0.97 | 6.833    1.95 |12.833    7.30 | 18.83    1.95
 0.917    0.97 | 6.917    1.95 |12.917    5.83 | 18.92    1.95
 1.000    0.97 | 7.000    1.95 |13.000    5.83 | 19.00    1.95
 1.083    0.97 | 7.083    1.95 |13.083    4.88 | 19.08    1.46
 1.167    0.97 | 7.167    1.95 |13.167    4.88 | 19.17    1.46
 1.250    0.97 | 7.250    1.95 |13.250    4.88 | 19.25    1.46
 1.333    0.97 | 7.333    1.95 |13.333    4.88 | 19.33    1.46
 1.417    0.97 | 7.417    1.95 |13.417    4.88 | 19.42    1.46
 1.500    0.97 | 7.500    1.95 |13.500    4.88 | 19.50    1.46
 1.583    0.97 | 7.583    1.95 |13.583    4.88 | 19.58    1.46
 1.667    0.97 | 7.667    1.95 |13.667    4.88 | 19.67    1.46
 1.750    0.97 | 7.750    1.95 |13.750    4.88 | 19.75    1.46
 1.833    0.97 | 7.833    1.95 |13.833    4.88 | 19.83    1.46
 1.917    0.97 | 7.917    1.95 |13.917    4.88 | 19.92    1.46
 2.000    0.97 | 8.000    1.95 |14.000    4.88 | 20.00    1.46
 2.083    0.97 | 8.083    2.93 |14.083    2.92 | 20.08    1.46
 2.167    0.97 | 8.167    2.93 |14.167    2.92 | 20.17    1.46
 2.250    0.97 | 8.250    2.93 |14.250    2.92 | 20.25    1.46
 2.333    0.97 | 8.333    2.93 |14.333    2.92 | 20.33    1.46
 2.417    0.97 | 8.417    2.93 |14.417    2.92 | 20.42    1.46
 2.500    0.97 | 8.500    2.93 |14.500    2.92 | 20.50    1.46
 2.583    0.97 | 8.583    2.93 |14.583    2.92 | 20.58    1.46
 2.667    0.97 | 8.667    2.93 |14.667    2.92 | 20.67    1.46
 2.750    0.97 | 8.750    2.93 |14.750    2.92 | 20.75    1.46
 2.833    0.97 | 8.833    2.93 |14.833    2.92 | 20.83    1.46
 2.917    0.97 | 8.917    2.93 |14.917    2.92 | 20.92    1.46
 3.000    0.97 | 9.000    2.93 |15.000    2.92 | 21.00    1.46
 3.083    0.97 | 9.083    2.93 |15.083    2.92 | 21.08    0.97
 3.167    0.97 | 9.167    2.93 |15.167    2.92 | 21.17    0.97
 3.250    0.97 | 9.250    2.93 |15.250    2.92 | 21.25    0.97
 3.333    0.97 | 9.333    2.93 |15.333    2.92 | 21.33    0.97
 3.417    0.97 | 9.417    2.93 |15.417    2.92 | 21.42    0.97
 3.500    0.97 | 9.500    2.93 |15.500    2.92 | 21.50    0.97
 3.583    0.97 | 9.583    2.93 |15.583    2.92 | 21.58    0.97
 3.667    0.97 | 9.667    2.93 |15.667    2.92 | 21.67    0.97
 3.750    0.97 | 9.750    2.93 |15.750    2.92 | 21.75    0.97
 3.833    0.97 | 9.833    2.93 |15.833    2.92 | 21.83    0.97
 3.917    0.97 | 9.917    2.93 |15.917    2.92 | 21.92    0.97
 4.000    0.97 |10.000    2.93 |16.000    2.92 | 22.00    0.97
 4.083    1.95 |10.083    5.35 |16.083    1.95 | 22.08    0.97
 4.167    1.95 |10.167    5.35 |16.167    1.95 | 22.17    0.97
 4.250    1.95 |10.250    5.35 |16.250    1.95 | 22.25    0.97
 4.333    1.95 |10.333    5.35 |16.333    1.95 | 22.33    0.97
 4.417    1.95 |10.417    5.35 |16.417    1.95 | 22.42    0.97
 4.500    1.95 |10.500    5.35 |16.500    1.95 | 22.50    0.97
 4.583    1.95 |10.583    5.35 |16.583    1.95 | 22.58    0.97
 4.667    1.95 |10.667    5.35 |16.667    1.95 | 22.67    0.97
 4.750    1.95 |10.750    5.35 |16.750    1.95 | 22.75    0.97
 4.833    1.95 |10.833    5.35 |16.833    1.95 | 22.83    0.97
 4.917    1.95 |10.917    5.35 |16.917    1.95 | 22.92    0.97
 5.000    1.95 |11.000    5.35 |17.000    1.95 | 23.00    0.97
 5.083    1.95 |11.083    7.30 |17.083    1.95 | 23.08    0.97
 5.167    1.95 |11.167    7.30 |17.167    1.95 | 23.17    0.97
 5.250    1.95 |11.250    9.35 |17.250    1.95 | 23.25    0.97
 5.333    1.95 |11.333   10.72 |17.333    1.95 | 23.33    0.97
 5.417    1.95 |11.417   13.44 |17.417    1.95 | 23.42    0.97
 5.500    1.95 |11.500   24.35 |17.500    1.95 | 23.50    0.97
 5.583    1.95 |11.583   24.35 |17.583    1.95 | 23.58    0.97
 5.667    1.95 |11.667   47.72 |17.667    1.95 | 23.67    0.97
 5.750    1.95 |11.750   53.57 |17.750    1.95 | 23.75    0.97
 5.833    1.95 |11.833   72.46 |17.833    1.95 | 23.83    0.97
 5.917    1.95 |11.917  100.81 |17.917    1.95 | 23.92    0.97
 6.000    1.95 |12.000  100.81 |18.000    1.95 | 24.00    0.97

Max.Eff.Inten.(mm/hr)=     100.81       43.43
          over (min)         5.00       10.00
Storage Coeff.  (min)=       0.97 (ii)   7.27 (ii)
Unit Hyd. Tpeak (min)=       5.00       10.00
Unit Hyd. peak  (cms)=       0.34        0.14
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                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.05          0.101 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00          12.00
     RUNOFF VOLUME    (mm)=      93.55        23.96          37.87
     TOTAL RAINFALL   (mm)=      95.55        95.55          95.55
     RUNOFF COEFFICIENT   =       0.98         0.25           0.40

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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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================================================================================
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      V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\3edf33b8-bab3-4a12-b273-4e917aa20033\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\3edf33b8-bab3-4a12-b273-4e917aa20033\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:



COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : Run 05: 50yr 24hr SCS Barrie  **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              7c8e810f-ec01-439c-a075-3a414101d737\e07e5647
| Ptotal=108.06 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20
0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

CALIB			
NASHYD (0103)	Area (ha)=	1.87	Curve Number (CN)= 77.0
ID= 1 DT= 5.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.39	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

Unit Hyd Qpeak (cms)= 0.183

PEAK FLOW (cms)= 0.169 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 57.719
TOTAL RAINFALL (mm)= 108.064
RUNOFF COEFFICIENT = 0.534

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\7c8e810f-ec01-439c-a075-3a414101d737\e07e5647
Ptotal=108.06 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20

0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

CALIB	
STANDHYD (0101)	Area (ha)= 0.95
ID= 1 DT= 5.0 min	Total Imp(%)= 45.00 Dir. Conn.(%)= 20.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.43	0.52
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	5.00
Length	(m)=	20.00	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

Max.Eff.Inten.(mm/hr)=	114.06	54.22		
over (min)	5.00	10.00		
Storage Coeff. (min)=	0.92 (ii)	6.69 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.34	0.14		
				TOTALS
PEAK FLOW (cms)=	0.06	0.06		0.122 (iii)
TIME TO PEAK (hrs)=	12.00	12.00		12.00
RUNOFF VOLUME (mm)=	106.06	29.86		45.10
TOTAL RAINFALL (mm)=	108.06	108.06		108.06
RUNOFF COEFFICIENT =	0.98	0.28		0.42

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)

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      (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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       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\1a8c00e4-edc5-4536-a512-ef729de3d0c4\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\1a8c00e4-edc5-4536-a512-ef729de3d0c4\scena

DATE: 01-09-2019                          TIME: 03:02:47

USER:


COMMENTS: _____________________________________________________

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  ************************************************
  ** SIMULATION : Run 06: 100yr 24hr SCS Barrie **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              7c8e810f-ec01-439c-a075-3a414101d737\3d6f8854
| Ptotal=120.68 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    1.23 |  6.20    2.46 | 12.20   24.60 | 18.20    2.46
                0.40    1.23 |  6.40    2.46 | 12.40   15.38 | 18.40    2.46
                0.60    1.23 |  6.60    2.46 | 12.60   11.07 | 18.60    2.46
                0.80    1.23 |  6.80    2.46 | 12.80   10.46 | 18.80    2.46
                1.00    1.23 |  7.00    2.46 | 13.00    7.38 | 19.00    2.46
                1.20    1.23 |  7.20    2.46 | 13.20    6.15 | 19.20    1.84
                1.40    1.23 |  7.40    2.46 | 13.40    6.15 | 19.40    1.84
                1.60    1.23 |  7.60    2.46 | 13.60    6.15 | 19.60    1.84
                1.80    1.23 |  7.80    2.46 | 13.80    6.15 | 19.80    1.84
                2.00    1.23 |  8.00    2.46 | 14.00    6.15 | 20.00    1.84
                2.20    1.23 |  8.20    3.70 | 14.20    3.70 | 20.20    1.84
                2.40    1.23 |  8.40    3.70 | 14.40    3.70 | 20.40    1.84
                2.60    1.23 |  8.60    3.70 | 14.60    3.70 | 20.60    1.84
                2.80    1.23 |  8.80    3.70 | 14.80    3.70 | 20.80    1.84
                3.00    1.23 |  9.00    3.70 | 15.00    3.70 | 21.00    1.84
                3.20    1.23 |  9.20    3.70 | 15.20    3.70 | 21.20    1.23
                3.40    1.23 |  9.40    3.70 | 15.40    3.70 | 21.40    1.23
                3.60    1.23 |  9.60    3.70 | 15.60    3.70 | 21.60    1.23
                3.80    1.23 |  9.80    3.70 | 15.80    3.70 | 21.80    1.23
                4.00    1.23 | 10.00    3.70 | 16.00    3.70 | 22.00    1.23
                4.20    2.46 | 10.20    6.75 | 16.20    2.46 | 22.20    1.23
                4.40    2.46 | 10.40    6.75 | 16.40    2.46 | 22.40    1.23
                4.60    2.46 | 10.60    6.75 | 16.60    2.46 | 22.60    1.23
                4.80    2.46 | 10.80    6.75 | 16.80    2.46 | 22.80    1.23
                5.00    2.46 | 11.00    6.75 | 17.00    2.46 | 23.00    1.23
                5.20    2.46 | 11.20    9.22 | 17.20    2.46 | 23.20    1.23
                5.40    2.46 | 11.40   13.53 | 17.40    2.46 | 23.40    1.23
                5.60    2.46 | 11.60   30.75 | 17.60    2.46 | 23.60    1.23
                5.80    2.46 | 11.80   67.65 | 17.80    2.46 | 23.80    1.23
                6.00    2.46 | 12.00  127.30 | 18.00    2.46 | 24.00    1.23

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| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

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


                        ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    1.23 | 6.083    2.46 |12.083   24.61 | 18.08    2.46
                0.167    1.23 | 6.167    2.46 |12.167   24.60 | 18.17    2.46
                0.250    1.23 | 6.250    2.46 |12.250   19.07 | 18.25    2.46
                0.333    1.23 | 6.333    2.46 |12.333   15.38 | 18.33    2.46
                0.417    1.23 | 6.417    2.46 |12.417   14.52 | 18.42    2.46
                0.500    1.23 | 6.500    2.46 |12.500   11.07 | 18.50    2.46
                0.583    1.23 | 6.583    2.46 |12.583   11.07 | 18.58    2.46
                0.667    1.23 | 6.667    2.46 |12.667   10.58 | 18.67    2.46
                0.750    1.23 | 6.750    2.46 |12.750   10.46 | 18.75    2.46
                0.833    1.23 | 6.833    2.46 |12.833    9.23 | 18.83    2.46
                0.917    1.23 | 6.917    2.46 |12.917    7.38 | 18.92    2.46
                1.000    1.23 | 7.000    2.46 |13.000    7.38 | 19.00    2.46
                1.083    1.23 | 7.083    2.46 |13.083    6.15 | 19.08    1.84
                1.167    1.23 | 7.167    2.46 |13.167    6.15 | 19.17    1.84
                1.250    1.23 | 7.250    2.46 |13.250    6.15 | 19.25    1.84
                1.333    1.23 | 7.333    2.46 |13.333    6.15 | 19.33    1.84
                1.417    1.23 | 7.417    2.46 |13.417    6.15 | 19.42    1.84
                1.500    1.23 | 7.500    2.46 |13.500    6.15 | 19.50    1.84
                1.583    1.23 | 7.583    2.46 |13.583    6.15 | 19.58    1.84
                1.667    1.23 | 7.667    2.46 |13.667    6.15 | 19.67    1.84
                1.750    1.23 | 7.750    2.46 |13.750    6.15 | 19.75    1.84
                1.833    1.23 | 7.833    2.46 |13.833    6.15 | 19.83    1.84
                1.917    1.23 | 7.917    2.46 |13.917    6.15 | 19.92    1.84
                2.000    1.23 | 8.000    2.46 |14.000    6.15 | 20.00    1.84
                2.083    1.23 | 8.083    3.70 |14.083    3.70 | 20.08    1.84
                2.167    1.23 | 8.167    3.70 |14.167    3.70 | 20.17    1.84
                2.250    1.23 | 8.250    3.70 |14.250    3.70 | 20.25    1.84
                2.333    1.23 | 8.333    3.70 |14.333    3.70 | 20.33    1.84
                2.417    1.23 | 8.417    3.70 |14.417    3.70 | 20.42    1.84
                2.500    1.23 | 8.500    3.70 |14.500    3.70 | 20.50    1.84
                2.583    1.23 | 8.583    3.70 |14.583    3.70 | 20.58    1.84
                2.667    1.23 | 8.667    3.70 |14.667    3.70 | 20.67    1.84
                2.750    1.23 | 8.750    3.70 |14.750    3.70 | 20.75    1.84
                2.833    1.23 | 8.833    3.70 |14.833    3.70 | 20.83    1.84
                2.917    1.23 | 8.917    3.70 |14.917    3.70 | 20.92    1.84
                3.000    1.23 | 9.000    3.70 |15.000    3.70 | 21.00    1.84
                3.083    1.23 | 9.083    3.70 |15.083    3.70 | 21.08    1.23
                3.167    1.23 | 9.167    3.70 |15.167    3.70 | 21.17    1.23
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3.250	1.23	9.250	3.70	15.250	3.70	21.25	1.23
3.333	1.23	9.333	3.70	15.333	3.70	21.33	1.23
3.417	1.23	9.417	3.70	15.417	3.70	21.42	1.23
3.500	1.23	9.500	3.70	15.500	3.70	21.50	1.23
3.583	1.23	9.583	3.70	15.583	3.70	21.58	1.23
3.667	1.23	9.667	3.70	15.667	3.70	21.67	1.23
3.750	1.23	9.750	3.70	15.750	3.70	21.75	1.23
3.833	1.23	9.833	3.70	15.833	3.70	21.83	1.23
3.917	1.23	9.917	3.70	15.917	3.70	21.92	1.23
4.000	1.23	10.000	3.70	16.000	3.70	22.00	1.23
4.083	2.46	10.083	6.75	16.083	2.46	22.08	1.23
4.167	2.46	10.167	6.75	16.167	2.46	22.17	1.23
4.250	2.46	10.250	6.75	16.250	2.46	22.25	1.23
4.333	2.46	10.333	6.75	16.333	2.46	22.33	1.23
4.417	2.46	10.417	6.75	16.417	2.46	22.42	1.23
4.500	2.46	10.500	6.75	16.500	2.46	22.50	1.23
4.583	2.46	10.583	6.75	16.583	2.46	22.58	1.23
4.667	2.46	10.667	6.75	16.667	2.46	22.67	1.23
4.750	2.46	10.750	6.75	16.750	2.46	22.75	1.23
4.833	2.46	10.833	6.75	16.833	2.46	22.83	1.23
4.917	2.46	10.917	6.75	16.917	2.46	22.92	1.23
5.000	2.46	11.000	6.75	17.000	2.46	23.00	1.23
5.083	2.46	11.083	9.22	17.083	2.46	23.08	1.23
5.167	2.46	11.167	9.22	17.167	2.46	23.17	1.23
5.250	2.46	11.250	11.81	17.250	2.46	23.25	1.23
5.333	2.46	11.333	13.53	17.333	2.46	23.33	1.23
5.417	2.46	11.417	16.97	17.417	2.46	23.42	1.23
5.500	2.46	11.500	30.75	17.500	2.46	23.50	1.23
5.583	2.46	11.583	30.75	17.583	2.46	23.58	1.23
5.667	2.46	11.667	60.27	17.667	2.46	23.67	1.23
5.750	2.46	11.750	67.65	17.750	2.46	23.75	1.23
5.833	2.46	11.833	91.50	17.833	2.46	23.83	1.23
5.917	2.46	11.917	127.30	17.917	2.46	23.92	1.23
6.000	2.46	12.000	127.30	18.000	2.46	24.00	1.23

Unit Hyd Qpeak (cms)= 0.183

PEAK FLOW (cms)= 0.200 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 68.167
TOTAL RAINFALL (mm)= 120.678
RUNOFF COEFFICIENT = 0.565

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

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\7c8e810f-ec01-439c-a075-3a414101d737\3d6f8854
Ptotal=120.68 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.23	6.20	2.46	12.20	24.60	18.20	2.46
0.40	1.23	6.40	2.46	12.40	15.38	18.40	2.46
0.60	1.23	6.60	2.46	12.60	11.07	18.60	2.46
0.80	1.23	6.80	2.46	12.80	10.46	18.80	2.46
1.00	1.23	7.00	2.46	13.00	7.38	19.00	2.46
1.20	1.23	7.20	2.46	13.20	6.15	19.20	1.84
1.40	1.23	7.40	2.46	13.40	6.15	19.40	1.84
1.60	1.23	7.60	2.46	13.60	6.15	19.60	1.84
1.80	1.23	7.80	2.46	13.80	6.15	19.80	1.84
2.00	1.23	8.00	2.46	14.00	6.15	20.00	1.84
2.20	1.23	8.20	3.70	14.20	3.70	20.20	1.84
2.40	1.23	8.40	3.70	14.40	3.70	20.40	1.84
2.60	1.23	8.60	3.70	14.60	3.70	20.60	1.84
2.80	1.23	8.80	3.70	14.80	3.70	20.80	1.84
3.00	1.23	9.00	3.70	15.00	3.70	21.00	1.84
3.20	1.23	9.20	3.70	15.20	3.70	21.20	1.23
3.40	1.23	9.40	3.70	15.40	3.70	21.40	1.23
3.60	1.23	9.60	3.70	15.60	3.70	21.60	1.23
3.80	1.23	9.80	3.70	15.80	3.70	21.80	1.23
4.00	1.23	10.00	3.70	16.00	3.70	22.00	1.23
4.20	2.46	10.20	6.75	16.20	2.46	22.20	1.23
4.40	2.46	10.40	6.75	16.40	2.46	22.40	1.23
4.60	2.46	10.60	6.75	16.60	2.46	22.60	1.23
4.80	2.46	10.80	6.75	16.80	2.46	22.80	1.23
5.00	2.46	11.00	6.75	17.00	2.46	23.00	1.23
5.20	2.46	11.20	9.22	17.20	2.46	23.20	1.23
5.40	2.46	11.40	13.53	17.40	2.46	23.40	1.23
5.60	2.46	11.60	30.75	17.60	2.46	23.60	1.23
5.80	2.46	11.80	67.65	17.80	2.46	23.80	1.23
6.00	2.46	12.00	127.30	18.00	2.46	24.00	1.23

CALIB | STANDHYD (0101)| ID= 1 DT= 5.0 min | Area (ha)= 0.95 Total Imp(%)= 45.00 Dir. Conn.(%)= 20.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.43	0.52
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	5.00
Length	(m)=	20.00	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.23	6.083	2.46	12.083	24.61	18.08	2.46
0.167	1.23	6.167	2.46	12.167	24.60	18.17	2.46
0.250	1.23	6.250	2.46	12.250	19.07	18.25	2.46
0.333	1.23	6.333	2.46	12.333	15.38	18.33	2.46
0.417	1.23	6.417	2.46	12.417	14.52	18.42	2.46
0.500	1.23	6.500	2.46	12.500	11.07	18.50	2.46
0.583	1.23	6.583	2.46	12.583	11.07	18.58	2.46
0.667	1.23	6.667	2.46	12.667	10.58	18.67	2.46
0.750	1.23	6.750	2.46	12.750	10.46	18.75	2.46
0.833	1.23	6.833	2.46	12.833	9.23	18.83	2.46
0.917	1.23	6.917	2.46	12.917	7.38	18.92	2.46
1.000	1.23	7.000	2.46	13.000	7.38	19.00	2.46
1.083	1.23	7.083	2.46	13.083	6.15	19.08	1.84
1.167	1.23	7.167	2.46	13.167	6.15	19.17	1.84
1.250	1.23	7.250	2.46	13.250	6.15	19.25	1.84
1.333	1.23	7.333	2.46	13.333	6.15	19.33	1.84
1.417	1.23	7.417	2.46	13.417	6.15	19.42	1.84
1.500	1.23	7.500	2.46	13.500	6.15	19.50	1.84
1.583	1.23	7.583	2.46	13.583	6.15	19.58	1.84
1.667	1.23	7.667	2.46	13.667	6.15	19.67	1.84
1.750	1.23	7.750	2.46	13.750	6.15	19.75	1.84
1.833	1.23	7.833	2.46	13.833	6.15	19.83	1.84
1.917	1.23	7.917	2.46	13.917	6.15	19.92	1.84
2.000	1.23	8.000	2.46	14.000	6.15	20.00	1.84
2.083	1.23	8.083	3.70	14.083	3.70	20.08	1.84
2.167	1.23	8.167	3.70	14.167	3.70	20.17	1.84
2.250	1.23	8.250	3.70	14.250	3.70	20.25	1.84
2.333	1.23	8.333	3.70	14.333	3.70	20.33	1.84
2.417	1.23	8.417	3.70	14.417	3.70	20.42	1.84
2.500	1.23	8.500	3.70	14.500	3.70	20.50	1.84
2.583	1.23	8.583	3.70	14.583	3.70	20.58	1.84
2.667	1.23	8.667	3.70	14.667	3.70	20.67	1.84
2.750	1.23	8.750	3.70	14.750	3.70	20.75	1.84
2.833	1.23	8.833	3.70	14.833	3.70	20.83	1.84

```
              2.917    1.23 | 8.917    3.70 |14.917    3.70 | 20.92    1.84
              3.000    1.23 | 9.000    3.70 |15.000    3.70 | 21.00    1.84
              3.083    1.23 | 9.083    3.70 |15.083    3.70 | 21.08    1.23
              3.167    1.23 | 9.167    3.70 |15.167    3.70 | 21.17    1.23
              3.250    1.23 | 9.250    3.70 |15.250    3.70 | 21.25    1.23
              3.333    1.23 | 9.333    3.70 |15.333    3.70 | 21.33    1.23
              3.417    1.23 | 9.417    3.70 |15.417    3.70 | 21.42    1.23
              3.500    1.23 | 9.500    3.70 |15.500    3.70 | 21.50    1.23
              3.583    1.23 | 9.583    3.70 |15.583    3.70 | 21.58    1.23
              3.667    1.23 | 9.667    3.70 |15.667    3.70 | 21.67    1.23
              3.750    1.23 | 9.750    3.70 |15.750    3.70 | 21.75    1.23
              3.833    1.23 | 9.833    3.70 |15.833    3.70 | 21.83    1.23
              3.917    1.23 | 9.917    3.70 |15.917    3.70 | 21.92    1.23
              4.000    1.23 |10.000    3.70 |16.000    3.70 | 22.00    1.23
              4.083    2.46 |10.083    6.75 |16.083    2.46 | 22.08    1.23
              4.167    2.46 |10.167    6.75 |16.167    2.46 | 22.17    1.23
              4.250    2.46 |10.250    6.75 |16.250    2.46 | 22.25    1.23
              4.333    2.46 |10.333    6.75 |16.333    2.46 | 22.33    1.23
              4.417    2.46 |10.417    6.75 |16.417    2.46 | 22.42    1.23
              4.500    2.46 |10.500    6.75 |16.500    2.46 | 22.50    1.23
              4.583    2.46 |10.583    6.75 |16.583    2.46 | 22.58    1.23
              4.667    2.46 |10.667    6.75 |16.667    2.46 | 22.67    1.23
              4.750    2.46 |10.750    6.75 |16.750    2.46 | 22.75    1.23
              4.833    2.46 |10.833    6.75 |16.833    2.46 | 22.83    1.23
              4.917    2.46 |10.917    6.75 |16.917    2.46 | 22.92    1.23
              5.000    2.46 |11.000    6.75 |17.000    2.46 | 23.00    1.23
              5.083    2.46 |11.083    9.22 |17.083    2.46 | 23.08    1.23
              5.167    2.46 |11.167    9.22 |17.167    2.46 | 23.17    1.23
              5.250    2.46 |11.250   11.81 |17.250    2.46 | 23.25    1.23
              5.333    2.46 |11.333   13.53 |17.333    2.46 | 23.33    1.23
              5.417    2.46 |11.417   16.97 |17.417    2.46 | 23.42    1.23
              5.500    2.46 |11.500   30.75 |17.500    2.46 | 23.50    1.23
              5.583    2.46 |11.583   30.75 |17.583    2.46 | 23.58    1.23
              5.667    2.46 |11.667   60.27 |17.667    2.46 | 23.67    1.23
              5.750    2.46 |11.750   67.65 |17.750    2.46 | 23.75    1.23
              5.833    2.46 |11.833   91.50 |17.833    2.46 | 23.83    1.23
              5.917    2.46 |11.917  127.30 |17.917    2.46 | 23.92    1.23
              6.000    2.46 |12.000  127.30 |18.000    2.46 | 24.00    1.23

     Max.Eff.Inten.(mm/hr)=     127.30        65.86
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.88 (ii)    6.22 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.15
                                                  *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.08          0.144 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00          12.00
     RUNOFF VOLUME    (mm)=     118.68        36.25          52.73
     TOTAL RAINFALL   (mm)=     120.68       120.68         120.68
     RUNOFF COEFFICIENT   =       0.98         0.30           0.44

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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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       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\b5a5ec2b-3098-4b12-87fa-5a4df490e2cb\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\b5a5ec2b-3098-4b12-87fa-5a4df490e2cb\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:



COMMENTS: _____________________________________________________


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  ************************************************
  ** SIMULATION : Run 07: 2yr 4hr Chicago Innis **
  ************************************************

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| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
--------------------                          C=   0.781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
                0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
                0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
                0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
                0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
                1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15


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| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

        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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
                0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
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              0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
              0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
              0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
              0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
              0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
              0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
              0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
              0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
              0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
              1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Unit Hyd Qpeak  (cms)=   0.183

     PEAK FLOW       (cms)=   0.029 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=   8.478
     TOTAL RAINFALL   (mm)=  36.955
     RUNOFF COEFFICIENT   =   0.229

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

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-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
                0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
                0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
                0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
                0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
                1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15


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-------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.43         0.52
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         5.00
     Length            (m)=      20.00        30.00
     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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
               0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
               0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
               0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
               0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
               0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
               0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
               0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
               0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
               0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
               0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
               1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Max.Eff.Inten.(mm/hr)=      83.11         7.83
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.05 (ii)   13.54 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.01          0.047 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      34.96         3.80          10.02
     TOTAL RAINFALL   (mm)=      36.96        36.96          36.96
     RUNOFF COEFFICIENT   =       0.95         0.10           0.27

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\4c02f501-e388-457b-845f-3614bb3a1179\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\4c02f501-e388-457b-845f-3614bb3a1179\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:


COMMENTS: _____


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  ************************************************
  ** SIMULATION : Run 08: 5yr 4hr Chicago Innis **
  ************************************************
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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

    Unit Hyd Qpeak  (cms)=   0.183

    PEAK FLOW       (cms)=   0.056 (i)
    TIME TO PEAK    (hrs)=   1.833
    RUNOFF VOLUME    (mm)=  15.862
    TOTAL RAINFALL   (mm)=  50.521
    RUNOFF COEFFICIENT   =   0.314

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


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--------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.43         0.52
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.00         5.00
     Length            (m)=     20.00        30.00
     Mannings n          =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Max.Eff.Inten.(mm/hr)=     108.92        17.63
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      0.94 (ii)    9.97 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.34         0.11
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.06         0.02      0.070 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.42       1.33
     RUNOFF VOLUME    (mm)=     48.52         7.17      15.44
     TOTAL RAINFALL   (mm)=     50.52        50.52      50.52
     RUNOFF COEFFICIENT   =      0.96         0.14       0.31

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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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      V    V   I    SSSSS  U   U    A    L              (v 5.1.2000)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL
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       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\882e5147-3010-476a-9950-f33a448961da\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\882e5147-3010-476a-9950-f33a448961da\scena

DATE: 01-09-2019                          TIME: 03:02:47

USER:


COMMENTS: _____________________________________________________

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  ************************************************
  ** SIMULATION : Run 09: 10yr 4hr Chicago Inni **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77


-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

    Unit Hyd Qpeak  (cms)=   0.183

    PEAK FLOW       (cms)=   0.077 (i)
    TIME TO PEAK    (hrs)=   1.750
    RUNOFF VOLUME    (mm)=  21.594
    TOTAL RAINFALL   (mm)=  59.695
    RUNOFF COEFFICIENT   =   0.362

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77


-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
--------------------

                               IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       0.43          0.52
    Dep. Storage     (mm)=       2.00          5.00
    Average Slope     (%)=       1.00          5.00
    Length            (m)=      20.00         30.00
    Mannings n           =      0.013         0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
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              0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
              0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
              1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Max.Eff.Inten.(mm/hr)=     126.55        24.44
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.89 (ii)    8.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.02          0.085 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      57.69         9.95          19.49
     TOTAL RAINFALL   (mm)=      59.69        59.69          59.69
     RUNOFF COEFFICIENT   =       0.97         0.17           0.33

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\f75c7af0-0825-487a-a327-a91148378039\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\f75c7af0-0825-487a-a327-a91148378039\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:



COMMENTS: _____________________________________________________


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  ************************************************
  ** SIMULATION : Run 10: 25yr 4hr Chicago Inni **
  ************************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
-------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57

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-------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.39

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

                                ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
                0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
                0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
                0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
                0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
                0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
                0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
                0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
                0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
                0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
                0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
                1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Unit Hyd Qpeak  (cms)=   0.183

     PEAK FLOW       (cms)=   0.107 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=  29.446
     TOTAL RAINFALL   (mm)=  71.236
     RUNOFF COEFFICIENT   =   0.413

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

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-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
-------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
```

```
               0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
               0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
               0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
               0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
               1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.43         0.52
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.00         5.00
     Length            (m)=     20.00        30.00
     Mannings n           =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
              0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
              0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
              0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
              0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
              0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
              0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
              0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
              0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
              0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
              0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
              1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Max.Eff.Inten.(mm/hr)=    148.15        34.18
                 over (min)       5.00        10.00
     Storage Coeff.  (min)=      0.83 (ii)    7.76 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.34         0.13
                                                    *TOTALS*
     PEAK FLOW       (cms)=      0.08         0.04          0.106 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=     69.24        13.94          25.00
     TOTAL RAINFALL   (mm)=     71.24        71.24          71.24
     RUNOFF COEFFICIENT   =      0.97         0.20           0.35

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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================================================================================
==============

       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\6470acc3-f8e1-4947-b133-fea42f7d1cb1\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\6470acc3-f8e1-4947-b133-fea42f7d1cb1\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
---------------
  ************************************************
  ** SIMULATION : Run 11: 50yr 4hr Chicago Inni **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
--------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
                  0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
                  0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
                  0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
                  0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
                  1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

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


                          ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
                 0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
```

```
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

     Unit Hyd Qpeak  (cms)=   0.183

     PEAK FLOW       (cms)=   0.129 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=  35.387
     TOTAL RAINFALL   (mm)=  79.453
     RUNOFF COEFFICIENT   =   0.445

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
-------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
                0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
                0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
                0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
                0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
                1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.43         0.52
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         5.00
     Length            (m)=      20.00        30.00
     Mannings n             =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
               0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
               0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
               0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
               0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
               0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
               0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
               0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
               0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
               0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
               0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
               1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

     Max.Eff.Inten.(mm/hr)=     164.22        42.12
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.80 (ii)    7.17 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.05          0.123 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      77.45        17.10          29.17
     TOTAL RAINFALL   (mm)=      79.45        79.45          79.45
     RUNOFF COEFFICIENT   =       0.97         0.22           0.37

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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       V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\1407a1a6-0062-483b-9e44-7fb90b8de493\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\1407a1a6-0062-483b-9e44-7fb90b8de493\scena


DATE: 01-09-2019                          TIME: 03:02:47

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
--------------
  ************************************************
  ** SIMULATION : Run 12: 100yr 4hr Chicago Inn **
  ************************************************
```

```
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
--------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0103)|   Area    (ha)=   1.87   Curve Number   (CN)= 77.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.39

        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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
               0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
               0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
               0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
               0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
               1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

    Unit Hyd Qpeak  (cms)=   0.183

    PEAK FLOW       (cms)=   0.154 (i)
    TIME TO PEAK    (hrs)=   1.750
    RUNOFF VOLUME    (mm)=  41.497
    TOTAL RAINFALL   (mm)=  87.580
    RUNOFF COEFFICIENT   =   0.474

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

--------------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
--------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  45.00   Dir. Conn.(%)=  20.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.43          0.52
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          5.00
     Length            (m)=      20.00         30.00
     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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
               0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
               0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
               0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
               0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
               1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Max.Eff.Inten.(mm/hr)=     180.15        50.69
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.77 (ii)    6.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.10         0.06      0.140 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42       1.33
     RUNOFF VOLUME    (mm)=      85.58        20.46      33.48
     TOTAL RAINFALL   (mm)=      87.58        87.58      87.58
     RUNOFF COEFFICIENT   =       0.98         0.23       0.38

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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 FINISH
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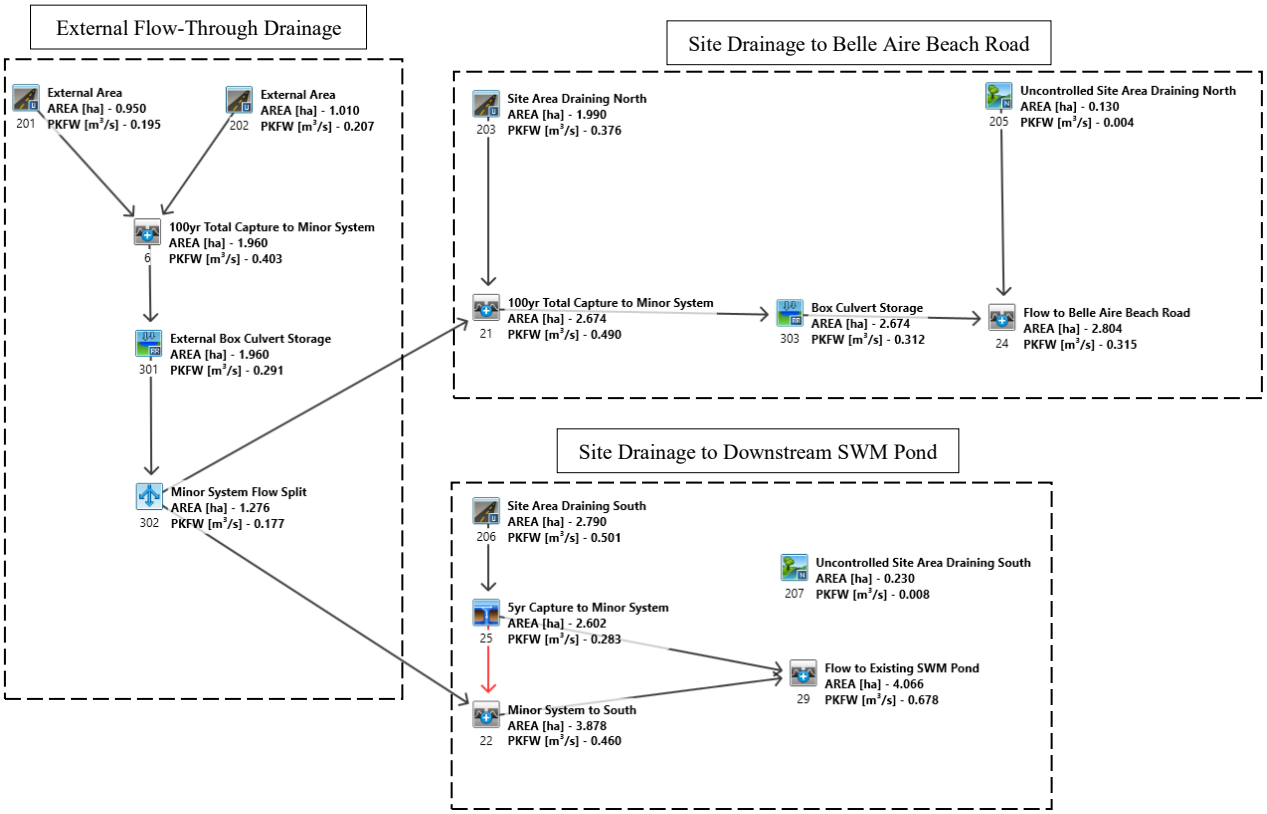

Figure E.2: VO5 Model Schematic – Proposed Condition

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================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\9b3003d4-2eda-4cad-9e91-66bf232fb58e\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\9b3003d4-2eda-4cad-9e91-66bf232fb58e\scena


DATE: 01-09-2019                          TIME: 03:04:47

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------------------------
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  ************************************************
  ** SIMULATION : Run 01: 25mmchi               **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e5dec74c
| Ptotal= 25.02 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    2.17 |  1.17    6.20 |  2.17    5.62 |  3.17    2.95
                0.33    2.38 |  1.33   12.18 |  2.33    4.80 |  3.33    2.76
                0.50    2.66 |  1.50   41.67 |  2.50    4.21 |  3.50    2.62
                0.67    3.03 |  1.67   15.28 |  2.67    3.78 |  3.67    2.47
                0.83    3.58 |  1.83    9.22 |  2.83    3.45 |  3.83    2.35
                1.00    4.47 |  2.00    6.88 |  3.00    3.18 |  4.00    2.23

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


--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

        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    2.17 | 1.083    6.20 | 2.083    5.62 |  3.08    2.95
               0.167    2.17 | 1.167    6.20 | 2.167    5.62 |  3.17    2.95
               0.250    2.38 | 1.250   12.18 | 2.250    4.80 |  3.25    2.76
               0.333    2.38 | 1.333   12.18 | 2.333    4.80 |  3.33    2.76
               0.417    2.66 | 1.417   41.67 | 2.417    4.21 |  3.42    2.62
               0.500    2.66 | 1.500   41.67 | 2.500    4.21 |  3.50    2.62
               0.583    3.03 | 1.583   15.28 | 2.583    3.78 |  3.58    2.47
               0.667    3.03 | 1.667   15.28 | 2.667    3.78 |  3.67    2.47
               0.750    3.58 | 1.750    9.22 | 2.750    3.45 |  3.75    2.35
               0.833    3.58 | 1.833    9.22 | 2.833    3.45 |  3.83    2.35
               0.917    4.47 | 1.917    6.88 | 2.917    3.18 |  3.92    2.23
               1.000    4.47 | 2.000    6.88 | 3.000    3.18 |  4.00    2.23

    Unit Hyd Qpeak  (cms)=   0.020

    PEAK FLOW       (cms)=   0.000 (i)
    TIME TO PEAK    (hrs)=   2.167
    RUNOFF VOLUME    (mm)=   0.995
    TOTAL RAINFALL   (mm)=  25.023
    RUNOFF COEFFICIENT   =   0.040

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

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--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e5dec74c
| Ptotal= 25.02 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    2.17 |  1.17    6.20 |  2.17    5.62 |  3.17    2.95
                0.33    2.38 |  1.33   12.18 |  2.33    4.80 |  3.33    2.76
                0.50    2.66 |  1.50   41.67 |  2.50    4.21 |  3.50    2.62
                0.67    3.03 |  1.67   15.28 |  2.67    3.78 |  3.67    2.47
                0.83    3.58 |  1.83    9.22 |  2.83    3.45 |  3.83    2.35
                1.00    4.47 |  2.00    6.88 |  3.00    3.18 |  4.00    2.23

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


--------------------
| CALIB            |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.47

        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    2.17 | 1.083    6.20 | 2.083    5.62 |  3.08    2.95
               0.167    2.17 | 1.167    6.20 | 2.167    5.62 |  3.17    2.95
               0.250    2.38 | 1.250   12.18 | 2.250    4.80 |  3.25    2.76
               0.333    2.38 | 1.333   12.18 | 2.333    4.80 |  3.33    2.76
               0.417    2.66 | 1.417   41.67 | 2.417    4.21 |  3.42    2.62
               0.500    2.66 | 1.500   41.67 | 2.500    4.21 |  3.50    2.62
               0.583    3.03 | 1.583   15.28 | 2.583    3.78 |  3.58    2.47
               0.667    3.03 | 1.667   15.28 | 2.667    3.78 |  3.67    2.47
               0.750    3.58 | 1.750    9.22 | 2.750    3.45 |  3.75    2.35
               0.833    3.58 | 1.833    9.22 | 2.833    3.45 |  3.83    2.35
               0.917    4.47 | 1.917    6.88 | 2.917    3.18 |  3.92    2.23
               1.000    4.47 | 2.000    6.88 | 3.000    3.18 |  4.00    2.23
```

```
     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.000 (i)
     TIME TO PEAK    (hrs)=   2.250
     RUNOFF VOLUME    (mm)=   0.988
     TOTAL RAINFALL   (mm)=  25.023
     RUNOFF COEFFICIENT   =   0.039

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

```
--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e5dec74c
| Ptotal= 25.02 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.17	1.17	6.20	2.17	5.62	3.17	2.95
0.33	2.38	1.33	12.18	2.33	4.80	3.33	2.76
0.50	2.66	1.50	41.67	2.50	4.21	3.50	2.62
0.67	3.03	1.67	15.28	2.67	3.78	3.67	2.47
0.83	3.58	1.83	9.22	2.83	3.45	3.83	2.35
1.00	4.47	2.00	6.88	3.00	3.18	4.00	2.23

```
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.57         0.38
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     79.58        30.00
     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	2.17	1.083	6.20	2.083	5.62	3.08	2.95
0.167	2.17	1.167	6.20	2.167	5.62	3.17	2.95
0.250	2.38	1.250	12.18	2.250	4.80	3.25	2.76
0.333	2.38	1.333	12.18	2.333	4.80	3.33	2.76
0.417	2.66	1.417	41.67	2.417	4.21	3.42	2.62
0.500	2.66	1.500	41.67	2.500	4.21	3.50	2.62
0.583	3.03	1.583	15.28	2.583	3.78	3.58	2.47
0.667	3.03	1.667	15.28	2.667	3.78	3.67	2.47
0.750	3.58	1.750	9.22	2.750	3.45	3.75	2.35
0.833	3.58	1.833	9.22	2.833	3.45	3.83	2.35
0.917	4.47	1.917	6.88	2.917	3.18	3.92	2.23
1.000	4.47	2.000	6.88	3.000	3.18	4.00	2.23

```
     Max.Eff.Inten.(mm/hr)=     41.67         1.55
               over (min)        5.00        35.00
     Storage Coeff.  (min)=      3.16 (ii)   34.59 (ii)
     Unit Hyd. Tpeak (min)=      5.00        35.00
     Unit Hyd. peak  (cms)=      0.27         0.03
                                                  *TOTALS*
     PEAK FLOW       (cms)=      0.05         0.00          0.048 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.25           1.50
     RUNOFF VOLUME    (mm)=     23.02         1.53          11.18
     TOTAL RAINFALL   (mm)=     25.02        25.02          25.02
     RUNOFF COEFFICIENT   =      0.92         0.06           0.45

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e5dec74c
| Ptotal= 25.02 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.17	1.17	6.20	2.17	5.62	3.17	2.95
0.33	2.38	1.33	12.18	2.33	4.80	3.33	2.76
0.50	2.66	1.50	41.67	2.50	4.21	3.50	2.62
0.67	3.03	1.67	15.28	2.67	3.78	3.67	2.47
0.83	3.58	1.83	9.22	2.83	3.45	3.83	2.35
1.00	4.47	2.00	6.88	3.00	3.18	4.00	2.23

```
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.61         0.40
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     82.06        30.00
     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	2.17	1.083	6.20	2.083	5.62	3.08	2.95
0.167	2.17	1.167	6.20	2.167	5.62	3.17	2.95
0.250	2.38	1.250	12.18	2.250	4.80	3.25	2.76
0.333	2.38	1.333	12.18	2.333	4.80	3.33	2.76
0.417	2.66	1.417	41.67	2.417	4.21	3.42	2.62
0.500	2.66	1.500	41.67	2.500	4.21	3.50	2.62
0.583	3.03	1.583	15.28	2.583	3.78	3.58	2.47
0.667	3.03	1.667	15.28	2.667	3.78	3.67	2.47
0.750	3.58	1.750	9.22	2.750	3.45	3.75	2.35
0.833	3.58	1.833	9.22	2.833	3.45	3.83	2.35
0.917	4.47	1.917	6.88	2.917	3.18	3.92	2.23
1.000	4.47	2.000	6.88	3.000	3.18	4.00	2.23

```
     Max.Eff.Inten.(mm/hr)=     41.67         1.55
               over (min)        5.00        35.00
     Storage Coeff.  (min)=      3.22 (ii)   34.65 (ii)
     Unit Hyd. Tpeak (min)=      5.00        35.00
     Unit Hyd. peak  (cms)=      0.27         0.03
                                                  *TOTALS*
     PEAK FLOW       (cms)=      0.05         0.00          0.051 (iii)
     TIME TO PEAK    (hrs)=      1.50         2.25           1.50
     RUNOFF VOLUME    (mm)=     23.02         1.53          11.18
     TOTAL RAINFALL   (mm)=     25.02        25.02          25.02
```

```
     RUNOFF COEFFICIENT   =       0.92        0.06          0.45

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.95   0.048     1.50    11.18
     + ID2= 2 (  0202):     1.01   0.051     1.50    11.18
       ================================================
       ID = 3 (  0006):     1.96   0.099     1.50    11.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2093     0.0094
                         0.0320     0.0013   |   0.2332     0.0108
                         0.0641     0.0027   |   0.2542     0.0121
                         0.1019     0.0040   |   0.2733     0.0135
                         0.1289     0.0054   |   0.2910     0.0148
                         0.1547     0.0067   |   0.3076     0.0162
                         0.1776     0.0081   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)    1.960     0.099      1.50      11.18
   OUTFLOW: ID= 1 (  0301)    1.960     0.072      1.58      11.18

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 73.04
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0033

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

-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                         AREA     QPEAK     TPEAK    R.V.
                          (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   1.96      0.07      1.58   11.18
     ================================================
     ID= 2  (   2)    :   0.68      0.02      1.58   11.18
     ID= 3  (   2)    :   1.28      0.05      1.58   11.18
     ID= 4  (   2)    :   0.00      0.00      0.00    0.00
     ID= 5  (   2)    :   0.00      0.00      0.00    0.00
     ID= 6  (   2)    :   0.00      0.00      0.00    0.00
--------------------------------------------------------------------------------

-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e5dec74c
| Ptotal= 25.02 mm |    Comments:
-------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.17    2.17 |  1.17    6.20 |  2.17    5.62 |  3.17    2.95
                 0.33    2.38 |  1.33   12.18 |  2.33    4.80 |  3.33    2.76
                 0.50    2.66 |  1.50   41.67 |  2.50    4.21 |  3.50    2.62
                 0.67    3.03 |  1.67   15.28 |  2.67    3.78 |  3.67    2.47
                 0.83    3.58 |  1.83    9.22 |  2.83    3.45 |  3.83    2.35
                 1.00    4.47 |  2.00    6.88 |  3.00    3.18 |  4.00    2.23

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

-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                                  IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=           1.09          0.90
     Dep. Storage     (mm)=           2.00          5.00
     Average Slope     (%)=           1.00          2.00
     Length            (m)=         115.18         30.00
     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    2.17 | 1.083    6.20 | 2.083    5.62 |  3.08    2.95
                0.167    2.17 | 1.167    6.20 | 2.167    5.62 |  3.17    2.95
                0.250    2.38 | 1.250   12.18 | 2.250    4.80 |  3.25    2.76
                0.333    2.38 | 1.333   12.18 | 2.333    4.80 |  3.33    2.76
                0.417    2.66 | 1.417   41.67 | 2.417    4.21 |  3.42    2.62
                0.500    2.66 | 1.500   41.67 | 2.500    4.21 |  3.50    2.62
                0.583    3.03 | 1.583   15.28 | 2.583    3.78 |  3.58    2.47
                0.667    3.03 | 1.667   15.28 | 2.667    3.78 |  3.67    2.47
                0.750    3.58 | 1.750    9.22 | 2.750    3.45 |  3.75    2.35
                0.833    3.58 | 1.833    9.22 | 2.833    3.45 |  3.83    2.35
                0.917    4.47 | 1.917    6.88 | 2.917    3.18 |  3.92    2.23
                1.000    4.47 | 2.000    6.88 | 3.000    3.18 |  4.00    2.23

     Max.Eff.Inten.(mm/hr)=      41.67         1.44
               over (min)         5.00        40.00
     Storage Coeff.  (min)=       3.95 (ii)   36.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.24         0.03
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.00        0.087 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.33         1.50
     RUNOFF VOLUME    (mm)=      23.02         1.47        10.08
     TOTAL RAINFALL   (mm)=      25.02        25.02        25.02
     RUNOFF COEFFICIENT   =       0.92         0.06         0.40
```

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.087     1.50    10.08
     + ID2= 2 (  0302):     0.68   0.024     1.58    11.18
       ================================================
       ID = 3 (  0021):     2.67   0.110     1.50    10.36

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053     0.0240
                         0.0083     0.0024   |   0.1266     0.0264
                         0.0166     0.0048   |   0.1494     0.0288
                         0.0223     0.0072   |   0.1736     0.0312
                         0.0268     0.0096   |   0.1992     0.0336
                         0.0306     0.0120   |   0.2261     0.0360
                         0.0394     0.0144   |   0.2595     0.0384
                         0.0523     0.0168   |   0.2985     0.0408
                         0.0679     0.0192   |   0.3416     0.0432
                         0.0857     0.0216   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     2.672     0.110      1.50      10.36
   OUTFLOW: ID= 1 (  0303)     2.672     0.029      1.92      10.34

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 26.11
                TIME SHIFT OF PEAK FLOW         (min)= 25.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0109

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-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
-------------------        (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.000     2.25     0.99
     + ID2= 2 (  0303):     2.67   0.029     1.92    10.34
       ================================================
       ID = 3 (  0024):     2.80   0.029     1.92     9.90

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e5dec74c
| Ptotal= 25.02 mm |    Comments:
-------------------
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    2.17 |  1.17    6.20 |  2.17    5.62 |  3.17    2.95
                0.33    2.38 |  1.33   12.18 |  2.33    4.80 |  3.33    2.76
                0.50    2.66 |  1.50   41.67 |  2.50    4.21 |  3.50    2.62
                0.67    3.03 |  1.67   15.28 |  2.67    3.78 |  3.67    2.47
                0.83    3.58 |  1.83    9.22 |  2.83    3.45 |  3.83    2.35
                1.00    4.47 |  2.00    6.88 |  3.00    3.18 |  4.00    2.23

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-------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     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    2.17 | 1.083    6.20 | 2.083    5.62 |  3.08    2.95
               0.167    2.17 | 1.167    6.20 | 2.167    5.62 |  3.17    2.95
               0.250    2.38 | 1.250   12.18 | 2.250    4.80 |  3.25    2.76
               0.333    2.38 | 1.333   12.18 | 2.333    4.80 |  3.33    2.76
               0.417    2.66 | 1.417   41.67 | 2.417    4.21 |  3.42    2.62
               0.500    2.66 | 1.500   41.67 | 2.500    4.21 |  3.50    2.62
               0.583    3.03 | 1.583   15.28 | 2.583    3.78 |  3.58    2.47
               0.667    3.03 | 1.667   15.28 | 2.667    3.78 |  3.67    2.47
               0.750    3.58 | 1.750    9.22 | 2.750    3.45 |  3.75    2.35
               0.833    3.58 | 1.833    9.22 | 2.833    3.45 |  3.83    2.35
               0.917    4.47 | 1.917    6.88 | 2.917    3.18 |  3.92    2.23
               1.000    4.47 | 2.000    6.88 | 3.000    3.18 |  4.00    2.23

     Max.Eff.Inten.(mm/hr)=      41.67         1.44
                   over (min)       5.00        40.00
     Storage Coeff.  (min)=       4.37 (ii)   36.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00        40.00
     Unit Hyd. peak  (cms)=       0.23         0.03
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.12         0.00          0.120 (iii)
     TIME TO PEAK    (hrs)=       1.50         2.33          1.50
     RUNOFF VOLUME    (mm)=      23.02         1.47         10.09
     TOTAL RAINFALL   (mm)=      25.02        25.02         25.02
     RUNOFF COEFFICIENT   =       0.92         0.06          0.40

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK     R.V.
-------------------        (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   2.79      0.12      1.50    10.09
     ================================================
     MAJOR SYS.(ID= 2):   0.00      0.00      0.00     0.00
```

```
     MINOR SYS.(ID= 3):   2.79      0.12      1.50   10.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0025):     2.79   0.120     1.50    10.09
      + ID2= 2 (  0302):     1.28   0.048     1.58    11.18
        ================================================
        ID = 3 (  0022):     4.07   0.165     1.50    10.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0025 <ID= 2> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0003 = HYDROGRAPH 0001
        ID1= 1 (  0022):     4.07   0.165     1.50    10.43
      + ID2= 2 (  0025):     0.00   0.000     0.00     0.00
        ================================================
        ID = 3 (  0029):     4.07   0.165     1.50    10.43

     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 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\dbe62062-1c0b-4c8f-a4e8-be0bb99a8cb3\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\dbe62062-1c0b-4c8f-a4e8-be0bb99a8cb3\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:



COMMENTS: _____________________________________________________
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  ***********************************************
  ** SIMULATION : Run 02: 2yr 24hr SCS Barrie   **
  ***********************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\b55a5618
| Ptotal= 46.11 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.46 |  6.20    0.92 | 12.20    9.18 | 18.20    0.92
                0.40    0.46 |  6.40    0.92 | 12.40    5.74 | 18.40    0.92
                0.60    0.46 |  6.60    0.92 | 12.60    4.13 | 18.60    0.92
                0.80    0.46 |  6.80    0.92 | 12.80    3.90 | 18.80    0.92
                1.00    0.46 |  7.00    0.92 | 13.00    2.75 | 19.00    0.92
                1.20    0.46 |  7.20    0.92 | 13.20    2.30 | 19.20    0.69
                1.40    0.46 |  7.40    0.92 | 13.40    2.30 | 19.40    0.69
                1.60    0.46 |  7.60    0.92 | 13.60    2.30 | 19.60    0.69
                1.80    0.46 |  7.80    0.92 | 13.80    2.30 | 19.80    0.69
                2.00    0.46 |  8.00    0.92 | 14.00    2.30 | 20.00    0.69
                2.20    0.46 |  8.20    1.38 | 14.20    1.38 | 20.20    0.69
                2.40    0.46 |  8.40    1.38 | 14.40    1.38 | 20.40    0.69
                2.60    0.46 |  8.60    1.38 | 14.60    1.38 | 20.60    0.69
                2.80    0.46 |  8.80    1.38 | 14.80    1.38 | 20.80    0.69
                3.00    0.46 |  9.00    1.38 | 15.00    1.38 | 21.00    0.69
                3.20    0.46 |  9.20    1.38 | 15.20    1.38 | 21.20    0.46
                3.40    0.46 |  9.40    1.38 | 15.40    1.38 | 21.40    0.46
                3.60    0.46 |  9.60    1.38 | 15.60    1.38 | 21.60    0.46
                3.80    0.46 |  9.80    1.38 | 15.80    1.38 | 21.80    0.46
                4.00    0.46 | 10.00    1.38 | 16.00    1.38 | 22.00    0.46
                4.20    0.92 | 10.20    2.52 | 16.20    0.92 | 22.20    0.46
                4.40    0.92 | 10.40    2.52 | 16.40    0.92 | 22.40    0.46
                4.60    0.92 | 10.60    2.52 | 16.60    0.92 | 22.60    0.46
                4.80    0.92 | 10.80    2.52 | 16.80    0.92 | 22.80    0.46
                5.00    0.92 | 11.00    2.52 | 17.00    0.92 | 23.00    0.46
                5.20    0.92 | 11.20    3.44 | 17.20    0.92 | 23.20    0.46
                5.40    0.92 | 11.40    5.05 | 17.40    0.92 | 23.40    0.46
                5.60    0.92 | 11.60   11.47 | 17.60    0.92 | 23.60    0.46
                5.80    0.92 | 11.80   25.20 | 17.80    0.92 | 23.80    0.46
                6.00    0.92 | 12.00   52.80 | 18.00    0.92 | 24.00    0.46

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--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

        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    0.92 |12.083    9.18 | 18.08    0.92
               0.167    0.46 | 6.167    0.92 |12.167    9.18 | 18.17    0.92
               0.250    0.46 | 6.250    0.92 |12.250    7.12 | 18.25    0.92
               0.333    0.46 | 6.333    0.92 |12.333    5.74 | 18.33    0.92
               0.417    0.46 | 6.417    0.92 |12.417    5.42 | 18.42    0.92
               0.500    0.46 | 6.500    0.92 |12.500    4.13 | 18.50    0.92
               0.583    0.46 | 6.583    0.92 |12.583    4.13 | 18.58    0.92
               0.667    0.46 | 6.667    0.92 |12.667    3.95 | 18.67    0.92
               0.750    0.46 | 6.750    0.92 |12.750    3.90 | 18.75    0.92
               0.833    0.46 | 6.833    0.92 |12.833    3.44 | 18.83    0.92
```

0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92
1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46
3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46
3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46
4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 3.998
TOTAL RAINFALL (mm)= 46.112
RUNOFF COEFFICIENT = 0.087

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\b55a5618
Ptotal= 46.11 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

CALIB			
NASHYD (0205)	Area (ha)= 0.13	Curve Number (CN)= 40.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.47		

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	0.92	12.083	9.18	18.08	0.92
0.167	0.46	6.167	0.92	12.167	9.18	18.17	0.92
0.250	0.46	6.250	0.92	12.250	7.12	18.25	0.92
0.333	0.46	6.333	0.92	12.333	5.74	18.33	0.92
0.417	0.46	6.417	0.92	12.417	5.42	18.42	0.92
0.500	0.46	6.500	0.92	12.500	4.13	18.50	0.92
0.583	0.46	6.583	0.92	12.583	4.13	18.58	0.92
0.667	0.46	6.667	0.92	12.667	3.95	18.67	0.92
0.750	0.46	6.750	0.92	12.750	3.90	18.75	0.92
0.833	0.46	6.833	0.92	12.833	3.44	18.83	0.92
0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92

1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46
3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46
3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46
4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 12.417
RUNOFF VOLUME (mm)= 3.994
TOTAL RAINFALL (mm)= 46.112
RUNOFF COEFFICIENT = 0.087

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\b55a5618
Ptotal= 46.11 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

CALIB	
STANDHYD (0201)	Area (ha)= 0.95
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.57	0.38
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	79.58	30.00
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	0.92	12.083	9.18	18.08	0.92
0.167	0.46	6.167	0.92	12.167	9.18	18.17	0.92
0.250	0.46	6.250	0.92	12.250	7.12	18.25	0.92
0.333	0.46	6.333	0.92	12.333	5.74	18.33	0.92
0.417	0.46	6.417	0.92	12.417	5.42	18.42	0.92
0.500	0.46	6.500	0.92	12.500	4.13	18.50	0.92
0.583	0.46	6.583	0.92	12.583	4.13	18.58	0.92
0.667	0.46	6.667	0.92	12.667	3.95	18.67	0.92

0.750	0.46	6.750	0.92	12.750	3.90	18.75	0.92
0.833	0.46	6.833	0.92	12.833	3.44	18.83	0.92
0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92
1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46
3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46
3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46
4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

Max.Eff.Inten.(mm/hr)=	52.80	7.37	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.88 (ii)	19.73 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.28	0.06	

				TOTALS
PEAK FLOW	(cms)=	0.06	0.01	0.065 (iii)
TIME TO PEAK	(hrs)=	12.00	12.25	12.00
RUNOFF VOLUME	(mm)=	44.11	5.65	22.94
TOTAL RAINFALL	(mm)=	46.11	46.11	46.11
RUNOFF COEFFICIENT	=	0.96	0.12	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\b55a5618
Ptotal= 46.11 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

CALIB | STANDHYD (0202) | ID= 1 DT= 5.0 min | Area (ha)= 1.01 | Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.61	0.40
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	82.06	30.00
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	0.92	12.083	9.18	18.08	0.92
0.167	0.46	6.167	0.92	12.167	9.18	18.17	0.92
0.250	0.46	6.250	0.92	12.250	7.12	18.25	0.92
0.333	0.46	6.333	0.92	12.333	5.74	18.33	0.92
0.417	0.46	6.417	0.92	12.417	5.42	18.42	0.92
0.500	0.46	6.500	0.92	12.500	4.13	18.50	0.92
0.583	0.46	6.583	0.92	12.583	4.13	18.58	0.92
0.667	0.46	6.667	0.92	12.667	3.95	18.67	0.92
0.750	0.46	6.750	0.92	12.750	3.90	18.75	0.92
0.833	0.46	6.833	0.92	12.833	3.44	18.83	0.92
0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92
1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46
3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46
3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46
4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

Max.Eff.Inten.(mm/hr)=	52.80	7.37	
over (min)	5.00	20.00	
Storage Coeff. (min)=	2.93 (ii)	19.78 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.28	0.06	
			TOTALS
PEAK FLOW (cms)=	0.07	0.01	0.069 (iii)
TIME TO PEAK (hrs)=	12.00	12.25	12.00
RUNOFF VOLUME (mm)=	44.11	5.65	22.95
TOTAL RAINFALL (mm)=	46.11	46.11	46.11
RUNOFF COEFFICIENT =	0.96	0.12	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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 (0006) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	0.95	0.065	12.00	22.94
+ ID2= 2 (0202):	1.01	0.069	12.00	22.95
ID = 3 (0006):	1.96	0.135	12.00	22.94

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0301)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2093	0.0094
0.0320	0.0013	0.2332	0.0108
0.0641	0.0027	0.2542	0.0121
0.1019	0.0040	0.2733	0.0135
0.1289	0.0054	0.2910	0.0148
0.1547	0.0067	0.3076	0.0162
0.1776	0.0081	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0006)	1.960	0.135	12.00	22.94
OUTFLOW: ID= 1 (0301)	1.960	0.110	12.00	22.94

PEAK FLOW REDUCTION [Qout/Qin](%)= 81.86
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0048

DIVERTHYD(0302)
IN= 1 # OUT= 5

Outflow / Inflow Relationships

Flow 1 (cms)	+ Flow 2 (cms)	+ Flow 3 (cms)	+ Flow 4 (cms)	+ Flow 5 (cms)	= Total (cms)
0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.02	0.00	0.00	0.00	0.03
0.02	0.04	0.00	0.00	0.00	0.06
0.03	0.07	0.00	0.00	0.00	0.10
0.04	0.09	0.00	0.00	0.00	0.13
0.05	0.11	0.00	0.00	0.00	0.15
0.06	0.12	0.00	0.00	0.00	0.18
0.07	0.14	0.00	0.00	0.00	0.21
0.09	0.15	0.00	0.00	0.00	0.23
0.10	0.16	0.00	0.00	0.00	0.25
0.11	0.17	0.00	0.00	0.00	0.27
0.11	0.18	0.00	0.00	0.00	0.29
0.12	0.19	0.00	0.00	0.00	0.31

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	1.96	0.11	12.00	22.94
ID= 2 (2) :	0.67	0.03	12.00	22.94
ID= 3 (2) :	1.29	0.08	12.00	22.94
ID= 4 (2) :	0.00	0.00	0.00	0.00
ID= 5 (2) :	0.00	0.00	0.00	0.00
ID= 6 (2) :	0.00	0.00	0.00	0.00

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\b55a5618
Ptotal= 46.11 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

CALIB | STANDHYD (0203) | ID= 1 DT= 5.0 min | Area (ha)= 1.99 | Total Imp(%)= 55.00 | Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.09	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	115.18	30.00
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	0.92	12.083	9.18	18.08	0.92
0.167	0.46	6.167	0.92	12.167	9.18	18.17	0.92
0.250	0.46	6.250	0.92	12.250	7.12	18.25	0.92
0.333	0.46	6.333	0.92	12.333	5.74	18.33	0.92
0.417	0.46	6.417	0.92	12.417	5.42	18.42	0.92
0.500	0.46	6.500	0.92	12.500	4.13	18.50	0.92
0.583	0.46	6.583	0.92	12.583	4.13	18.58	0.92
0.667	0.46	6.667	0.92	12.667	3.95	18.67	0.92
0.750	0.46	6.750	0.92	12.750	3.90	18.75	0.92
0.833	0.46	6.833	0.92	12.833	3.44	18.83	0.92
0.917	0.46	6.917	0.92	12.917	2.75	18.92	0.92
1.000	0.46	7.000	0.92	13.000	2.75	19.00	0.92
1.083	0.46	7.083	0.92	13.083	2.30	19.08	0.69
1.167	0.46	7.167	0.92	13.167	2.30	19.17	0.69
1.250	0.46	7.250	0.92	13.250	2.30	19.25	0.69
1.333	0.46	7.333	0.92	13.333	2.30	19.33	0.69
1.417	0.46	7.417	0.92	13.417	2.30	19.42	0.69
1.500	0.46	7.500	0.92	13.500	2.30	19.50	0.69
1.583	0.46	7.583	0.92	13.583	2.30	19.58	0.69
1.667	0.46	7.667	0.92	13.667	2.30	19.67	0.69
1.750	0.46	7.750	0.92	13.750	2.30	19.75	0.69
1.833	0.46	7.833	0.92	13.833	2.30	19.83	0.69
1.917	0.46	7.917	0.92	13.917	2.30	19.92	0.69
2.000	0.46	8.000	0.92	14.000	2.30	20.00	0.69
2.083	0.46	8.083	1.38	14.083	1.38	20.08	0.69
2.167	0.46	8.167	1.38	14.167	1.38	20.17	0.69
2.250	0.46	8.250	1.38	14.250	1.38	20.25	0.69
2.333	0.46	8.333	1.38	14.333	1.38	20.33	0.69
2.417	0.46	8.417	1.38	14.417	1.38	20.42	0.69
2.500	0.46	8.500	1.38	14.500	1.38	20.50	0.69
2.583	0.46	8.583	1.38	14.583	1.38	20.58	0.69
2.667	0.46	8.667	1.38	14.667	1.38	20.67	0.69
2.750	0.46	8.750	1.38	14.750	1.38	20.75	0.69
2.833	0.46	8.833	1.38	14.833	1.38	20.83	0.69
2.917	0.46	8.917	1.38	14.917	1.38	20.92	0.69
3.000	0.46	9.000	1.38	15.000	1.38	21.00	0.69
3.083	0.46	9.083	1.38	15.083	1.38	21.08	0.46
3.167	0.46	9.167	1.38	15.167	1.38	21.17	0.46
3.250	0.46	9.250	1.38	15.250	1.38	21.25	0.46
3.333	0.46	9.333	1.38	15.333	1.38	21.33	0.46
3.417	0.46	9.417	1.38	15.417	1.38	21.42	0.46
3.500	0.46	9.500	1.38	15.500	1.38	21.50	0.46
3.583	0.46	9.583	1.38	15.583	1.38	21.58	0.46
3.667	0.46	9.667	1.38	15.667	1.38	21.67	0.46
3.750	0.46	9.750	1.38	15.750	1.38	21.75	0.46
3.833	0.46	9.833	1.38	15.833	1.38	21.83	0.46
3.917	0.46	9.917	1.38	15.917	1.38	21.92	0.46
4.000	0.46	10.000	1.38	16.000	1.38	22.00	0.46
4.083	0.92	10.083	2.52	16.083	0.92	22.08	0.46
4.167	0.92	10.167	2.52	16.167	0.92	22.17	0.46
4.250	0.92	10.250	2.52	16.250	0.92	22.25	0.46
4.333	0.92	10.333	2.52	16.333	0.92	22.33	0.46

4.417	0.92	10.417	2.52	16.417	0.92	22.42	0.46
4.500	0.92	10.500	2.52	16.500	0.92	22.50	0.46
4.583	0.92	10.583	2.52	16.583	0.92	22.58	0.46
4.667	0.92	10.667	2.52	16.667	0.92	22.67	0.46
4.750	0.92	10.750	2.52	16.750	0.92	22.75	0.46
4.833	0.92	10.833	2.52	16.833	0.92	22.83	0.46
4.917	0.92	10.917	2.52	16.917	0.92	22.92	0.46
5.000	0.92	11.000	2.52	17.000	0.92	23.00	0.46
5.083	0.92	11.083	3.44	17.083	0.92	23.08	0.46
5.167	0.92	11.167	3.44	17.167	0.92	23.17	0.46
5.250	0.92	11.250	4.41	17.250	0.92	23.25	0.46
5.333	0.92	11.333	5.05	17.333	0.92	23.33	0.46
5.417	0.92	11.417	6.33	17.417	0.92	23.42	0.46
5.500	0.92	11.500	11.47	17.500	0.92	23.50	0.46
5.583	0.92	11.583	11.47	17.583	0.92	23.58	0.46
5.667	0.92	11.667	22.45	17.667	0.92	23.67	0.46
5.750	0.92	11.750	25.20	17.750	0.92	23.75	0.46
5.833	0.92	11.833	36.24	17.833	0.92	23.83	0.46
5.917	0.92	11.917	52.80	17.917	0.92	23.92	0.46
6.000	0.92	12.000	52.80	18.000	0.92	24.00	0.46

			TOTALS
Max.Eff.Inten.(mm/hr)=	52.80	6.92	
over (min)	5.00	25.00	
Storage Coeff. (min)=	3.59 (ii)	20.88 (ii)	
Unit Hyd. Tpeak (min)=	5.00	25.00	
Unit Hyd. peak (cms)=	0.26	0.05	
PEAK FLOW (cms)=	0.11	0.01	0.120 (iii)
TIME TO PEAK (hrs)=	12.00	12.25	12.00
RUNOFF VOLUME (mm)=	44.11	5.47	20.92
TOTAL RAINFALL (mm)=	46.11	46.11	46.11
RUNOFF COEFFICIENT =	0.96	0.12	0.45

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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 (0021)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	1.99	0.120	12.00	20.92
+ ID2= 2 (0302):	0.67	0.033	12.00	22.94
ID = 3 (0021):	2.66	0.153	12.00	21.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0303)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1053	0.0240
	0.0083	0.0024	0.1266	0.0264
	0.0166	0.0048	0.1494	0.0288
	0.0223	0.0072	0.1736	0.0312
	0.0268	0.0096	0.1992	0.0336
	0.0306	0.0120	0.2261	0.0360
	0.0394	0.0144	0.2595	0.0384
	0.0523	0.0168	0.2985	0.0408
	0.0679	0.0192	0.3416	0.0432
	0.0857	0.0216	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0021)	2.659	0.153	12.00	21.43
OUTFLOW: ID= 1 (0303)	2.659	0.052	12.25	21.40

PEAK FLOW REDUCTION [Qout/Qin](%)= 33.90
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.0168

ADD HYD (0024)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0205):	0.13	0.001	12.42	3.99
+ ID2= 2 (0303):	2.66	0.052	12.25	21.40
ID = 3 (0024):	2.79	0.052	12.25	20.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

READ STORM | Filename: C:\Users\Valdor\AppD ata\Local\Temp\ f4571bb6-bd47-4443-b3bc-69eb9d051ca4\b55a5618
Ptotal= 46.11 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.46	6.20	0.92	12.20	9.18	18.20	0.92
0.40	0.46	6.40	0.92	12.40	5.74	18.40	0.92
0.60	0.46	6.60	0.92	12.60	4.13	18.60	0.92
0.80	0.46	6.80	0.92	12.80	3.90	18.80	0.92
1.00	0.46	7.00	0.92	13.00	2.75	19.00	0.92
1.20	0.46	7.20	0.92	13.20	2.30	19.20	0.69
1.40	0.46	7.40	0.92	13.40	2.30	19.40	0.69
1.60	0.46	7.60	0.92	13.60	2.30	19.60	0.69
1.80	0.46	7.80	0.92	13.80	2.30	19.80	0.69
2.00	0.46	8.00	0.92	14.00	2.30	20.00	0.69
2.20	0.46	8.20	1.38	14.20	1.38	20.20	0.69
2.40	0.46	8.40	1.38	14.40	1.38	20.40	0.69
2.60	0.46	8.60	1.38	14.60	1.38	20.60	0.69
2.80	0.46	8.80	1.38	14.80	1.38	20.80	0.69
3.00	0.46	9.00	1.38	15.00	1.38	21.00	0.69
3.20	0.46	9.20	1.38	15.20	1.38	21.20	0.46
3.40	0.46	9.40	1.38	15.40	1.38	21.40	0.46
3.60	0.46	9.60	1.38	15.60	1.38	21.60	0.46
3.80	0.46	9.80	1.38	15.80	1.38	21.80	0.46
4.00	0.46	10.00	1.38	16.00	1.38	22.00	0.46
4.20	0.92	10.20	2.52	16.20	0.92	22.20	0.46
4.40	0.92	10.40	2.52	16.40	0.92	22.40	0.46
4.60	0.92	10.60	2.52	16.60	0.92	22.60	0.46
4.80	0.92	10.80	2.52	16.80	0.92	22.80	0.46
5.00	0.92	11.00	2.52	17.00	0.92	23.00	0.46
5.20	0.92	11.20	3.44	17.20	0.92	23.20	0.46
5.40	0.92	11.40	5.05	17.40	0.92	23.40	0.46
5.60	0.92	11.60	11.47	17.60	0.92	23.60	0.46
5.80	0.92	11.80	25.20	17.80	0.92	23.80	0.46
6.00	0.92	12.00	52.80	18.00	0.92	24.00	0.46

CALIB | STANDHYD (0206) | Area (ha)= 2.79
ID= 1 DT= 5.0 min | Total Imp(%)= 55.00 Dir. Conn.(%)= 40.00

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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     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    0.92 |12.083    9.18 | 18.08    0.92
     0.167    0.46 | 6.167    0.92 |12.167    9.18 | 18.17    0.92
     0.250    0.46 | 6.250    0.92 |12.250    7.12 | 18.25    0.92
     0.333    0.46 | 6.333    0.92 |12.333    5.74 | 18.33    0.92
     0.417    0.46 | 6.417    0.92 |12.417    5.42 | 18.42    0.92
     0.500    0.46 | 6.500    0.92 |12.500    4.13 | 18.50    0.92
     0.583    0.46 | 6.583    0.92 |12.583    4.13 | 18.58    0.92
     0.667    0.46 | 6.667    0.92 |12.667    3.95 | 18.67    0.92
     0.750    0.46 | 6.750    0.92 |12.750    3.90 | 18.75    0.92
     0.833    0.46 | 6.833    0.92 |12.833    3.44 | 18.83    0.92
     0.917    0.46 | 6.917    0.92 |12.917    2.75 | 18.92    0.92
     1.000    0.46 | 7.000    0.92 |13.000    2.75 | 19.00    0.92
     1.083    0.46 | 7.083    0.92 |13.083    2.30 | 19.08    0.69
     1.167    0.46 | 7.167    0.92 |13.167    2.30 | 19.17    0.69
     1.250    0.46 | 7.250    0.92 |13.250    2.30 | 19.25    0.69
     1.333    0.46 | 7.333    0.92 |13.333    2.30 | 19.33    0.69
     1.417    0.46 | 7.417    0.92 |13.417    2.30 | 19.42    0.69
     1.500    0.46 | 7.500    0.92 |13.500    2.30 | 19.50    0.69
     1.583    0.46 | 7.583    0.92 |13.583    2.30 | 19.58    0.69
     1.667    0.46 | 7.667    0.92 |13.667    2.30 | 19.67    0.69
     1.750    0.46 | 7.750    0.92 |13.750    2.30 | 19.75    0.69
     1.833    0.46 | 7.833    0.92 |13.833    2.30 | 19.83    0.69
     1.917    0.46 | 7.917    0.92 |13.917    2.30 | 19.92    0.69
     2.000    0.46 | 8.000    0.92 |14.000    2.30 | 20.00    0.69
     2.083    0.46 | 8.083    1.38 |14.083    1.38 | 20.08    0.69
     2.167    0.46 | 8.167    1.38 |14.167    1.38 | 20.17    0.69
     2.250    0.46 | 8.250    1.38 |14.250    1.38 | 20.25    0.69
     2.333    0.46 | 8.333    1.38 |14.333    1.38 | 20.33    0.69
     2.417    0.46 | 8.417    1.38 |14.417    1.38 | 20.42    0.69
     2.500    0.46 | 8.500    1.38 |14.500    1.38 | 20.50    0.69
     2.583    0.46 | 8.583    1.38 |14.583    1.38 | 20.58    0.69
     2.667    0.46 | 8.667    1.38 |14.667    1.38 | 20.67    0.69
     2.750    0.46 | 8.750    1.38 |14.750    1.38 | 20.75    0.69
     2.833    0.46 | 8.833    1.38 |14.833    1.38 | 20.83    0.69
     2.917    0.46 | 8.917    1.38 |14.917    1.38 | 20.92    0.69
     3.000    0.46 | 9.000    1.38 |15.000    1.38 | 21.00    0.69
     3.083    0.46 | 9.083    1.38 |15.083    1.38 | 21.08    0.46
     3.167    0.46 | 9.167    1.38 |15.167    1.38 | 21.17    0.46
     3.250    0.46 | 9.250    1.38 |15.250    1.38 | 21.25    0.46
     3.333    0.46 | 9.333    1.38 |15.333    1.38 | 21.33    0.46
     3.417    0.46 | 9.417    1.38 |15.417    1.38 | 21.42    0.46
     3.500    0.46 | 9.500    1.38 |15.500    1.38 | 21.50    0.46
     3.583    0.46 | 9.583    1.38 |15.583    1.38 | 21.58    0.46
     3.667    0.46 | 9.667    1.38 |15.667    1.38 | 21.67    0.46
     3.750    0.46 | 9.750    1.38 |15.750    1.38 | 21.75    0.46
     3.833    0.46 | 9.833    1.38 |15.833    1.38 | 21.83    0.46
     3.917    0.46 | 9.917    1.38 |15.917    1.38 | 21.92    0.46
     4.000    0.46 |10.000    1.38 |16.000    1.38 | 22.00    0.46
     4.083    0.92 |10.083    2.52 |16.083    0.92 | 22.08    0.46
     4.167    0.92 |10.167    2.52 |16.167    0.92 | 22.17    0.46
     4.250    0.92 |10.250    2.52 |16.250    0.92 | 22.25    0.46
     4.333    0.92 |10.333    2.52 |16.333    0.92 | 22.33    0.46
     4.417    0.92 |10.417    2.52 |16.417    0.92 | 22.42    0.46
     4.500    0.92 |10.500    2.52 |16.500    0.92 | 22.50    0.46
     4.583    0.92 |10.583    2.52 |16.583    0.92 | 22.58    0.46
     4.667    0.92 |10.667    2.52 |16.667    0.92 | 22.67    0.46
     4.750    0.92 |10.750    2.52 |16.750    0.92 | 22.75    0.46
     4.833    0.92 |10.833    2.52 |16.833    0.92 | 22.83    0.46
     4.917    0.92 |10.917    2.52 |16.917    0.92 | 22.92    0.46
     5.000    0.92 |11.000    2.52 |17.000    0.92 | 23.00    0.46
     5.083    0.92 |11.083    3.44 |17.083    0.92 | 23.08    0.46
     5.167    0.92 |11.167    3.44 |17.167    0.92 | 23.17    0.46
     5.250    0.92 |11.250    4.41 |17.250    0.92 | 23.25    0.46
     5.333    0.92 |11.333    5.05 |17.333    0.92 | 23.33    0.46
     5.417    0.92 |11.417    6.33 |17.417    0.92 | 23.42    0.46
     5.500    0.92 |11.500   11.47 |17.500    0.92 | 23.50    0.46
     5.583    0.92 |11.583   11.47 |17.583    0.92 | 23.58    0.46
     5.667    0.92 |11.667   22.45 |17.667    0.92 | 23.67    0.46
     5.750    0.92 |11.750   25.20 |17.750    0.92 | 23.75    0.46
     5.833    0.92 |11.833   36.24 |17.833    0.92 | 23.83    0.46
     5.917    0.92 |11.917   52.80 |17.917    0.92 | 23.92    0.46
     6.000    0.92 |12.000   52.80 |18.000    0.92 | 24.00    0.46

     Max.Eff.Inten.(mm/hr)=      52.80         6.92
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       3.97 (ii)   21.26 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.24         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.16         0.01          0.167 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.25          12.00
     RUNOFF VOLUME    (mm)=      44.11         5.47          20.92
     TOTAL RAINFALL   (mm)=      46.11        46.11          46.11
     RUNOFF COEFFICIENT   =       0.96         0.12           0.45

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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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--------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
--------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.17     12.00   20.92
     ================================================
     MAJOR SYS.(ID= 2):   0.00      0.00      0.00    0.00
     MINOR SYS.(ID= 3):   2.79      0.17     12.00   20.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0025):     2.79   0.167    12.00    20.92
      + ID2= 2 (  0302):     1.29   0.077    12.00    22.94
        ================================================
        ID = 3 (  0022):     4.08   0.244    12.00    21.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
```

```
*** W A R N I N G :  HYDROGRAPH   0025 <ID= 2> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0003 = HYDROGRAPH 0001
       ID1= 1 (  0022):     4.08   0.244    12.00    21.56
     + ID2= 2 (  0025):     0.00   0.000     0.00     0.00
       ======================================================
       ID = 3 (  0029):     4.08   0.244    12.00    21.56

     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 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\485767dd-6115-4a06-a71b-a7d886db5431\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\485767dd-6115-4a06-a71b-a7d886db5431\scena

DATE: 01-09-2019                          TIME: 03:04:47

USER:


COMMENTS: _____________________________________________________

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  ************************************************
  ** SIMULATION : Run 03: 5yr 24hr SCS Barrie   **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\84e2ffe4
| Ptotal= 66.81 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.67 |  6.20    1.33 | 12.20   13.30 | 18.20    1.33
                0.40    0.67 |  6.40    1.33 | 12.40    8.32 | 18.40    1.33
                0.60    0.67 |  6.60    1.33 | 12.60    5.98 | 18.60    1.33
                0.80    0.67 |  6.80    1.33 | 12.80    5.65 | 18.80    1.33
                1.00    0.67 |  7.00    1.33 | 13.00    3.98 | 19.00    1.33
                1.20    0.67 |  7.20    1.33 | 13.20    3.33 | 19.20    1.00
                1.40    0.67 |  7.40    1.33 | 13.40    3.33 | 19.40    1.00
                1.60    0.67 |  7.60    1.33 | 13.60    3.33 | 19.60    1.00
                1.80    0.67 |  7.80    1.33 | 13.80    3.33 | 19.80    1.00
                2.00    0.67 |  8.00    1.33 | 14.00    3.33 | 20.00    1.00
                2.20    0.67 |  8.20    2.00 | 14.20    2.00 | 20.20    1.00
                2.40    0.67 |  8.40    2.00 | 14.40    2.00 | 20.40    1.00
                2.60    0.67 |  8.60    2.00 | 14.60    2.00 | 20.60    1.00
                2.80    0.67 |  8.80    2.00 | 14.80    2.00 | 20.80    1.00
                3.00    0.67 |  9.00    2.00 | 15.00    2.00 | 21.00    1.00
                3.20    0.67 |  9.20    2.00 | 15.20    2.00 | 21.20    0.67
                3.40    0.67 |  9.40    2.00 | 15.40    2.00 | 21.40    0.67
                3.60    0.67 |  9.60    2.00 | 15.60    2.00 | 21.60    0.67
                3.80    0.67 |  9.80    2.00 | 15.80    2.00 | 21.80    0.67
                4.00    0.67 | 10.00    2.00 | 16.00    2.00 | 22.00    0.67
                4.20    1.33 | 10.20    3.65 | 16.20    1.33 | 22.20    0.67
                4.40    1.33 | 10.40    3.65 | 16.40    1.33 | 22.40    0.67
                4.60    1.33 | 10.60    3.65 | 16.60    1.33 | 22.60    0.67
                4.80    1.33 | 10.80    3.65 | 16.80    1.33 | 22.80    0.67
                5.00    1.33 | 11.00    3.65 | 17.00    1.33 | 23.00    0.67
                5.20    1.33 | 11.20    4.98 | 17.20    1.33 | 23.20    0.67
                5.40    1.33 | 11.40    7.32 | 17.40    1.33 | 23.40    0.67
                5.60    1.33 | 11.60   16.62 | 17.60    1.33 | 23.60    0.67
                5.80    1.33 | 11.80   36.50 | 17.80    1.33 | 23.80    0.67
                6.00    1.33 | 12.00   76.48 | 18.00    1.33 | 24.00    0.67

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--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

        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    0.67 | 6.083    1.33 |12.083   13.31 | 18.08    1.33
               0.167    0.67 | 6.167    1.33 |12.167   13.30 | 18.17    1.33
               0.250    0.67 | 6.250    1.33 |12.250   10.31 | 18.25    1.33
               0.333    0.67 | 6.333    1.33 |12.333    8.32 | 18.33    1.33
               0.417    0.67 | 6.417    1.33 |12.417    7.85 | 18.42    1.33
               0.500    0.67 | 6.500    1.33 |12.500    5.98 | 18.50    1.33
               0.583    0.67 | 6.583    1.33 |12.583    5.98 | 18.58    1.33
               0.667    0.67 | 6.667    1.33 |12.667    5.72 | 18.67    1.33
               0.750    0.67 | 6.750    1.33 |12.750    5.65 | 18.75    1.33
               0.833    0.67 | 6.833    1.33 |12.833    4.98 | 18.83    1.33
               0.917    0.67 | 6.917    1.33 |12.917    3.98 | 18.92    1.33
               1.000    0.67 | 7.000    1.33 |13.000    3.98 | 19.00    1.33
               1.083    0.67 | 7.083    1.33 |13.083    3.33 | 19.08    1.00
               1.167    0.67 | 7.167    1.33 |13.167    3.33 | 19.17    1.00
               1.250    0.67 | 7.250    1.33 |13.250    3.33 | 19.25    1.00
               1.333    0.67 | 7.333    1.33 |13.333    3.33 | 19.33    1.00
               1.417    0.67 | 7.417    1.33 |13.417    3.33 | 19.42    1.00
               1.500    0.67 | 7.500    1.33 |13.500    3.33 | 19.50    1.00
               1.583    0.67 | 7.583    1.33 |13.583    3.33 | 19.58    1.00
               1.667    0.67 | 7.667    1.33 |13.667    3.33 | 19.67    1.00
               1.750    0.67 | 7.750    1.33 |13.750    3.33 | 19.75    1.00
               1.833    0.67 | 7.833    1.33 |13.833    3.33 | 19.83    1.00
               1.917    0.67 | 7.917    1.33 |13.917    3.33 | 19.92    1.00
               2.000    0.67 | 8.000    1.33 |14.000    3.33 | 20.00    1.00
               2.083    0.67 | 8.083    2.00 |14.083    2.00 | 20.08    1.00
               2.167    0.67 | 8.167    2.00 |14.167    2.00 | 20.17    1.00
               2.250    0.67 | 8.250    2.00 |14.250    2.00 | 20.25    1.00
               2.333    0.67 | 8.333    2.00 |14.333    2.00 | 20.33    1.00
               2.417    0.67 | 8.417    2.00 |14.417    2.00 | 20.42    1.00
               2.500    0.67 | 8.500    2.00 |14.500    2.00 | 20.50    1.00
               2.583    0.67 | 8.583    2.00 |14.583    2.00 | 20.58    1.00
               2.667    0.67 | 8.667    2.00 |14.667    2.00 | 20.67    1.00
               2.750    0.67 | 8.750    2.00 |14.750    2.00 | 20.75    1.00
```

2.833	0.67	8.833	2.00	14.833	2.00	20.83	1.00
2.917	0.67	8.917	2.00	14.917	2.00	20.92	1.00
3.000	0.67	9.000	2.00	15.000	2.00	21.00	1.00
3.083	0.67	9.083	2.00	15.083	2.00	21.08	0.67
3.167	0.67	9.167	2.00	15.167	2.00	21.17	0.67
3.250	0.67	9.250	2.00	15.250	2.00	21.25	0.67
3.333	0.67	9.333	2.00	15.333	2.00	21.33	0.67
3.417	0.67	9.417	2.00	15.417	2.00	21.42	0.67
3.500	0.67	9.500	2.00	15.500	2.00	21.50	0.67
3.583	0.67	9.583	2.00	15.583	2.00	21.58	0.67
3.667	0.67	9.667	2.00	15.667	2.00	21.67	0.67
3.750	0.67	9.750	2.00	15.750	2.00	21.75	0.67
3.833	0.67	9.833	2.00	15.833	2.00	21.83	0.67
3.917	0.67	9.917	2.00	15.917	2.00	21.92	0.67
4.000	0.67	10.000	2.00	16.000	2.00	22.00	0.67
4.083	1.33	10.083	3.65	16.083	1.33	22.08	0.67
4.167	1.33	10.167	3.65	16.167	1.33	22.17	0.67
4.250	1.33	10.250	3.65	16.250	1.33	22.25	0.67
4.333	1.33	10.333	3.65	16.333	1.33	22.33	0.67
4.417	1.33	10.417	3.65	16.417	1.33	22.42	0.67
4.500	1.33	10.500	3.65	16.500	1.33	22.50	0.67
4.583	1.33	10.583	3.65	16.583	1.33	22.58	0.67
4.667	1.33	10.667	3.65	16.667	1.33	22.67	0.67
4.750	1.33	10.750	3.65	16.750	1.33	22.75	0.67
4.833	1.33	10.833	3.65	16.833	1.33	22.83	0.67
4.917	1.33	10.917	3.65	16.917	1.33	22.92	0.67
5.000	1.33	11.000	3.65	17.000	1.33	23.00	0.67
5.083	1.33	11.083	4.98	17.083	1.33	23.08	0.67
5.167	1.33	11.167	4.98	17.167	1.33	23.17	0.67
5.250	1.33	11.250	6.38	17.250	1.33	23.25	0.67
5.333	1.33	11.333	7.32	17.333	1.33	23.33	0.67
5.417	1.33	11.417	9.18	17.417	1.33	23.42	0.67
5.500	1.33	11.500	16.62	17.500	1.33	23.50	0.67
5.583	1.33	11.583	16.62	17.583	1.33	23.58	0.67
5.667	1.33	11.667	32.52	17.667	1.33	23.67	0.67
5.750	1.33	11.750	36.50	17.750	1.33	23.75	0.67
5.833	1.33	11.833	52.49	17.833	1.33	23.83	0.67
5.917	1.33	11.917	76.48	17.917	1.33	23.92	0.67
6.000	1.33	12.000	76.48	18.000	1.33	24.00	0.67

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 8.621
TOTAL RAINFALL (mm)= 66.806
RUNOFF COEFFICIENT = 0.129

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\84e2ffe4
Ptotal= 66.81 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.67	6.20	1.33	12.20	13.30	18.20	1.33
0.40	0.67	6.40	1.33	12.40	8.32	18.40	1.33
0.60	0.67	6.60	1.33	12.60	5.98	18.60	1.33
0.80	0.67	6.80	1.33	12.80	5.65	18.80	1.33
1.00	0.67	7.00	1.33	13.00	3.98	19.00	1.33
1.20	0.67	7.20	1.33	13.20	3.33	19.20	1.00
1.40	0.67	7.40	1.33	13.40	3.33	19.40	1.00
1.60	0.67	7.60	1.33	13.60	3.33	19.60	1.00
1.80	0.67	7.80	1.33	13.80	3.33	19.80	1.00
2.00	0.67	8.00	1.33	14.00	3.33	20.00	1.00
2.20	0.67	8.20	2.00	14.20	2.00	20.20	1.00
2.40	0.67	8.40	2.00	14.40	2.00	20.40	1.00
2.60	0.67	8.60	2.00	14.60	2.00	20.60	1.00
2.80	0.67	8.80	2.00	14.80	2.00	20.80	1.00
3.00	0.67	9.00	2.00	15.00	2.00	21.00	1.00
3.20	0.67	9.20	2.00	15.20	2.00	21.20	0.67
3.40	0.67	9.40	2.00	15.40	2.00	21.40	0.67
3.60	0.67	9.60	2.00	15.60	2.00	21.60	0.67
3.80	0.67	9.80	2.00	15.80	2.00	21.80	0.67
4.00	0.67	10.00	2.00	16.00	2.00	22.00	0.67
4.20	1.33	10.20	3.65	16.20	1.33	22.20	0.67
4.40	1.33	10.40	3.65	16.40	1.33	22.40	0.67
4.60	1.33	10.60	3.65	16.60	1.33	22.60	0.67
4.80	1.33	10.80	3.65	16.80	1.33	22.80	0.67
5.00	1.33	11.00	3.65	17.00	1.33	23.00	0.67
5.20	1.33	11.20	4.98	17.20	1.33	23.20	0.67
5.40	1.33	11.40	7.32	17.40	1.33	23.40	0.67
5.60	1.33	11.60	16.62	17.60	1.33	23.60	0.67
5.80	1.33	11.80	36.50	17.80	1.33	23.80	0.67
6.00	1.33	12.00	76.48	18.00	1.33	24.00	0.67

CALIB					
NASHYD (0205)	Area (ha)=	0.13	Curve Number (CN)=	40.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.47			

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	0.67	6.083	1.33	12.083	13.31	18.08	1.33
0.167	0.67	6.167	1.33	12.167	13.30	18.17	1.33
0.250	0.67	6.250	1.33	12.250	10.31	18.25	1.33
0.333	0.67	6.333	1.33	12.333	8.32	18.33	1.33
0.417	0.67	6.417	1.33	12.417	7.85	18.42	1.33
0.500	0.67	6.500	1.33	12.500	5.98	18.50	1.33
0.583	0.67	6.583	1.33	12.583	5.98	18.58	1.33
0.667	0.67	6.667	1.33	12.667	5.72	18.67	1.33
0.750	0.67	6.750	1.33	12.750	5.65	18.75	1.33
0.833	0.67	6.833	1.33	12.833	4.98	18.83	1.33
0.917	0.67	6.917	1.33	12.917	3.98	18.92	1.33
1.000	0.67	7.000	1.33	13.000	3.98	19.00	1.33
1.083	0.67	7.083	1.33	13.083	3.33	19.08	1.00
1.167	0.67	7.167	1.33	13.167	3.33	19.17	1.00
1.250	0.67	7.250	1.33	13.250	3.33	19.25	1.00
1.333	0.67	7.333	1.33	13.333	3.33	19.33	1.00
1.417	0.67	7.417	1.33	13.417	3.33	19.42	1.00
1.500	0.67	7.500	1.33	13.500	3.33	19.50	1.00
1.583	0.67	7.583	1.33	13.583	3.33	19.58	1.00
1.667	0.67	7.667	1.33	13.667	3.33	19.67	1.00
1.750	0.67	7.750	1.33	13.750	3.33	19.75	1.00
1.833	0.67	7.833	1.33	13.833	3.33	19.83	1.00
1.917	0.67	7.917	1.33	13.917	3.33	19.92	1.00
2.000	0.67	8.000	1.33	14.000	3.33	20.00	1.00
2.083	0.67	8.083	2.00	14.083	2.00	20.08	1.00
2.167	0.67	8.167	2.00	14.167	2.00	20.17	1.00
2.250	0.67	8.250	2.00	14.250	2.00	20.25	1.00
2.333	0.67	8.333	2.00	14.333	2.00	20.33	1.00
2.417	0.67	8.417	2.00	14.417	2.00	20.42	1.00
2.500	0.67	8.500	2.00	14.500	2.00	20.50	1.00
2.583	0.67	8.583	2.00	14.583	2.00	20.58	1.00
2.667	0.67	8.667	2.00	14.667	2.00	20.67	1.00
2.750	0.67	8.750	2.00	14.750	2.00	20.75	1.00
2.833	0.67	8.833	2.00	14.833	2.00	20.83	1.00
2.917	0.67	8.917	2.00	14.917	2.00	20.92	1.00

3.000	0.67	9.000	2.00	15.000	2.00	21.00	1.00
3.083	0.67	9.083	2.00	15.083	2.00	21.08	0.67
3.167	0.67	9.167	2.00	15.167	2.00	21.17	0.67
3.250	0.67	9.250	2.00	15.250	2.00	21.25	0.67
3.333	0.67	9.333	2.00	15.333	2.00	21.33	0.67
3.417	0.67	9.417	2.00	15.417	2.00	21.42	0.67
3.500	0.67	9.500	2.00	15.500	2.00	21.50	0.67
3.583	0.67	9.583	2.00	15.583	2.00	21.58	0.67
3.667	0.67	9.667	2.00	15.667	2.00	21.67	0.67
3.750	0.67	9.750	2.00	15.750	2.00	21.75	0.67
3.833	0.67	9.833	2.00	15.833	2.00	21.83	0.67
3.917	0.67	9.917	2.00	15.917	2.00	21.92	0.67
4.000	0.67	10.000	2.00	16.000	2.00	22.00	0.67
4.083	1.33	10.083	3.65	16.083	1.33	22.08	0.67
4.167	1.33	10.167	3.65	16.167	1.33	22.17	0.67
4.250	1.33	10.250	3.65	16.250	1.33	22.25	0.67
4.333	1.33	10.333	3.65	16.333	1.33	22.33	0.67
4.417	1.33	10.417	3.65	16.417	1.33	22.42	0.67
4.500	1.33	10.500	3.65	16.500	1.33	22.50	0.67
4.583	1.33	10.583	3.65	16.583	1.33	22.58	0.67
4.667	1.33	10.667	3.65	16.667	1.33	22.67	0.67
4.750	1.33	10.750	3.65	16.750	1.33	22.75	0.67
4.833	1.33	10.833	3.65	16.833	1.33	22.83	0.67
4.917	1.33	10.917	3.65	16.917	1.33	22.92	0.67
5.000	1.33	11.000	3.65	17.000	1.33	23.00	0.67
5.083	1.33	11.083	4.98	17.083	1.33	23.08	0.67
5.167	1.33	11.167	4.98	17.167	1.33	23.17	0.67
5.250	1.33	11.250	6.38	17.250	1.33	23.25	0.67
5.333	1.33	11.333	7.32	17.333	1.33	23.33	0.67
5.417	1.33	11.417	9.18	17.417	1.33	23.42	0.67
5.500	1.33	11.500	16.62	17.500	1.33	23.50	0.67
5.583	1.33	11.583	16.62	17.583	1.33	23.58	0.67
5.667	1.33	11.667	32.52	17.667	1.33	23.67	0.67
5.750	1.33	11.750	36.50	17.750	1.33	23.75	0.67
5.833	1.33	11.833	52.49	17.833	1.33	23.83	0.67
5.917	1.33	11.917	76.48	17.917	1.33	23.92	0.67
6.000	1.33	12.000	76.48	18.000	1.33	24.00	0.67

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 8.617
TOTAL RAINFALL (mm)= 66.806
RUNOFF COEFFICIENT = 0.129

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

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\84e2ffe4
Ptotal= 66.81 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.67	6.20	1.33	12.20	13.30	18.20	1.33
0.40	0.67	6.40	1.33	12.40	8.32	18.40	1.33
0.60	0.67	6.60	1.33	12.60	5.98	18.60	1.33
0.80	0.67	6.80	1.33	12.80	5.65	18.80	1.33
1.00	0.67	7.00	1.33	13.00	3.98	19.00	1.33
1.20	0.67	7.20	1.33	13.20	3.33	19.20	1.00
1.40	0.67	7.40	1.33	13.40	3.33	19.40	1.00
1.60	0.67	7.60	1.33	13.60	3.33	19.60	1.00
1.80	0.67	7.80	1.33	13.80	3.33	19.80	1.00
2.00	0.67	8.00	1.33	14.00	3.33	20.00	1.00
2.20	0.67	8.20	2.00	14.20	2.00	20.20	1.00
2.40	0.67	8.40	2.00	14.40	2.00	20.40	1.00
2.60	0.67	8.60	2.00	14.60	2.00	20.60	1.00
2.80	0.67	8.80	2.00	14.80	2.00	20.80	1.00
3.00	0.67	9.00	2.00	15.00	2.00	21.00	1.00
3.20	0.67	9.20	2.00	15.20	2.00	21.20	0.67
3.40	0.67	9.40	2.00	15.40	2.00	21.40	0.67
3.60	0.67	9.60	2.00	15.60	2.00	21.60	0.67
3.80	0.67	9.80	2.00	15.80	2.00	21.80	0.67
4.00	0.67	10.00	2.00	16.00	2.00	22.00	0.67
4.20	1.33	10.20	3.65	16.20	1.33	22.20	0.67
4.40	1.33	10.40	3.65	16.40	1.33	22.40	0.67
4.60	1.33	10.60	3.65	16.60	1.33	22.60	0.67
4.80	1.33	10.80	3.65	16.80	1.33	22.80	0.67
5.00	1.33	11.00	3.65	17.00	1.33	23.00	0.67
5.20	1.33	11.20	4.98	17.20	1.33	23.20	0.67
5.40	1.33	11.40	7.32	17.40	1.33	23.40	0.67
5.60	1.33	11.60	16.62	17.60	1.33	23.60	0.67
5.80	1.33	11.80	36.50	17.80	1.33	23.80	0.67
6.00	1.33	12.00	76.48	18.00	1.33	24.00	0.67

CALIB | STANDHYD (0201) | ID= 1 DT= 5.0 min | Area (ha)= 0.95 | Total Imp(%)= 60.00 | Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.57	0.38
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	79.58	30.00
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	0.67	6.083	1.33	12.083	13.31	18.08	1.33
0.167	0.67	6.167	1.33	12.167	13.30	18.17	1.33
0.250	0.67	6.250	1.33	12.250	10.31	18.25	1.33
0.333	0.67	6.333	1.33	12.333	8.32	18.33	1.33
0.417	0.67	6.417	1.33	12.417	7.85	18.42	1.33
0.500	0.67	6.500	1.33	12.500	5.98	18.50	1.33
0.583	0.67	6.583	1.33	12.583	5.98	18.58	1.33
0.667	0.67	6.667	1.33	12.667	5.72	18.67	1.33
0.750	0.67	6.750	1.33	12.750	5.65	18.75	1.33
0.833	0.67	6.833	1.33	12.833	4.98	18.83	1.33
0.917	0.67	6.917	1.33	12.917	3.98	18.92	1.33
1.000	0.67	7.000	1.33	13.000	3.98	19.00	1.33
1.083	0.67	7.083	1.33	13.083	3.33	19.08	1.00
1.167	0.67	7.167	1.33	13.167	3.33	19.17	1.00
1.250	0.67	7.250	1.33	13.250	3.33	19.25	1.00
1.333	0.67	7.333	1.33	13.333	3.33	19.33	1.00
1.417	0.67	7.417	1.33	13.417	3.33	19.42	1.00
1.500	0.67	7.500	1.33	13.500	3.33	19.50	1.00
1.583	0.67	7.583	1.33	13.583	3.33	19.58	1.00
1.667	0.67	7.667	1.33	13.667	3.33	19.67	1.00
1.750	0.67	7.750	1.33	13.750	3.33	19.75	1.00
1.833	0.67	7.833	1.33	13.833	3.33	19.83	1.00
1.917	0.67	7.917	1.33	13.917	3.33	19.92	1.00
2.000	0.67	8.000	1.33	14.000	3.33	20.00	1.00
2.083	0.67	8.083	2.00	14.083	2.00	20.08	1.00
2.167	0.67	8.167	2.00	14.167	2.00	20.17	1.00
2.250	0.67	8.250	2.00	14.250	2.00	20.25	1.00
2.333	0.67	8.333	2.00	14.333	2.00	20.33	1.00
2.417	0.67	8.417	2.00	14.417	2.00	20.42	1.00
2.500	0.67	8.500	2.00	14.500	2.00	20.50	1.00
2.583	0.67	8.583	2.00	14.583	2.00	20.58	1.00

2.667	0.67	8.667	2.00	14.667	2.00	20.67	1.00
2.750	0.67	8.750	2.00	14.750	2.00	20.75	1.00
2.833	0.67	8.833	2.00	14.833	2.00	20.83	1.00
2.917	0.67	8.917	2.00	14.917	2.00	20.92	1.00
3.000	0.67	9.000	2.00	15.000	2.00	21.00	1.00
3.083	0.67	9.083	2.00	15.083	2.00	21.08	0.67
3.167	0.67	9.167	2.00	15.167	2.00	21.17	0.67
3.250	0.67	9.250	2.00	15.250	2.00	21.25	0.67
3.333	0.67	9.333	2.00	15.333	2.00	21.33	0.67
3.417	0.67	9.417	2.00	15.417	2.00	21.42	0.67
3.500	0.67	9.500	2.00	15.500	2.00	21.50	0.67
3.583	0.67	9.583	2.00	15.583	2.00	21.58	0.67
3.667	0.67	9.667	2.00	15.667	2.00	21.67	0.67
3.750	0.67	9.750	2.00	15.750	2.00	21.75	0.67
3.833	0.67	9.833	2.00	15.833	2.00	21.83	0.67
3.917	0.67	9.917	2.00	15.917	2.00	21.92	0.67
4.000	0.67	10.000	2.00	16.000	2.00	22.00	0.67
4.083	1.33	10.083	3.65	16.083	1.33	22.08	0.67
4.167	1.33	10.167	3.65	16.167	1.33	22.17	0.67
4.250	1.33	10.250	3.65	16.250	1.33	22.25	0.67
4.333	1.33	10.333	3.65	16.333	1.33	22.33	0.67
4.417	1.33	10.417	3.65	16.417	1.33	22.42	0.67
4.500	1.33	10.500	3.65	16.500	1.33	22.50	0.67
4.583	1.33	10.583	3.65	16.583	1.33	22.58	0.67
4.667	1.33	10.667	3.65	16.667	1.33	22.67	0.67
4.750	1.33	10.750	3.65	16.750	1.33	22.75	0.67
4.833	1.33	10.833	3.65	16.833	1.33	22.83	0.67
4.917	1.33	10.917	3.65	16.917	1.33	22.92	0.67
5.000	1.33	11.000	3.65	17.000	1.33	23.00	0.67
5.083	1.33	11.083	4.98	17.083	1.33	23.08	0.67
5.167	1.33	11.167	4.98	17.167	1.33	23.17	0.67
5.250	1.33	11.250	6.38	17.250	1.33	23.25	0.67
5.333	1.33	11.333	7.32	17.333	1.33	23.33	0.67
5.417	1.33	11.417	9.18	17.417	1.33	23.42	0.67
5.500	1.33	11.500	16.62	17.500	1.33	23.50	0.67
5.583	1.33	11.583	16.62	17.583	1.33	23.58	0.67
5.667	1.33	11.667	32.52	17.667	1.33	23.67	0.67
5.750	1.33	11.750	36.50	17.750	1.33	23.75	0.67
5.833	1.33	11.833	52.49	17.833	1.33	23.83	0.67
5.917	1.33	11.917	76.48	17.917	1.33	23.92	0.67
6.000	1.33	12.000	76.48	18.000	1.33	24.00	0.67

Max.Eff.Inten.(mm/hr)=	76.48	18.35	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.48 (ii)	14.18 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.29	0.08	
			TOTALS
PEAK FLOW (cms)=	0.09	0.01	0.101 (iii)
TIME TO PEAK (hrs)=	12.00	12.17	12.00
RUNOFF VOLUME (mm)=	64.81	11.73	35.60
TOTAL RAINFALL (mm)=	66.81	66.81	66.81
RUNOFF COEFFICIENT =	0.97	0.18	0.53

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

READ STORM	Filename: C:\Users\Valdor\AppD ata\Local\Temp\ f4571bb6-bd47-4443-b3bc-69eb9d051ca4\84e2ffe4
Ptotal= 66.81 mm	Comments:

0.20	0.67	6.20	1.33	12.20	13.30	18.20	1.33
0.40	0.67	6.40	1.33	12.40	8.32	18.40	1.33
0.60	0.67	6.60	1.33	12.60	5.98	18.60	1.33
0.80	0.67	6.80	1.33	12.80	5.65	18.80	1.33
1.00	0.67	7.00	1.33	13.00	3.98	19.00	1.33
1.20	0.67	7.20	1.33	13.20	3.33	19.20	1.00
1.40	0.67	7.40	1.33	13.40	3.33	19.40	1.00
1.60	0.67	7.60	1.33	13.60	3.33	19.60	1.00
1.80	0.67	7.80	1.33	13.80	3.33	19.80	1.00
2.00	0.67	8.00	1.33	14.00	3.33	20.00	1.00
2.20	0.67	8.20	2.00	14.20	2.00	20.20	1.00
2.40	0.67	8.40	2.00	14.40	2.00	20.40	1.00
2.60	0.67	8.60	2.00	14.60	2.00	20.60	1.00
2.80	0.67	8.80	2.00	14.80	2.00	20.80	1.00
3.00	0.67	9.00	2.00	15.00	2.00	21.00	1.00
3.20	0.67	9.20	2.00	15.20	2.00	21.20	0.67
3.40	0.67	9.40	2.00	15.40	2.00	21.40	0.67
3.60	0.67	9.60	2.00	15.60	2.00	21.60	0.67
3.80	0.67	9.80	2.00	15.80	2.00	21.80	0.67
4.00	0.67	10.00	2.00	16.00	2.00	22.00	0.67
4.20	1.33	10.20	3.65	16.20	1.33	22.20	0.67
4.40	1.33	10.40	3.65	16.40	1.33	22.40	0.67
4.60	1.33	10.60	3.65	16.60	1.33	22.60	0.67
4.80	1.33	10.80	3.65	16.80	1.33	22.80	0.67
5.00	1.33	11.00	3.65	17.00	1.33	23.00	0.67
5.20	1.33	11.20	4.98	17.20	1.33	23.20	0.67
5.40	1.33	11.40	7.32	17.40	1.33	23.40	0.67
5.60	1.33	11.60	16.62	17.60	1.33	23.60	0.67
5.80	1.33	11.80	36.50	17.80	1.33	23.80	0.67
6.00	1.33	12.00	76.48	18.00	1.33	24.00	0.67

CALIB	
STANDHYD (0202)	Area (ha)= 1.01
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.61	0.40
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	82.06	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

0.083	0.67	6.083	1.33	12.083	13.31	18.08	1.33
0.167	0.67	6.167	1.33	12.167	13.30	18.17	1.33
0.250	0.67	6.250	1.33	12.250	10.31	18.25	1.33
0.333	0.67	6.333	1.33	12.333	8.32	18.33	1.33
0.417	0.67	6.417	1.33	12.417	7.85	18.42	1.33
0.500	0.67	6.500	1.33	12.500	5.98	18.50	1.33
0.583	0.67	6.583	1.33	12.583	5.98	18.58	1.33
0.667	0.67	6.667	1.33	12.667	5.72	18.67	1.33
0.750	0.67	6.750	1.33	12.750	5.65	18.75	1.33
0.833	0.67	6.833	1.33	12.833	4.98	18.83	1.33
0.917	0.67	6.917	1.33	12.917	3.98	18.92	1.33
1.000	0.67	7.000	1.33	13.000	3.98	19.00	1.33
1.083	0.67	7.083	1.33	13.083	3.33	19.08	1.00
1.167	0.67	7.167	1.33	13.167	3.33	19.17	1.00
1.250	0.67	7.250	1.33	13.250	3.33	19.25	1.00
1.333	0.67	7.333	1.33	13.333	3.33	19.33	1.00
1.417	0.67	7.417	1.33	13.417	3.33	19.42	1.00

1.500	0.67	7.500	1.33	13.500	3.33	19.50	1.00
1.583	0.67	7.583	1.33	13.583	3.33	19.58	1.00
1.667	0.67	7.667	1.33	13.667	3.33	19.67	1.00
1.750	0.67	7.750	1.33	13.750	3.33	19.75	1.00
1.833	0.67	7.833	1.33	13.833	3.33	19.83	1.00
1.917	0.67	7.917	1.33	13.917	3.33	19.92	1.00
2.000	0.67	8.000	1.33	14.000	3.33	20.00	1.00
2.083	0.67	8.083	2.00	14.083	2.00	20.08	1.00
2.167	0.67	8.167	2.00	14.167	2.00	20.17	1.00
2.250	0.67	8.250	2.00	14.250	2.00	20.25	1.00
2.333	0.67	8.333	2.00	14.333	2.00	20.33	1.00
2.417	0.67	8.417	2.00	14.417	2.00	20.42	1.00
2.500	0.67	8.500	2.00	14.500	2.00	20.50	1.00
2.583	0.67	8.583	2.00	14.583	2.00	20.58	1.00
2.667	0.67	8.667	2.00	14.667	2.00	20.67	1.00
2.750	0.67	8.750	2.00	14.750	2.00	20.75	1.00
2.833	0.67	8.833	2.00	14.833	2.00	20.83	1.00
2.917	0.67	8.917	2.00	14.917	2.00	20.92	1.00
3.000	0.67	9.000	2.00	15.000	2.00	21.00	1.00
3.083	0.67	9.083	2.00	15.083	2.00	21.08	0.67
3.167	0.67	9.167	2.00	15.167	2.00	21.17	0.67
3.250	0.67	9.250	2.00	15.250	2.00	21.25	0.67
3.333	0.67	9.333	2.00	15.333	2.00	21.33	0.67
3.417	0.67	9.417	2.00	15.417	2.00	21.42	0.67
3.500	0.67	9.500	2.00	15.500	2.00	21.50	0.67
3.583	0.67	9.583	2.00	15.583	2.00	21.58	0.67
3.667	0.67	9.667	2.00	15.667	2.00	21.67	0.67
3.750	0.67	9.750	2.00	15.750	2.00	21.75	0.67
3.833	0.67	9.833	2.00	15.833	2.00	21.83	0.67
3.917	0.67	9.917	2.00	15.917	2.00	21.92	0.67
4.000	0.67	10.000	2.00	16.000	2.00	22.00	0.67
4.083	1.33	10.083	3.65	16.083	1.33	22.08	0.67
4.167	1.33	10.167	3.65	16.167	1.33	22.17	0.67
4.250	1.33	10.250	3.65	16.250	1.33	22.25	0.67
4.333	1.33	10.333	3.65	16.333	1.33	22.33	0.67
4.417	1.33	10.417	3.65	16.417	1.33	22.42	0.67
4.500	1.33	10.500	3.65	16.500	1.33	22.50	0.67
4.583	1.33	10.583	3.65	16.583	1.33	22.58	0.67
4.667	1.33	10.667	3.65	16.667	1.33	22.67	0.67
4.750	1.33	10.750	3.65	16.750	1.33	22.75	0.67
4.833	1.33	10.833	3.65	16.833	1.33	22.83	0.67
4.917	1.33	10.917	3.65	16.917	1.33	22.92	0.67
5.000	1.33	11.000	3.65	17.000	1.33	23.00	0.67
5.083	1.33	11.083	4.98	17.083	1.33	23.08	0.67
5.167	1.33	11.167	4.98	17.167	1.33	23.17	0.67
5.250	1.33	11.250	6.38	17.250	1.33	23.25	0.67
5.333	1.33	11.333	7.32	17.333	1.33	23.33	0.67
5.417	1.33	11.417	9.18	17.417	1.33	23.42	0.67
5.500	1.33	11.500	16.62	17.500	1.33	23.50	0.67
5.583	1.33	11.583	16.62	17.583	1.33	23.58	0.67
5.667	1.33	11.667	32.52	17.667	1.33	23.67	0.67
5.750	1.33	11.750	36.50	17.750	1.33	23.75	0.67
5.833	1.33	11.833	52.49	17.833	1.33	23.83	0.67
5.917	1.33	11.917	76.48	17.917	1.33	23.92	0.67
6.000	1.33	12.000	76.48	18.000	1.33	24.00	0.67

Max.Eff.Inten.(mm/hr)=	76.48	18.35	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.53 (ii)	14.23 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.29	0.08	
			TOTALS
PEAK FLOW (cms)=	0.10	0.01	0.107 (iii)
TIME TO PEAK (hrs)=	12.00	12.17	12.00
RUNOFF VOLUME (mm)=	64.81	11.73	35.60
TOTAL RAINFALL (mm)=	66.81	66.81	66.81
RUNOFF COEFFICIENT =	0.97	0.18	0.53

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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 (0006)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0201):	0.95	0.101	12.00	35.60
+ ID2= 2 (0202):	1.01	0.107	12.00	35.60
ID = 3 (0006):	1.96	0.207	12.00	35.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2093	0.0094
	0.0320	0.0013	0.2332	0.0108
	0.0641	0.0027	0.2542	0.0121
	0.1019	0.0040	0.2733	0.0135
	0.1289	0.0054	0.2910	0.0148
	0.1547	0.0067	0.3076	0.0162
	0.1776	0.0081	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0006)	1.960	0.207	12.00	35.60
OUTFLOW: ID= 1 (0301)	1.960	0.160	12.00	35.60

PEAK FLOW REDUCTION [Qout/Qin](%)= 77.00
TIME SHIFT OF PEAK FLOW (min)= 0.00
MAXIMUM STORAGE USED (ha.m.)= 0.0077

DIVERTHYD(0302)
IN= 1 # OUT= 5

Outflow / Inflow Relationships

Flow 1 (cms)	+ Flow 2 (cms)	+ Flow 3 (cms)	+ Flow 4 (cms)	+ Flow 5 (cms)	= Total (cms)
0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.02	0.00	0.00	0.00	0.03
0.02	0.04	0.00	0.00	0.00	0.06
0.03	0.07	0.00	0.00	0.00	0.10
0.04	0.09	0.00	0.00	0.00	0.13
0.05	0.11	0.00	0.00	0.00	0.15
0.06	0.12	0.00	0.00	0.00	0.18
0.07	0.14	0.00	0.00	0.00	0.21
0.09	0.15	0.00	0.00	0.00	0.23
0.10	0.16	0.00	0.00	0.00	0.25
0.11	0.17	0.00	0.00	0.00	0.27
0.11	0.18	0.00	0.00	0.00	0.29
0.12	0.19	0.00	0.00	0.00	0.31

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	1.96	0.16	12.00	35.60
ID= 2 (2) :	0.66	0.05	12.00	35.60

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     ID= 3  (   2)    :   1.30      0.11     12.00   35.60
     ID= 4  (   2)    :   0.00      0.00      0.00    0.00
     ID= 5  (   2)    :   0.00      0.00      0.00    0.00
     ID= 6  (   2)    :   0.00      0.00      0.00    0.00
------------------------------------------------------------------------------

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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\84e2ffe4
| Ptotal= 66.81 mm |    Comments:
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.67	6.20	1.33	12.20	13.30	18.20	1.33
0.40	0.67	6.40	1.33	12.40	8.32	18.40	1.33
0.60	0.67	6.60	1.33	12.60	5.98	18.60	1.33
0.80	0.67	6.80	1.33	12.80	5.65	18.80	1.33
1.00	0.67	7.00	1.33	13.00	3.98	19.00	1.33
1.20	0.67	7.20	1.33	13.20	3.33	19.20	1.00
1.40	0.67	7.40	1.33	13.40	3.33	19.40	1.00
1.60	0.67	7.60	1.33	13.60	3.33	19.60	1.00
1.80	0.67	7.80	1.33	13.80	3.33	19.80	1.00
2.00	0.67	8.00	1.33	14.00	3.33	20.00	1.00
2.20	0.67	8.20	2.00	14.20	2.00	20.20	1.00
2.40	0.67	8.40	2.00	14.40	2.00	20.40	1.00
2.60	0.67	8.60	2.00	14.60	2.00	20.60	1.00
2.80	0.67	8.80	2.00	14.80	2.00	20.80	1.00
3.00	0.67	9.00	2.00	15.00	2.00	21.00	1.00
3.20	0.67	9.20	2.00	15.20	2.00	21.20	0.67
3.40	0.67	9.40	2.00	15.40	2.00	21.40	0.67
3.60	0.67	9.60	2.00	15.60	2.00	21.60	0.67
3.80	0.67	9.80	2.00	15.80	2.00	21.80	0.67
4.00	0.67	10.00	2.00	16.00	2.00	22.00	0.67
4.20	1.33	10.20	3.65	16.20	1.33	22.20	0.67
4.40	1.33	10.40	3.65	16.40	1.33	22.40	0.67
4.60	1.33	10.60	3.65	16.60	1.33	22.60	0.67
4.80	1.33	10.80	3.65	16.80	1.33	22.80	0.67
5.00	1.33	11.00	3.65	17.00	1.33	23.00	0.67
5.20	1.33	11.20	4.98	17.20	1.33	23.20	0.67
5.40	1.33	11.40	7.32	17.40	1.33	23.40	0.67
5.60	1.33	11.60	16.62	17.60	1.33	23.60	0.67
5.80	1.33	11.80	36.50	17.80	1.33	23.80	0.67
6.00	1.33	12.00	76.48	18.00	1.33	24.00	0.67

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

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| CALIB           |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
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                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     115.18        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.67	6.083	1.33	12.083	13.31	18.08	1.33
0.167	0.67	6.167	1.33	12.167	13.30	18.17	1.33
0.250	0.67	6.250	1.33	12.250	10.31	18.25	1.33
0.333	0.67	6.333	1.33	12.333	8.32	18.33	1.33
0.417	0.67	6.417	1.33	12.417	7.85	18.42	1.33
0.500	0.67	6.500	1.33	12.500	5.98	18.50	1.33
0.583	0.67	6.583	1.33	12.583	5.98	18.58	1.33
0.667	0.67	6.667	1.33	12.667	5.72	18.67	1.33
0.750	0.67	6.750	1.33	12.750	5.65	18.75	1.33
0.833	0.67	6.833	1.33	12.833	4.98	18.83	1.33
0.917	0.67	6.917	1.33	12.917	3.98	18.92	1.33
1.000	0.67	7.000	1.33	13.000	3.98	19.00	1.33
1.083	0.67	7.083	1.33	13.083	3.33	19.08	1.00
1.167	0.67	7.167	1.33	13.167	3.33	19.17	1.00
1.250	0.67	7.250	1.33	13.250	3.33	19.25	1.00
1.333	0.67	7.333	1.33	13.333	3.33	19.33	1.00
1.417	0.67	7.417	1.33	13.417	3.33	19.42	1.00
1.500	0.67	7.500	1.33	13.500	3.33	19.50	1.00
1.583	0.67	7.583	1.33	13.583	3.33	19.58	1.00
1.667	0.67	7.667	1.33	13.667	3.33	19.67	1.00
1.750	0.67	7.750	1.33	13.750	3.33	19.75	1.00
1.833	0.67	7.833	1.33	13.833	3.33	19.83	1.00
1.917	0.67	7.917	1.33	13.917	3.33	19.92	1.00
2.000	0.67	8.000	1.33	14.000	3.33	20.00	1.00
2.083	0.67	8.083	2.00	14.083	2.00	20.08	1.00
2.167	0.67	8.167	2.00	14.167	2.00	20.17	1.00
2.250	0.67	8.250	2.00	14.250	2.00	20.25	1.00
2.333	0.67	8.333	2.00	14.333	2.00	20.33	1.00
2.417	0.67	8.417	2.00	14.417	2.00	20.42	1.00
2.500	0.67	8.500	2.00	14.500	2.00	20.50	1.00
2.583	0.67	8.583	2.00	14.583	2.00	20.58	1.00
2.667	0.67	8.667	2.00	14.667	2.00	20.67	1.00
2.750	0.67	8.750	2.00	14.750	2.00	20.75	1.00
2.833	0.67	8.833	2.00	14.833	2.00	20.83	1.00
2.917	0.67	8.917	2.00	14.917	2.00	20.92	1.00
3.000	0.67	9.000	2.00	15.000	2.00	21.00	1.00
3.083	0.67	9.083	2.00	15.083	2.00	21.08	0.67
3.167	0.67	9.167	2.00	15.167	2.00	21.17	0.67
3.250	0.67	9.250	2.00	15.250	2.00	21.25	0.67
3.333	0.67	9.333	2.00	15.333	2.00	21.33	0.67
3.417	0.67	9.417	2.00	15.417	2.00	21.42	0.67
3.500	0.67	9.500	2.00	15.500	2.00	21.50	0.67
3.583	0.67	9.583	2.00	15.583	2.00	21.58	0.67
3.667	0.67	9.667	2.00	15.667	2.00	21.67	0.67
3.750	0.67	9.750	2.00	15.750	2.00	21.75	0.67
3.833	0.67	9.833	2.00	15.833	2.00	21.83	0.67
3.917	0.67	9.917	2.00	15.917	2.00	21.92	0.67
4.000	0.67	10.000	2.00	16.000	2.00	22.00	0.67
4.083	1.33	10.083	3.65	16.083	1.33	22.08	0.67
4.167	1.33	10.167	3.65	16.167	1.33	22.17	0.67
4.250	1.33	10.250	3.65	16.250	1.33	22.25	0.67
4.333	1.33	10.333	3.65	16.333	1.33	22.33	0.67
4.417	1.33	10.417	3.65	16.417	1.33	22.42	0.67
4.500	1.33	10.500	3.65	16.500	1.33	22.50	0.67
4.583	1.33	10.583	3.65	16.583	1.33	22.58	0.67
4.667	1.33	10.667	3.65	16.667	1.33	22.67	0.67
4.750	1.33	10.750	3.65	16.750	1.33	22.75	0.67
4.833	1.33	10.833	3.65	16.833	1.33	22.83	0.67
4.917	1.33	10.917	3.65	16.917	1.33	22.92	0.67
5.000	1.33	11.000	3.65	17.000	1.33	23.00	0.67
5.083	1.33	11.083	4.98	17.083	1.33	23.08	0.67
5.167	1.33	11.167	4.98	17.167	1.33	23.17	0.67
5.250	1.33	11.250	6.38	17.250	1.33	23.25	0.67
5.333	1.33	11.333	7.32	17.333	1.33	23.33	0.67
5.417	1.33	11.417	9.18	17.417	1.33	23.42	0.67
5.500	1.33	11.500	16.62	17.500	1.33	23.50	0.67
5.583	1.33	11.583	16.62	17.583	1.33	23.58	0.67
5.667	1.33	11.667	32.52	17.667	1.33	23.67	0.67
5.750	1.33	11.750	36.50	17.750	1.33	23.75	0.67
5.833	1.33	11.833	52.49	17.833	1.33	23.83	0.67
5.917	1.33	11.917	76.48	17.917	1.33	23.92	0.67
6.000	1.33	12.000	76.48	18.000	1.33	24.00	0.67

```
Max.Eff.Inten.(mm/hr)=      76.48        17.28
          over (min)         5.00        20.00
```

```
     Storage Coeff.  (min)=       3.10 (ii)   15.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.27         0.07
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.17         0.03          0.185 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.17          12.00
     RUNOFF VOLUME    (mm)=      64.81        11.40          32.76
     TOTAL RAINFALL   (mm)=      66.81        66.81          66.81
     RUNOFF COEFFICIENT   =       0.97         0.17           0.49

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.185    12.00    32.76
     + ID2= 2 (  0302):     0.66   0.049    12.00    35.60
       ====================================================
       ID = 3 (  0021):     2.65   0.233    12.00    33.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053      0.0240
                         0.0083     0.0024   |   0.1266      0.0264
                         0.0166     0.0048   |   0.1494      0.0288
                         0.0223     0.0072   |   0.1736      0.0312
                         0.0268     0.0096   |   0.1992      0.0336
                         0.0306     0.0120   |   0.2261      0.0360
                         0.0394     0.0144   |   0.2595      0.0384
                         0.0523     0.0168   |   0.2985      0.0408
                         0.0679     0.0192   |   0.3416      0.0432
                         0.0857     0.0216   |   0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)    2.647     0.233     12.00      33.46
   OUTFLOW: ID= 1 (  0303)    2.647     0.103     12.17      33.44

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 44.12
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0238

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-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.001    12.33     8.62
     + ID2= 2 (  0303):     2.65   0.103    12.17    33.44
       ====================================================
       ID = 3 (  0024):     2.78   0.104    12.17    32.28

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

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-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\84e2ffe4
| Ptotal= 66.81 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.67 |  6.20    1.33 | 12.20   13.30 | 18.20    1.33
                0.40    0.67 |  6.40    1.33 | 12.40    8.32 | 18.40    1.33
                0.60    0.67 |  6.60    1.33 | 12.60    5.98 | 18.60    1.33
                0.80    0.67 |  6.80    1.33 | 12.80    5.65 | 18.80    1.33
                1.00    0.67 |  7.00    1.33 | 13.00    3.98 | 19.00    1.33
                1.20    0.67 |  7.20    1.33 | 13.20    3.33 | 19.20    1.00
                1.40    0.67 |  7.40    1.33 | 13.40    3.33 | 19.40    1.00
                1.60    0.67 |  7.60    1.33 | 13.60    3.33 | 19.60    1.00
                1.80    0.67 |  7.80    1.33 | 13.80    3.33 | 19.80    1.00
                2.00    0.67 |  8.00    1.33 | 14.00    3.33 | 20.00    1.00
                2.20    0.67 |  8.20    2.00 | 14.20    2.00 | 20.20    1.00
                2.40    0.67 |  8.40    2.00 | 14.40    2.00 | 20.40    1.00
                2.60    0.67 |  8.60    2.00 | 14.60    2.00 | 20.60    1.00
                2.80    0.67 |  8.80    2.00 | 14.80    2.00 | 20.80    1.00
                3.00    0.67 |  9.00    2.00 | 15.00    2.00 | 21.00    1.00
                3.20    0.67 |  9.20    2.00 | 15.20    2.00 | 21.20    0.67
                3.40    0.67 |  9.40    2.00 | 15.40    2.00 | 21.40    0.67
                3.60    0.67 |  9.60    2.00 | 15.60    2.00 | 21.60    0.67
                3.80    0.67 |  9.80    2.00 | 15.80    2.00 | 21.80    0.67
                4.00    0.67 | 10.00    2.00 | 16.00    2.00 | 22.00    0.67
                4.20    1.33 | 10.20    3.65 | 16.20    1.33 | 22.20    0.67
                4.40    1.33 | 10.40    3.65 | 16.40    1.33 | 22.40    0.67
                4.60    1.33 | 10.60    3.65 | 16.60    1.33 | 22.60    0.67
                4.80    1.33 | 10.80    3.65 | 16.80    1.33 | 22.80    0.67
                5.00    1.33 | 11.00    3.65 | 17.00    1.33 | 23.00    0.67
                5.20    1.33 | 11.20    4.98 | 17.20    1.33 | 23.20    0.67
                5.40    1.33 | 11.40    7.32 | 17.40    1.33 | 23.40    0.67
                5.60    1.33 | 11.60   16.62 | 17.60    1.33 | 23.60    0.67
                5.80    1.33 | 11.80   36.50 | 17.80    1.33 | 23.80    0.67
                6.00    1.33 | 12.00   76.48 | 18.00    1.33 | 24.00    0.67

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-------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53          1.26
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     136.38         30.00
     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    0.67 | 6.083    1.33 |12.083   13.31 | 18.08    1.33
               0.167    0.67 | 6.167    1.33 |12.167   13.30 | 18.17    1.33
               0.250    0.67 | 6.250    1.33 |12.250   10.31 | 18.25    1.33
               0.333    0.67 | 6.333    1.33 |12.333    8.32 | 18.33    1.33
               0.417    0.67 | 6.417    1.33 |12.417    7.85 | 18.42    1.33
               0.500    0.67 | 6.500    1.33 |12.500    5.98 | 18.50    1.33
               0.583    0.67 | 6.583    1.33 |12.583    5.98 | 18.58    1.33
               0.667    0.67 | 6.667    1.33 |12.667    5.72 | 18.67    1.33
               0.750    0.67 | 6.750    1.33 |12.750    5.65 | 18.75    1.33
```

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 0.833   0.67 | 6.833   1.33 |12.833   4.98 | 18.83   1.33
 0.917   0.67 | 6.917   1.33 |12.917   3.98 | 18.92   1.33
 1.000   0.67 | 7.000   1.33 |13.000   3.98 | 19.00   1.33
 1.083   0.67 | 7.083   1.33 |13.083   3.33 | 19.08   1.00
 1.167   0.67 | 7.167   1.33 |13.167   3.33 | 19.17   1.00
 1.250   0.67 | 7.250   1.33 |13.250   3.33 | 19.25   1.00
 1.333   0.67 | 7.333   1.33 |13.333   3.33 | 19.33   1.00
 1.417   0.67 | 7.417   1.33 |13.417   3.33 | 19.42   1.00
 1.500   0.67 | 7.500   1.33 |13.500   3.33 | 19.50   1.00
 1.583   0.67 | 7.583   1.33 |13.583   3.33 | 19.58   1.00
 1.667   0.67 | 7.667   1.33 |13.667   3.33 | 19.67   1.00
 1.750   0.67 | 7.750   1.33 |13.750   3.33 | 19.75   1.00
 1.833   0.67 | 7.833   1.33 |13.833   3.33 | 19.83   1.00
 1.917   0.67 | 7.917   1.33 |13.917   3.33 | 19.92   1.00
 2.000   0.67 | 8.000   1.33 |14.000   3.33 | 20.00   1.00
 2.083   0.67 | 8.083   2.00 |14.083   2.00 | 20.08   1.00
 2.167   0.67 | 8.167   2.00 |14.167   2.00 | 20.17   1.00
 2.250   0.67 | 8.250   2.00 |14.250   2.00 | 20.25   1.00
 2.333   0.67 | 8.333   2.00 |14.333   2.00 | 20.33   1.00
 2.417   0.67 | 8.417   2.00 |14.417   2.00 | 20.42   1.00
 2.500   0.67 | 8.500   2.00 |14.500   2.00 | 20.50   1.00
 2.583   0.67 | 8.583   2.00 |14.583   2.00 | 20.58   1.00
 2.667   0.67 | 8.667   2.00 |14.667   2.00 | 20.67   1.00
 2.750   0.67 | 8.750   2.00 |14.750   2.00 | 20.75   1.00
 2.833   0.67 | 8.833   2.00 |14.833   2.00 | 20.83   1.00
 2.917   0.67 | 8.917   2.00 |14.917   2.00 | 20.92   1.00
 3.000   0.67 | 9.000   2.00 |15.000   2.00 | 21.00   1.00
 3.083   0.67 | 9.083   2.00 |15.083   2.00 | 21.08   0.67
 3.167   0.67 | 9.167   2.00 |15.167   2.00 | 21.17   0.67
 3.250   0.67 | 9.250   2.00 |15.250   2.00 | 21.25   0.67
 3.333   0.67 | 9.333   2.00 |15.333   2.00 | 21.33   0.67
 3.417   0.67 | 9.417   2.00 |15.417   2.00 | 21.42   0.67
 3.500   0.67 | 9.500   2.00 |15.500   2.00 | 21.50   0.67
 3.583   0.67 | 9.583   2.00 |15.583   2.00 | 21.58   0.67
 3.667   0.67 | 9.667   2.00 |15.667   2.00 | 21.67   0.67
 3.750   0.67 | 9.750   2.00 |15.750   2.00 | 21.75   0.67
 3.833   0.67 | 9.833   2.00 |15.833   2.00 | 21.83   0.67
 3.917   0.67 | 9.917   2.00 |15.917   2.00 | 21.92   0.67
 4.000   0.67 |10.000   2.00 |16.000   2.00 | 22.00   0.67
 4.083   1.33 |10.083   3.65 |16.083   1.33 | 22.08   0.67
 4.167   1.33 |10.167   3.65 |16.167   1.33 | 22.17   0.67
 4.250   1.33 |10.250   3.65 |16.250   1.33 | 22.25   0.67
 4.333   1.33 |10.333   3.65 |16.333   1.33 | 22.33   0.67
 4.417   1.33 |10.417   3.65 |16.417   1.33 | 22.42   0.67
 4.500   1.33 |10.500   3.65 |16.500   1.33 | 22.50   0.67
 4.583   1.33 |10.583   3.65 |16.583   1.33 | 22.58   0.67
 4.667   1.33 |10.667   3.65 |16.667   1.33 | 22.67   0.67
 4.750   1.33 |10.750   3.65 |16.750   1.33 | 22.75   0.67
 4.833   1.33 |10.833   3.65 |16.833   1.33 | 22.83   0.67
 4.917   1.33 |10.917   3.65 |16.917   1.33 | 22.92   0.67
 5.000   1.33 |11.000   3.65 |17.000   1.33 | 23.00   0.67
 5.083   1.33 |11.083   4.98 |17.083   1.33 | 23.08   0.67
 5.167   1.33 |11.167   4.98 |17.167   1.33 | 23.17   0.67
 5.250   1.33 |11.250   6.38 |17.250   1.33 | 23.25   0.67
 5.333   1.33 |11.333   7.32 |17.333   1.33 | 23.33   0.67
 5.417   1.33 |11.417   9.18 |17.417   1.33 | 23.42   0.67
 5.500   1.33 |11.500  16.62 |17.500   1.33 | 23.50   0.67
 5.583   1.33 |11.583  16.62 |17.583   1.33 | 23.58   0.67
 5.667   1.33 |11.667  32.52 |17.667   1.33 | 23.67   0.67
 5.750   1.33 |11.750  36.50 |17.750   1.33 | 23.75   0.67
 5.833   1.33 |11.833  52.49 |17.833   1.33 | 23.83   0.67
 5.917   1.33 |11.917  76.48 |17.917   1.33 | 23.92   0.67
 6.000   1.33 |12.000  76.48 |18.000   1.33 | 24.00   0.67

Max.Eff.Inten.(mm/hr)=      76.48        17.28
          over (min)         5.00        20.00
Storage Coeff.  (min)=       3.43 (ii)   15.41 (ii)
Unit Hyd. Tpeak (min)=       5.00        20.00
Unit Hyd. peak  (cms)=       0.26         0.07
                                          *TOTALS*
     PEAK FLOW      (cms)=       0.23         0.04          0.257 (iii)
     TIME TO PEAK   (hrs)=      12.00        12.17          12.00
     RUNOFF VOLUME   (mm)=      64.81        11.40          32.76
     TOTAL RAINFALL  (mm)=      66.81        66.81          66.81
     RUNOFF COEFFICIENT  =       0.97         0.17           0.49

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
          CN*  =  40.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD   (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=    1|
| Total(cms)=  0.3|      AREA     QPEAK     TPEAK    R.V.
-------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.26     12.00   32.76
     ================================================
     MAJOR SYS.(ID= 2):   0.00      0.00      0.00    0.00
     MINOR SYS.(ID= 3):   2.79      0.26     12.00   32.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.79   0.257    12.00    32.76
     + ID2= 2 (  0302):     1.30   0.111    12.00    35.60
       ================================================
       ID = 3 (  0022):     4.09   0.368    12.00    33.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0025 <ID= 2> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0003 = HYDROGRAPH 0001
       ID1= 1 (  0022):     4.09   0.368    12.00    33.66
     + ID2= 2 (  0025):     0.00   0.000     0.00     0.00
       ================================================
       ID = 3 (  0029):     4.09   0.368    12.00    33.66

     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 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\facb3d43-c8f4-48f5-81c9-f497f0d33545\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\facb3d43-c8f4-48f5-81c9-f497f0d33545\scena

DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________

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  ************************************************
  ** SIMULATION : Run 04: 10yr 24hr SCS Barrie  **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\40932aba
| Ptotal= 80.55 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.80 |  6.20    1.61 | 12.20   16.04 | 18.20    1.61
                0.40    0.80 |  6.40    1.61 | 12.40   10.03 | 18.40    1.61
                0.60    0.80 |  6.60    1.61 | 12.60    7.22 | 18.60    1.61
                0.80    0.80 |  6.80    1.61 | 12.80    6.81 | 18.80    1.61
                1.00    0.80 |  7.00    1.61 | 13.00    4.80 | 19.00    1.61
                1.20    0.80 |  7.20    1.61 | 13.20    4.02 | 19.20    1.20
                1.40    0.80 |  7.40    1.61 | 13.40    4.02 | 19.40    1.20
                1.60    0.80 |  7.60    1.61 | 13.60    4.02 | 19.60    1.20
                1.80    0.80 |  7.80    1.61 | 13.80    4.02 | 19.80    1.20
                2.00    0.80 |  8.00    1.61 | 14.00    4.02 | 20.00    1.20
                2.20    0.80 |  8.20    2.41 | 14.20    2.41 | 20.20    1.20
                2.40    0.80 |  8.40    2.41 | 14.40    2.41 | 20.40    1.20
                2.60    0.80 |  8.60    2.41 | 14.60    2.41 | 20.60    1.20
                2.80    0.80 |  8.80    2.41 | 14.80    2.41 | 20.80    1.20
                3.00    0.80 |  9.00    2.41 | 15.00    2.41 | 21.00    1.20
                3.20    0.80 |  9.20    2.41 | 15.20    2.41 | 21.20    0.80
                3.40    0.80 |  9.40    2.41 | 15.40    2.41 | 21.40    0.80
                3.60    0.80 |  9.60    2.41 | 15.60    2.41 | 21.60    0.80
                3.80    0.80 |  9.80    2.41 | 15.80    2.41 | 21.80    0.80
                4.00    0.80 | 10.00    2.41 | 16.00    2.41 | 22.00    0.80
                4.20    1.61 | 10.20    4.40 | 16.20    1.61 | 22.20    0.80
                4.40    1.61 | 10.40    4.40 | 16.40    1.61 | 22.40    0.80
                4.60    1.61 | 10.60    4.40 | 16.60    1.61 | 22.60    0.80
                4.80    1.61 | 10.80    4.40 | 16.80    1.61 | 22.80    0.80
                5.00    1.61 | 11.00    4.40 | 17.00    1.61 | 23.00    0.80
                5.20    1.61 | 11.20    6.01 | 17.20    1.61 | 23.20    0.80
                5.40    1.61 | 11.40    8.82 | 17.40    1.61 | 23.40    0.80
                5.60    1.61 | 11.60   20.04 | 17.60    1.61 | 23.60    0.80
                5.80    1.61 | 11.80   44.11 | 17.80    1.61 | 23.80    0.80
                6.00    1.61 | 12.00   92.23 | 18.00    1.61 | 24.00    0.80

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| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

        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   0.80 | 6.083    1.61 |12.083   16.05 | 18.08    1.61
                0.167   0.80 | 6.167    1.61 |12.167   16.04 | 18.17    1.61
                0.250   0.80 | 6.250    1.61 |12.250   12.43 | 18.25    1.61
                0.333   0.80 | 6.333    1.61 |12.333   10.03 | 18.33    1.61
                0.417   0.80 | 6.417    1.61 |12.417    9.47 | 18.42    1.61
                0.500   0.80 | 6.500    1.61 |12.500    7.22 | 18.50    1.61
                0.583   0.80 | 6.583    1.61 |12.583    7.22 | 18.58    1.61
                0.667   0.80 | 6.667    1.61 |12.667    6.89 | 18.67    1.61
                0.750   0.80 | 6.750    1.61 |12.750    6.81 | 18.75    1.61
                0.833   0.80 | 6.833    1.61 |12.833    6.01 | 18.83    1.61
                0.917   0.80 | 6.917    1.61 |12.917    4.80 | 18.92    1.61
                1.000   0.80 | 7.000    1.61 |13.000    4.80 | 19.00    1.61
                1.083   0.80 | 7.083    1.61 |13.083    4.02 | 19.08    1.20
                1.167   0.80 | 7.167    1.61 |13.167    4.02 | 19.17    1.20
                1.250   0.80 | 7.250    1.61 |13.250    4.02 | 19.25    1.20
                1.333   0.80 | 7.333    1.61 |13.333    4.02 | 19.33    1.20
                1.417   0.80 | 7.417    1.61 |13.417    4.02 | 19.42    1.20
                1.500   0.80 | 7.500    1.61 |13.500    4.02 | 19.50    1.20
                1.583   0.80 | 7.583    1.61 |13.583    4.02 | 19.58    1.20
                1.667   0.80 | 7.667    1.61 |13.667    4.02 | 19.67    1.20
                1.750   0.80 | 7.750    1.61 |13.750    4.02 | 19.75    1.20
                1.833   0.80 | 7.833    1.61 |13.833    4.02 | 19.83    1.20
                1.917   0.80 | 7.917    1.61 |13.917    4.02 | 19.92    1.20
                2.000   0.80 | 8.000    1.61 |14.000    4.02 | 20.00    1.20
                2.083   0.80 | 8.083    2.41 |14.083    2.41 | 20.08    1.20
                2.167   0.80 | 8.167    2.41 |14.167    2.41 | 20.17    1.20
                2.250   0.80 | 8.250    2.41 |14.250    2.41 | 20.25    1.20
                2.333   0.80 | 8.333    2.41 |14.333    2.41 | 20.33    1.20
                2.417   0.80 | 8.417    2.41 |14.417    2.41 | 20.42    1.20
                2.500   0.80 | 8.500    2.41 |14.500    2.41 | 20.50    1.20
                2.583   0.80 | 8.583    2.41 |14.583    2.41 | 20.58    1.20
                2.667   0.80 | 8.667    2.41 |14.667    2.41 | 20.67    1.20
                2.750   0.80 | 8.750    2.41 |14.750    2.41 | 20.75    1.20
                2.833   0.80 | 8.833    2.41 |14.833    2.41 | 20.83    1.20
                2.917   0.80 | 8.917    2.41 |14.917    2.41 | 20.92    1.20
                3.000   0.80 | 9.000    2.41 |15.000    2.41 | 21.00    1.20
                3.083   0.80 | 9.083    2.41 |15.083    2.41 | 21.08    0.80
                3.167   0.80 | 9.167    2.41 |15.167    2.41 | 21.17    0.80
                3.250   0.80 | 9.250    2.41 |15.250    2.41 | 21.25    0.80
                3.333   0.80 | 9.333    2.41 |15.333    2.41 | 21.33    0.80
                3.417   0.80 | 9.417    2.41 |15.417    2.41 | 21.42    0.80
                3.500   0.80 | 9.500    2.41 |15.500    2.41 | 21.50    0.80
                3.583   0.80 | 9.583    2.41 |15.583    2.41 | 21.58    0.80
                3.667   0.80 | 9.667    2.41 |15.667    2.41 | 21.67    0.80
                3.750   0.80 | 9.750    2.41 |15.750    2.41 | 21.75    0.80
                3.833   0.80 | 9.833    2.41 |15.833    2.41 | 21.83    0.80
                3.917   0.80 | 9.917    2.41 |15.917    2.41 | 21.92    0.80
                4.000   0.80 |10.000    2.41 |16.000    2.41 | 22.00    0.80
                4.083   1.61 |10.083    4.40 |16.083    1.61 | 22.08    0.80
                4.167   1.61 |10.167    4.40 |16.167    1.61 | 22.17    0.80
                4.250   1.61 |10.250    4.40 |16.250    1.61 | 22.25    0.80
                4.333   1.61 |10.333    4.40 |16.333    1.61 | 22.33    0.80
                4.417   1.61 |10.417    4.40 |16.417    1.61 | 22.42    0.80
                4.500   1.61 |10.500    4.40 |16.500    1.61 | 22.50    0.80
                4.583   1.61 |10.583    4.40 |16.583    1.61 | 22.58    0.80
                4.667   1.61 |10.667    4.40 |16.667    1.61 | 22.67    0.80
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4.750	1.61	10.750	4.40	16.750	1.61	22.75	0.80
4.833	1.61	10.833	4.40	16.833	1.61	22.83	0.80
4.917	1.61	10.917	4.40	16.917	1.61	22.92	0.80
5.000	1.61	11.000	4.40	17.000	1.61	23.00	0.80
5.083	1.61	11.083	6.01	17.083	1.61	23.08	0.80
5.167	1.61	11.167	6.01	17.167	1.61	23.17	0.80
5.250	1.61	11.250	7.70	17.250	1.61	23.25	0.80
5.333	1.61	11.333	8.82	17.333	1.61	23.33	0.80
5.417	1.61	11.417	11.06	17.417	1.61	23.42	0.80
5.500	1.61	11.500	20.04	17.500	1.61	23.50	0.80
5.583	1.61	11.583	20.04	17.583	1.61	23.58	0.80
5.667	1.61	11.667	39.29	17.667	1.61	23.67	0.80
5.750	1.61	11.750	44.11	17.750	1.61	23.75	0.80
5.833	1.61	11.833	63.35	17.833	1.61	23.83	0.80
5.917	1.61	11.917	92.23	17.917	1.61	23.92	0.80
6.000	1.61	12.000	92.23	18.000	1.61	24.00	0.80

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 12.497
TOTAL RAINFALL (mm)= 80.552
RUNOFF COEFFICIENT = 0.155

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

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\40932aba
Ptotal= 80.55 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.80	6.20	1.61	12.20	16.04	18.20	1.61
0.40	0.80	6.40	1.61	12.40	10.03	18.40	1.61
0.60	0.80	6.60	1.61	12.60	7.22	18.60	1.61
0.80	0.80	6.80	1.61	12.80	6.81	18.80	1.61
1.00	0.80	7.00	1.61	13.00	4.80	19.00	1.61
1.20	0.80	7.20	1.61	13.20	4.02	19.20	1.20
1.40	0.80	7.40	1.61	13.40	4.02	19.40	1.20
1.60	0.80	7.60	1.61	13.60	4.02	19.60	1.20
1.80	0.80	7.80	1.61	13.80	4.02	19.80	1.20
2.00	0.80	8.00	1.61	14.00	4.02	20.00	1.20
2.20	0.80	8.20	2.41	14.20	2.41	20.20	1.20
2.40	0.80	8.40	2.41	14.40	2.41	20.40	1.20
2.60	0.80	8.60	2.41	14.60	2.41	20.60	1.20
2.80	0.80	8.80	2.41	14.80	2.41	20.80	1.20
3.00	0.80	9.00	2.41	15.00	2.41	21.00	1.20
3.20	0.80	9.20	2.41	15.20	2.41	21.20	0.80
3.40	0.80	9.40	2.41	15.40	2.41	21.40	0.80
3.60	0.80	9.60	2.41	15.60	2.41	21.60	0.80
3.80	0.80	9.80	2.41	15.80	2.41	21.80	0.80
4.00	0.80	10.00	2.41	16.00	2.41	22.00	0.80
4.20	1.61	10.20	4.40	16.20	1.61	22.20	0.80
4.40	1.61	10.40	4.40	16.40	1.61	22.40	0.80
4.60	1.61	10.60	4.40	16.60	1.61	22.60	0.80
4.80	1.61	10.80	4.40	16.80	1.61	22.80	0.80
5.00	1.61	11.00	4.40	17.00	1.61	23.00	0.80
5.20	1.61	11.20	6.01	17.20	1.61	23.20	0.80
5.40	1.61	11.40	8.82	17.40	1.61	23.40	0.80
5.60	1.61	11.60	20.04	17.60	1.61	23.60	0.80
5.80	1.61	11.80	44.11	17.80	1.61	23.80	0.80
6.00	1.61	12.00	92.23	18.00	1.61	24.00	0.80

CALIB | NASHYD (0205) | ID= 1 DT= 5.0 min | Area (ha)= 0.13 Curve Number (CN)= 40.0 | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 | U.H. Tp(hrs)= 0.47

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	0.80	6.083	1.61	12.083	16.05	18.08	1.61
0.167	0.80	6.167	1.61	12.167	16.04	18.17	1.61
0.250	0.80	6.250	1.61	12.250	12.43	18.25	1.61
0.333	0.80	6.333	1.61	12.333	10.03	18.33	1.61
0.417	0.80	6.417	1.61	12.417	9.47	18.42	1.61
0.500	0.80	6.500	1.61	12.500	7.22	18.50	1.61
0.583	0.80	6.583	1.61	12.583	7.22	18.58	1.61
0.667	0.80	6.667	1.61	12.667	6.89	18.67	1.61
0.750	0.80	6.750	1.61	12.750	6.81	18.75	1.61
0.833	0.80	6.833	1.61	12.833	6.01	18.83	1.61
0.917	0.80	6.917	1.61	12.917	4.80	18.92	1.61
1.000	0.80	7.000	1.61	13.000	4.80	19.00	1.61
1.083	0.80	7.083	1.61	13.083	4.02	19.08	1.20
1.167	0.80	7.167	1.61	13.167	4.02	19.17	1.20
1.250	0.80	7.250	1.61	13.250	4.02	19.25	1.20
1.333	0.80	7.333	1.61	13.333	4.02	19.33	1.20
1.417	0.80	7.417	1.61	13.417	4.02	19.42	1.20
1.500	0.80	7.500	1.61	13.500	4.02	19.50	1.20
1.583	0.80	7.583	1.61	13.583	4.02	19.58	1.20
1.667	0.80	7.667	1.61	13.667	4.02	19.67	1.20
1.750	0.80	7.750	1.61	13.750	4.02	19.75	1.20
1.833	0.80	7.833	1.61	13.833	4.02	19.83	1.20
1.917	0.80	7.917	1.61	13.917	4.02	19.92	1.20
2.000	0.80	8.000	1.61	14.000	4.02	20.00	1.20
2.083	0.80	8.083	2.41	14.083	2.41	20.08	1.20
2.167	0.80	8.167	2.41	14.167	2.41	20.17	1.20
2.250	0.80	8.250	2.41	14.250	2.41	20.25	1.20
2.333	0.80	8.333	2.41	14.333	2.41	20.33	1.20
2.417	0.80	8.417	2.41	14.417	2.41	20.42	1.20
2.500	0.80	8.500	2.41	14.500	2.41	20.50	1.20
2.583	0.80	8.583	2.41	14.583	2.41	20.58	1.20
2.667	0.80	8.667	2.41	14.667	2.41	20.67	1.20
2.750	0.80	8.750	2.41	14.750	2.41	20.75	1.20
2.833	0.80	8.833	2.41	14.833	2.41	20.83	1.20
2.917	0.80	8.917	2.41	14.917	2.41	20.92	1.20
3.000	0.80	9.000	2.41	15.000	2.41	21.00	1.20
3.083	0.80	9.083	2.41	15.083	2.41	21.08	0.80
3.167	0.80	9.167	2.41	15.167	2.41	21.17	0.80
3.250	0.80	9.250	2.41	15.250	2.41	21.25	0.80
3.333	0.80	9.333	2.41	15.333	2.41	21.33	0.80
3.417	0.80	9.417	2.41	15.417	2.41	21.42	0.80
3.500	0.80	9.500	2.41	15.500	2.41	21.50	0.80
3.583	0.80	9.583	2.41	15.583	2.41	21.58	0.80
3.667	0.80	9.667	2.41	15.667	2.41	21.67	0.80
3.750	0.80	9.750	2.41	15.750	2.41	21.75	0.80
3.833	0.80	9.833	2.41	15.833	2.41	21.83	0.80
3.917	0.80	9.917	2.41	15.917	2.41	21.92	0.80
4.000	0.80	10.000	2.41	16.000	2.41	22.00	0.80
4.083	1.61	10.083	4.40	16.083	1.61	22.08	0.80
4.167	1.61	10.167	4.40	16.167	1.61	22.17	0.80
4.250	1.61	10.250	4.40	16.250	1.61	22.25	0.80
4.333	1.61	10.333	4.40	16.333	1.61	22.33	0.80
4.417	1.61	10.417	4.40	16.417	1.61	22.42	0.80
4.500	1.61	10.500	4.40	16.500	1.61	22.50	0.80
4.583	1.61	10.583	4.40	16.583	1.61	22.58	0.80
4.667	1.61	10.667	4.40	16.667	1.61	22.67	0.80
4.750	1.61	10.750	4.40	16.750	1.61	22.75	0.80
4.833	1.61	10.833	4.40	16.833	1.61	22.83	0.80

4.917	1.61	10.917	4.40	16.917	1.61	22.92	0.80
5.000	1.61	11.000	4.40	17.000	1.61	23.00	0.80
5.083	1.61	11.083	6.01	17.083	1.61	23.08	0.80
5.167	1.61	11.167	6.01	17.167	1.61	23.17	0.80
5.250	1.61	11.250	7.70	17.250	1.61	23.25	0.80
5.333	1.61	11.333	8.82	17.333	1.61	23.33	0.80
5.417	1.61	11.417	11.06	17.417	1.61	23.42	0.80
5.500	1.61	11.500	20.04	17.500	1.61	23.50	0.80
5.583	1.61	11.583	20.04	17.583	1.61	23.58	0.80
5.667	1.61	11.667	39.29	17.667	1.61	23.67	0.80
5.750	1.61	11.750	44.11	17.750	1.61	23.75	0.80
5.833	1.61	11.833	63.35	17.833	1.61	23.83	0.80
5.917	1.61	11.917	92.23	17.917	1.61	23.92	0.80
6.000	1.61	12.000	92.23	18.000	1.61	24.00	0.80

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 12.491
TOTAL RAINFALL (mm)= 80.552
RUNOFF COEFFICIENT = 0.155

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

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\40932aba
Ptotal= 80.55 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.80	6.20	1.61	12.20	16.04	18.20	1.61
0.40	0.80	6.40	1.61	12.40	10.03	18.40	1.61
0.60	0.80	6.60	1.61	12.60	7.22	18.60	1.61
0.80	0.80	6.80	1.61	12.80	6.81	18.80	1.61
1.00	0.80	7.00	1.61	13.00	4.80	19.00	1.61
1.20	0.80	7.20	1.61	13.20	4.02	19.20	1.20
1.40	0.80	7.40	1.61	13.40	4.02	19.40	1.20
1.60	0.80	7.60	1.61	13.60	4.02	19.60	1.20
1.80	0.80	7.80	1.61	13.80	4.02	19.80	1.20
2.00	0.80	8.00	1.61	14.00	4.02	20.00	1.20
2.20	0.80	8.20	2.41	14.20	2.41	20.20	1.20
2.40	0.80	8.40	2.41	14.40	2.41	20.40	1.20
2.60	0.80	8.60	2.41	14.60	2.41	20.60	1.20
2.80	0.80	8.80	2.41	14.80	2.41	20.80	1.20
3.00	0.80	9.00	2.41	15.00	2.41	21.00	1.20
3.20	0.80	9.20	2.41	15.20	2.41	21.20	0.80
3.40	0.80	9.40	2.41	15.40	2.41	21.40	0.80
3.60	0.80	9.60	2.41	15.60	2.41	21.60	0.80
3.80	0.80	9.80	2.41	15.80	2.41	21.80	0.80
4.00	0.80	10.00	2.41	16.00	2.41	22.00	0.80
4.20	1.61	10.20	4.40	16.20	1.61	22.20	0.80
4.40	1.61	10.40	4.40	16.40	1.61	22.40	0.80
4.60	1.61	10.60	4.40	16.60	1.61	22.60	0.80
4.80	1.61	10.80	4.40	16.80	1.61	22.80	0.80
5.00	1.61	11.00	4.40	17.00	1.61	23.00	0.80
5.20	1.61	11.20	6.01	17.20	1.61	23.20	0.80
5.40	1.61	11.40	8.82	17.40	1.61	23.40	0.80
5.60	1.61	11.60	20.04	17.60	1.61	23.60	0.80
5.80	1.61	11.80	44.11	17.80	1.61	23.80	0.80
6.00	1.61	12.00	92.23	18.00	1.61	24.00	0.80

CALIB

STANDHYD (0201)| Area (ha)= 0.95
ID= 1 DT= 5.0 min | Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.57	0.38
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	79.58	30.00
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	0.80	6.083	1.61	12.083	16.05	18.08	1.61
0.167	0.80	6.167	1.61	12.167	16.04	18.17	1.61
0.250	0.80	6.250	1.61	12.250	12.43	18.25	1.61
0.333	0.80	6.333	1.61	12.333	10.03	18.33	1.61
0.417	0.80	6.417	1.61	12.417	9.47	18.42	1.61
0.500	0.80	6.500	1.61	12.500	7.22	18.50	1.61
0.583	0.80	6.583	1.61	12.583	7.22	18.58	1.61
0.667	0.80	6.667	1.61	12.667	6.89	18.67	1.61
0.750	0.80	6.750	1.61	12.750	6.81	18.75	1.61
0.833	0.80	6.833	1.61	12.833	6.01	18.83	1.61
0.917	0.80	6.917	1.61	12.917	4.80	18.92	1.61
1.000	0.80	7.000	1.61	13.000	4.80	19.00	1.61
1.083	0.80	7.083	1.61	13.083	4.02	19.08	1.20
1.167	0.80	7.167	1.61	13.167	4.02	19.17	1.20
1.250	0.80	7.250	1.61	13.250	4.02	19.25	1.20
1.333	0.80	7.333	1.61	13.333	4.02	19.33	1.20
1.417	0.80	7.417	1.61	13.417	4.02	19.42	1.20
1.500	0.80	7.500	1.61	13.500	4.02	19.50	1.20
1.583	0.80	7.583	1.61	13.583	4.02	19.58	1.20
1.667	0.80	7.667	1.61	13.667	4.02	19.67	1.20
1.750	0.80	7.750	1.61	13.750	4.02	19.75	1.20
1.833	0.80	7.833	1.61	13.833	4.02	19.83	1.20
1.917	0.80	7.917	1.61	13.917	4.02	19.92	1.20
2.000	0.80	8.000	1.61	14.000	4.02	20.00	1.20
2.083	0.80	8.083	2.41	14.083	2.41	20.08	1.20
2.167	0.80	8.167	2.41	14.167	2.41	20.17	1.20
2.250	0.80	8.250	2.41	14.250	2.41	20.25	1.20
2.333	0.80	8.333	2.41	14.333	2.41	20.33	1.20
2.417	0.80	8.417	2.41	14.417	2.41	20.42	1.20
2.500	0.80	8.500	2.41	14.500	2.41	20.50	1.20
2.583	0.80	8.583	2.41	14.583	2.41	20.58	1.20
2.667	0.80	8.667	2.41	14.667	2.41	20.67	1.20
2.750	0.80	8.750	2.41	14.750	2.41	20.75	1.20
2.833	0.80	8.833	2.41	14.833	2.41	20.83	1.20
2.917	0.80	8.917	2.41	14.917	2.41	20.92	1.20
3.000	0.80	9.000	2.41	15.000	2.41	21.00	1.20
3.083	0.80	9.083	2.41	15.083	2.41	21.08	0.80
3.167	0.80	9.167	2.41	15.167	2.41	21.17	0.80
3.250	0.80	9.250	2.41	15.250	2.41	21.25	0.80
3.333	0.80	9.333	2.41	15.333	2.41	21.33	0.80
3.417	0.80	9.417	2.41	15.417	2.41	21.42	0.80
3.500	0.80	9.500	2.41	15.500	2.41	21.50	0.80
3.583	0.80	9.583	2.41	15.583	2.41	21.58	0.80
3.667	0.80	9.667	2.41	15.667	2.41	21.67	0.80
3.750	0.80	9.750	2.41	15.750	2.41	21.75	0.80
3.833	0.80	9.833	2.41	15.833	2.41	21.83	0.80
3.917	0.80	9.917	2.41	15.917	2.41	21.92	0.80
4.000	0.80	10.000	2.41	16.000	2.41	22.00	0.80
4.083	1.61	10.083	4.40	16.083	1.61	22.08	0.80
4.167	1.61	10.167	4.40	16.167	1.61	22.17	0.80
4.250	1.61	10.250	4.40	16.250	1.61	22.25	0.80
4.333	1.61	10.333	4.40	16.333	1.61	22.33	0.80
4.417	1.61	10.417	4.40	16.417	1.61	22.42	0.80
4.500	1.61	10.500	4.40	16.500	1.61	22.50	0.80

4.583	1.61	10.583	4.40	16.583	1.61	22.58	0.80
4.667	1.61	10.667	4.40	16.667	1.61	22.67	0.80
4.750	1.61	10.750	4.40	16.750	1.61	22.75	0.80
4.833	1.61	10.833	4.40	16.833	1.61	22.83	0.80
4.917	1.61	10.917	4.40	16.917	1.61	22.92	0.80
5.000	1.61	11.000	4.40	17.000	1.61	23.00	0.80
5.083	1.61	11.083	6.01	17.083	1.61	23.08	0.80
5.167	1.61	11.167	6.01	17.167	1.61	23.17	0.80
5.250	1.61	11.250	7.70	17.250	1.61	23.25	0.80
5.333	1.61	11.333	8.82	17.333	1.61	23.33	0.80
5.417	1.61	11.417	11.06	17.417	1.61	23.42	0.80
5.500	1.61	11.500	20.04	17.500	1.61	23.50	0.80
5.583	1.61	11.583	20.04	17.583	1.61	23.58	0.80
5.667	1.61	11.667	39.29	17.667	1.61	23.67	0.80
5.750	1.61	11.750	44.11	17.750	1.61	23.75	0.80
5.833	1.61	11.833	63.35	17.833	1.61	23.83	0.80
5.917	1.61	11.917	92.23	17.917	1.61	23.92	0.80
6.000	1.61	12.000	92.23	18.000	1.61	24.00	0.80

Max.Eff.Inten.(mm/hr)=	92.23	31.00	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.30 (ii)	11.79 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.30	0.09	
			TOTALS
PEAK FLOW (cms)=	0.11	0.02	0.125 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	78.55	16.71	44.53
TOTAL RAINFALL (mm)=	80.55	80.55	80.55
RUNOFF COEFFICIENT =	0.98	0.21	0.55

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\40932aba
Ptotal= 80.55 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.80	6.20	1.61	12.20	16.04	18.20	1.61
0.40	0.80	6.40	1.61	12.40	10.03	18.40	1.61
0.60	0.80	6.60	1.61	12.60	7.22	18.60	1.61
0.80	0.80	6.80	1.61	12.80	6.81	18.80	1.61
1.00	0.80	7.00	1.61	13.00	4.80	19.00	1.61
1.20	0.80	7.20	1.61	13.20	4.02	19.20	1.20
1.40	0.80	7.40	1.61	13.40	4.02	19.40	1.20
1.60	0.80	7.60	1.61	13.60	4.02	19.60	1.20
1.80	0.80	7.80	1.61	13.80	4.02	19.80	1.20
2.00	0.80	8.00	1.61	14.00	4.02	20.00	1.20
2.20	0.80	8.20	2.41	14.20	2.41	20.20	1.20
2.40	0.80	8.40	2.41	14.40	2.41	20.40	1.20
2.60	0.80	8.60	2.41	14.60	2.41	20.60	1.20
2.80	0.80	8.80	2.41	14.80	2.41	20.80	1.20
3.00	0.80	9.00	2.41	15.00	2.41	21.00	1.20
3.20	0.80	9.20	2.41	15.20	2.41	21.20	0.80
3.40	0.80	9.40	2.41	15.40	2.41	21.40	0.80
3.60	0.80	9.60	2.41	15.60	2.41	21.60	0.80
3.80	0.80	9.80	2.41	15.80	2.41	21.80	0.80
4.00	0.80	10.00	2.41	16.00	2.41	22.00	0.80
4.20	1.61	10.20	4.40	16.20	1.61	22.20	0.80
4.40	1.61	10.40	4.40	16.40	1.61	22.40	0.80
4.60	1.61	10.60	4.40	16.60	1.61	22.60	0.80
4.80	1.61	10.80	4.40	16.80	1.61	22.80	0.80
5.00	1.61	11.00	4.40	17.00	1.61	23.00	0.80
5.20	1.61	11.20	6.01	17.20	1.61	23.20	0.80
5.40	1.61	11.40	8.82	17.40	1.61	23.40	0.80
5.60	1.61	11.60	20.04	17.60	1.61	23.60	0.80
5.80	1.61	11.80	44.11	17.80	1.61	23.80	0.80
6.00	1.61	12.00	92.23	18.00	1.61	24.00	0.80

CALIB | STANDHYD (0202) | Area (ha)= 1.01
ID= 1 DT= 5.0 min | Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.61	0.40
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	82.06	30.00
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	0.80	6.083	1.61	12.083	16.05	18.08	1.61
0.167	0.80	6.167	1.61	12.167	16.04	18.17	1.61
0.250	0.80	6.250	1.61	12.250	12.43	18.25	1.61
0.333	0.80	6.333	1.61	12.333	10.03	18.33	1.61
0.417	0.80	6.417	1.61	12.417	9.47	18.42	1.61
0.500	0.80	6.500	1.61	12.500	7.22	18.50	1.61
0.583	0.80	6.583	1.61	12.583	7.22	18.58	1.61
0.667	0.80	6.667	1.61	12.667	6.89	18.67	1.61
0.750	0.80	6.750	1.61	12.750	6.81	18.75	1.61
0.833	0.80	6.833	1.61	12.833	6.01	18.83	1.61
0.917	0.80	6.917	1.61	12.917	4.80	18.92	1.61
1.000	0.80	7.000	1.61	13.000	4.80	19.00	1.61
1.083	0.80	7.083	1.61	13.083	4.02	19.08	1.20
1.167	0.80	7.167	1.61	13.167	4.02	19.17	1.20
1.250	0.80	7.250	1.61	13.250	4.02	19.25	1.20
1.333	0.80	7.333	1.61	13.333	4.02	19.33	1.20
1.417	0.80	7.417	1.61	13.417	4.02	19.42	1.20
1.500	0.80	7.500	1.61	13.500	4.02	19.50	1.20
1.583	0.80	7.583	1.61	13.583	4.02	19.58	1.20
1.667	0.80	7.667	1.61	13.667	4.02	19.67	1.20
1.750	0.80	7.750	1.61	13.750	4.02	19.75	1.20
1.833	0.80	7.833	1.61	13.833	4.02	19.83	1.20
1.917	0.80	7.917	1.61	13.917	4.02	19.92	1.20
2.000	0.80	8.000	1.61	14.000	4.02	20.00	1.20
2.083	0.80	8.083	2.41	14.083	2.41	20.08	1.20
2.167	0.80	8.167	2.41	14.167	2.41	20.17	1.20
2.250	0.80	8.250	2.41	14.250	2.41	20.25	1.20
2.333	0.80	8.333	2.41	14.333	2.41	20.33	1.20
2.417	0.80	8.417	2.41	14.417	2.41	20.42	1.20
2.500	0.80	8.500	2.41	14.500	2.41	20.50	1.20
2.583	0.80	8.583	2.41	14.583	2.41	20.58	1.20
2.667	0.80	8.667	2.41	14.667	2.41	20.67	1.20
2.750	0.80	8.750	2.41	14.750	2.41	20.75	1.20
2.833	0.80	8.833	2.41	14.833	2.41	20.83	1.20
2.917	0.80	8.917	2.41	14.917	2.41	20.92	1.20
3.000	0.80	9.000	2.41	15.000	2.41	21.00	1.20
3.083	0.80	9.083	2.41	15.083	2.41	21.08	0.80
3.167	0.80	9.167	2.41	15.167	2.41	21.17	0.80
3.250	0.80	9.250	2.41	15.250	2.41	21.25	0.80
3.333	0.80	9.333	2.41	15.333	2.41	21.33	0.80

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               3.417    0.80 | 9.417    2.41 |15.417    2.41 | 21.42    0.80
               3.500    0.80 | 9.500    2.41 |15.500    2.41 | 21.50    0.80
               3.583    0.80 | 9.583    2.41 |15.583    2.41 | 21.58    0.80
               3.667    0.80 | 9.667    2.41 |15.667    2.41 | 21.67    0.80
               3.750    0.80 | 9.750    2.41 |15.750    2.41 | 21.75    0.80
               3.833    0.80 | 9.833    2.41 |15.833    2.41 | 21.83    0.80
               3.917    0.80 | 9.917    2.41 |15.917    2.41 | 21.92    0.80
               4.000    0.80 |10.000    2.41 |16.000    2.41 | 22.00    0.80
               4.083    1.61 |10.083    4.40 |16.083    1.61 | 22.08    0.80
               4.167    1.61 |10.167    4.40 |16.167    1.61 | 22.17    0.80
               4.250    1.61 |10.250    4.40 |16.250    1.61 | 22.25    0.80
               4.333    1.61 |10.333    4.40 |16.333    1.61 | 22.33    0.80
               4.417    1.61 |10.417    4.40 |16.417    1.61 | 22.42    0.80
               4.500    1.61 |10.500    4.40 |16.500    1.61 | 22.50    0.80
               4.583    1.61 |10.583    4.40 |16.583    1.61 | 22.58    0.80
               4.667    1.61 |10.667    4.40 |16.667    1.61 | 22.67    0.80
               4.750    1.61 |10.750    4.40 |16.750    1.61 | 22.75    0.80
               4.833    1.61 |10.833    4.40 |16.833    1.61 | 22.83    0.80
               4.917    1.61 |10.917    4.40 |16.917    1.61 | 22.92    0.80
               5.000    1.61 |11.000    4.40 |17.000    1.61 | 23.00    0.80
               5.083    1.61 |11.083    6.01 |17.083    1.61 | 23.08    0.80
               5.167    1.61 |11.167    6.01 |17.167    1.61 | 23.17    0.80
               5.250    1.61 |11.250    7.70 |17.250    1.61 | 23.25    0.80
               5.333    1.61 |11.333    8.82 |17.333    1.61 | 23.33    0.80
               5.417    1.61 |11.417   11.06 |17.417    1.61 | 23.42    0.80
               5.500    1.61 |11.500   20.04 |17.500    1.61 | 23.50    0.80
               5.583    1.61 |11.583   20.04 |17.583    1.61 | 23.58    0.80
               5.667    1.61 |11.667   39.29 |17.667    1.61 | 23.67    0.80
               5.750    1.61 |11.750   44.11 |17.750    1.61 | 23.75    0.80
               5.833    1.61 |11.833   63.35 |17.833    1.61 | 23.83    0.80
               5.917    1.61 |11.917   92.23 |17.917    1.61 | 23.92    0.80
               6.000    1.61 |12.000   92.23 |18.000    1.61 | 24.00    0.80

     Max.Eff.Inten.(mm/hr)=      92.23        31.00
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.34 (ii)   11.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.12         0.02          0.133 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      78.55        16.71          44.53
     TOTAL RAINFALL   (mm)=      80.55        80.55          80.55
     RUNOFF COEFFICIENT   =       0.98         0.21           0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.95   0.125    12.00    44.53
      + ID2= 2 (  0202):     1.01   0.133    12.00    44.53
        ================================================
        ID = 3 (  0006):     1.96   0.258    12.00    44.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2093      0.0094
                         0.0320     0.0013   |   0.2332      0.0108
                         0.0641     0.0027   |   0.2542      0.0121
                         0.1019     0.0040   |   0.2733      0.0135
                         0.1289     0.0054   |   0.2910      0.0148
                         0.1547     0.0067   |   0.3076      0.0162
                         0.1776     0.0081   |   0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)     1.960     0.258     12.00      44.53
   OUTFLOW: ID= 1 (  0301)     1.960     0.196     12.00      44.53

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 76.07
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0098

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-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
       (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
        0.00     0.00     0.00     0.00     0.00     0.00
        0.01     0.02     0.00     0.00     0.00     0.03
        0.02     0.04     0.00     0.00     0.00     0.06
        0.03     0.07     0.00     0.00     0.00     0.10
        0.04     0.09     0.00     0.00     0.00     0.13
        0.05     0.11     0.00     0.00     0.00     0.15
        0.06     0.12     0.00     0.00     0.00     0.18
        0.07     0.14     0.00     0.00     0.00     0.21
        0.09     0.15     0.00     0.00     0.00     0.23
        0.10     0.16     0.00     0.00     0.00     0.25
        0.11     0.17     0.00     0.00     0.00     0.27
        0.11     0.18     0.00     0.00     0.00     0.29
        0.12     0.19     0.00     0.00     0.00     0.31

                          AREA     QPEAK     TPEAK     R.V.
                          (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   1.96      0.20     12.00    44.53
     ================================================
     ID= 2  (   2)    :   0.66      0.07     12.00    44.53
     ID= 3  (   2)    :   1.30      0.13     12.00    44.53
     ID= 4  (   2)    :   0.00      0.00      0.00     0.00
     ID= 5  (   2)    :   0.00      0.00      0.00     0.00
     ID= 6  (   2)    :   0.00      0.00      0.00     0.00
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-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\40932aba
| Ptotal= 80.55 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.80 |  6.20    1.61 | 12.20   16.04 | 18.20    1.61
                0.40    0.80 |  6.40    1.61 | 12.40   10.03 | 18.40    1.61
                0.60    0.80 |  6.60    1.61 | 12.60    7.22 | 18.60    1.61
                0.80    0.80 |  6.80    1.61 | 12.80    6.81 | 18.80    1.61
                1.00    0.80 |  7.00    1.61 | 13.00    4.80 | 19.00    1.61
                1.20    0.80 |  7.20    1.61 | 13.20    4.02 | 19.20    1.20
                1.40    0.80 |  7.40    1.61 | 13.40    4.02 | 19.40    1.20
                1.60    0.80 |  7.60    1.61 | 13.60    4.02 | 19.60    1.20
                1.80    0.80 |  7.80    1.61 | 13.80    4.02 | 19.80    1.20
```

2.00	0.80	8.00	1.61	14.00	4.02	20.00	1.20
2.20	0.80	8.20	2.41	14.20	2.41	20.20	1.20
2.40	0.80	8.40	2.41	14.40	2.41	20.40	1.20
2.60	0.80	8.60	2.41	14.60	2.41	20.60	1.20
2.80	0.80	8.80	2.41	14.80	2.41	20.80	1.20
3.00	0.80	9.00	2.41	15.00	2.41	21.00	1.20
3.20	0.80	9.20	2.41	15.20	2.41	21.20	0.80
3.40	0.80	9.40	2.41	15.40	2.41	21.40	0.80
3.60	0.80	9.60	2.41	15.60	2.41	21.60	0.80
3.80	0.80	9.80	2.41	15.80	2.41	21.80	0.80
4.00	0.80	10.00	2.41	16.00	2.41	22.00	0.80
4.20	1.61	10.20	4.40	16.20	1.61	22.20	0.80
4.40	1.61	10.40	4.40	16.40	1.61	22.40	0.80
4.60	1.61	10.60	4.40	16.60	1.61	22.60	0.80
4.80	1.61	10.80	4.40	16.80	1.61	22.80	0.80
5.00	1.61	11.00	4.40	17.00	1.61	23.00	0.80
5.20	1.61	11.20	6.01	17.20	1.61	23.20	0.80
5.40	1.61	11.40	8.82	17.40	1.61	23.40	0.80
5.60	1.61	11.60	20.04	17.60	1.61	23.60	0.80
5.80	1.61	11.80	44.11	17.80	1.61	23.80	0.80
6.00	1.61	12.00	92.23	18.00	1.61	24.00	0.80

CALIB
STANDHYD (0203) | Area (ha)= 1.99
ID= 1 DT= 5.0 min | Total Imp(%)= 55.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.09	0.90
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	115.18	30.00
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	0.80	6.083	1.61	12.083	16.05	18.08	1.61
0.167	0.80	6.167	1.61	12.167	16.04	18.17	1.61
0.250	0.80	6.250	1.61	12.250	12.43	18.25	1.61
0.333	0.80	6.333	1.61	12.333	10.03	18.33	1.61
0.417	0.80	6.417	1.61	12.417	9.47	18.42	1.61
0.500	0.80	6.500	1.61	12.500	7.22	18.50	1.61
0.583	0.80	6.583	1.61	12.583	7.22	18.58	1.61
0.667	0.80	6.667	1.61	12.667	6.89	18.67	1.61
0.750	0.80	6.750	1.61	12.750	6.81	18.75	1.61
0.833	0.80	6.833	1.61	12.833	6.01	18.83	1.61
0.917	0.80	6.917	1.61	12.917	4.80	18.92	1.61
1.000	0.80	7.000	1.61	13.000	4.80	19.00	1.61
1.083	0.80	7.083	1.61	13.083	4.02	19.08	1.20
1.167	0.80	7.167	1.61	13.167	4.02	19.17	1.20
1.250	0.80	7.250	1.61	13.250	4.02	19.25	1.20
1.333	0.80	7.333	1.61	13.333	4.02	19.33	1.20
1.417	0.80	7.417	1.61	13.417	4.02	19.42	1.20
1.500	0.80	7.500	1.61	13.500	4.02	19.50	1.20
1.583	0.80	7.583	1.61	13.583	4.02	19.58	1.20
1.667	0.80	7.667	1.61	13.667	4.02	19.67	1.20
1.750	0.80	7.750	1.61	13.750	4.02	19.75	1.20
1.833	0.80	7.833	1.61	13.833	4.02	19.83	1.20
1.917	0.80	7.917	1.61	13.917	4.02	19.92	1.20
2.000	0.80	8.000	1.61	14.000	4.02	20.00	1.20
2.083	0.80	8.083	2.41	14.083	2.41	20.08	1.20
2.167	0.80	8.167	2.41	14.167	2.41	20.17	1.20
2.250	0.80	8.250	2.41	14.250	2.41	20.25	1.20
2.333	0.80	8.333	2.41	14.333	2.41	20.33	1.20
2.417	0.80	8.417	2.41	14.417	2.41	20.42	1.20
2.500	0.80	8.500	2.41	14.500	2.41	20.50	1.20
2.583	0.80	8.583	2.41	14.583	2.41	20.58	1.20
2.667	0.80	8.667	2.41	14.667	2.41	20.67	1.20
2.750	0.80	8.750	2.41	14.750	2.41	20.75	1.20
2.833	0.80	8.833	2.41	14.833	2.41	20.83	1.20
2.917	0.80	8.917	2.41	14.917	2.41	20.92	1.20
3.000	0.80	9.000	2.41	15.000	2.41	21.00	1.20
3.083	0.80	9.083	2.41	15.083	2.41	21.08	0.80
3.167	0.80	9.167	2.41	15.167	2.41	21.17	0.80
3.250	0.80	9.250	2.41	15.250	2.41	21.25	0.80
3.333	0.80	9.333	2.41	15.333	2.41	21.33	0.80
3.417	0.80	9.417	2.41	15.417	2.41	21.42	0.80
3.500	0.80	9.500	2.41	15.500	2.41	21.50	0.80
3.583	0.80	9.583	2.41	15.583	2.41	21.58	0.80
3.667	0.80	9.667	2.41	15.667	2.41	21.67	0.80
3.750	0.80	9.750	2.41	15.750	2.41	21.75	0.80
3.833	0.80	9.833	2.41	15.833	2.41	21.83	0.80
3.917	0.80	9.917	2.41	15.917	2.41	21.92	0.80
4.000	0.80	10.000	2.41	16.000	2.41	22.00	0.80
4.083	1.61	10.083	4.40	16.083	1.61	22.08	0.80
4.167	1.61	10.167	4.40	16.167	1.61	22.17	0.80
4.250	1.61	10.250	4.40	16.250	1.61	22.25	0.80
4.333	1.61	10.333	4.40	16.333	1.61	22.33	0.80
4.417	1.61	10.417	4.40	16.417	1.61	22.42	0.80
4.500	1.61	10.500	4.40	16.500	1.61	22.50	0.80
4.583	1.61	10.583	4.40	16.583	1.61	22.58	0.80
4.667	1.61	10.667	4.40	16.667	1.61	22.67	0.80
4.750	1.61	10.750	4.40	16.750	1.61	22.75	0.80
4.833	1.61	10.833	4.40	16.833	1.61	22.83	0.80
4.917	1.61	10.917	4.40	16.917	1.61	22.92	0.80
5.000	1.61	11.000	4.40	17.000	1.61	23.00	0.80
5.083	1.61	11.083	6.01	17.083	1.61	23.08	0.80
5.167	1.61	11.167	6.01	17.167	1.61	23.17	0.80
5.250	1.61	11.250	7.70	17.250	1.61	23.25	0.80
5.333	1.61	11.333	8.82	17.333	1.61	23.33	0.80
5.417	1.61	11.417	11.06	17.417	1.61	23.42	0.80
5.500	1.61	11.500	20.04	17.500	1.61	23.50	0.80
5.583	1.61	11.583	20.04	17.583	1.61	23.58	0.80
5.667	1.61	11.667	39.29	17.667	1.61	23.67	0.80
5.750	1.61	11.750	44.11	17.750	1.61	23.75	0.80
5.833	1.61	11.833	63.35	17.833	1.61	23.83	0.80
5.917	1.61	11.917	92.23	17.917	1.61	23.92	0.80
6.000	1.61	12.000	92.23	18.000	1.61	24.00	0.80

				TOTALS
Max.Eff.Inten.(mm/hr)=		92.23	29.25	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.87 (ii)	12.58 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.28	0.08	
PEAK FLOW	(cms)=	0.20	0.04	0.236 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	78.55	16.27	41.18
TOTAL RAINFALL	(mm)=	80.55	80.55	80.55
RUNOFF COEFFICIENT	=	0.98	0.20	0.51

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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 (0021)
1 + 2 = 3 | AREA QPEAK TPEAK R.V.

```
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.236    12.00    41.18
     + ID2= 2 (  0302):     0.66   0.067    12.00    44.53
       ====================================================
       ID = 3 (  0021):     2.65   0.303    12.00    42.01

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.1053      0.0240
                         0.0083     0.0024    |   0.1266      0.0264
                         0.0166     0.0048    |   0.1494      0.0288
                         0.0223     0.0072    |   0.1736      0.0312
                         0.0268     0.0096    |   0.1992      0.0336
                         0.0306     0.0120    |   0.2261      0.0360
                         0.0394     0.0144    |   0.2595      0.0384
                         0.0523     0.0168    |   0.2985      0.0408
                         0.0679     0.0192    |   0.3416      0.0432
                         0.0857     0.0216    |   0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     2.651      0.303     12.00      42.01
   OUTFLOW: ID= 1 (  0303)     2.651      0.148     12.08      41.99

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 48.67
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0289

------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.002    12.33    12.49
     + ID2= 2 (  0303):     2.65   0.148    12.08    41.99
       ====================================================
       ID = 3 (  0024):     2.78   0.149    12.17    40.61

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

------------------------------------------------------------------------------
--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\40932aba
| Ptotal= 80.55 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.80 |  6.20    1.61 | 12.20   16.04 | 18.20    1.61
                0.40    0.80 |  6.40    1.61 | 12.40   10.03 | 18.40    1.61
                0.60    0.80 |  6.60    1.61 | 12.60    7.22 | 18.60    1.61
                0.80    0.80 |  6.80    1.61 | 12.80    6.81 | 18.80    1.61
                1.00    0.80 |  7.00    1.61 | 13.00    4.80 | 19.00    1.61
                1.20    0.80 |  7.20    1.61 | 13.20    4.02 | 19.20    1.20
                1.40    0.80 |  7.40    1.61 | 13.40    4.02 | 19.40    1.20
                1.60    0.80 |  7.60    1.61 | 13.60    4.02 | 19.60    1.20
                1.80    0.80 |  7.80    1.61 | 13.80    4.02 | 19.80    1.20
                2.00    0.80 |  8.00    1.61 | 14.00    4.02 | 20.00    1.20
                2.20    0.80 |  8.20    2.41 | 14.20    2.41 | 20.20    1.20
                2.40    0.80 |  8.40    2.41 | 14.40    2.41 | 20.40    1.20
                2.60    0.80 |  8.60    2.41 | 14.60    2.41 | 20.60    1.20
                2.80    0.80 |  8.80    2.41 | 14.80    2.41 | 20.80    1.20
                3.00    0.80 |  9.00    2.41 | 15.00    2.41 | 21.00    1.20
                3.20    0.80 |  9.20    2.41 | 15.20    2.41 | 21.20    0.80
                3.40    0.80 |  9.40    2.41 | 15.40    2.41 | 21.40    0.80
                3.60    0.80 |  9.60    2.41 | 15.60    2.41 | 21.60    0.80
                3.80    0.80 |  9.80    2.41 | 15.80    2.41 | 21.80    0.80
                4.00    0.80 | 10.00    2.41 | 16.00    2.41 | 22.00    0.80
                4.20    1.61 | 10.20    4.40 | 16.20    1.61 | 22.20    0.80
                4.40    1.61 | 10.40    4.40 | 16.40    1.61 | 22.40    0.80
                4.60    1.61 | 10.60    4.40 | 16.60    1.61 | 22.60    0.80
                4.80    1.61 | 10.80    4.40 | 16.80    1.61 | 22.80    0.80
                5.00    1.61 | 11.00    4.40 | 17.00    1.61 | 23.00    0.80
                5.20    1.61 | 11.20    6.01 | 17.20    1.61 | 23.20    0.80
                5.40    1.61 | 11.40    8.82 | 17.40    1.61 | 23.40    0.80
                5.60    1.61 | 11.60   20.04 | 17.60    1.61 | 23.60    0.80
                5.80    1.61 | 11.80   44.11 | 17.80    1.61 | 23.80    0.80
                6.00    1.61 | 12.00   92.23 | 18.00    1.61 | 24.00    0.80

------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
--------------------
                                  IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53          1.26
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     136.38         30.00
     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    0.80 | 6.083    1.61 |12.083   16.05 | 18.08    1.61
               0.167    0.80 | 6.167    1.61 |12.167   16.04 | 18.17    1.61
               0.250    0.80 | 6.250    1.61 |12.250   12.43 | 18.25    1.61
               0.333    0.80 | 6.333    1.61 |12.333   10.03 | 18.33    1.61
               0.417    0.80 | 6.417    1.61 |12.417    9.47 | 18.42    1.61
               0.500    0.80 | 6.500    1.61 |12.500    7.22 | 18.50    1.61
               0.583    0.80 | 6.583    1.61 |12.583    7.22 | 18.58    1.61
               0.667    0.80 | 6.667    1.61 |12.667    6.89 | 18.67    1.61
               0.750    0.80 | 6.750    1.61 |12.750    6.81 | 18.75    1.61
               0.833    0.80 | 6.833    1.61 |12.833    6.01 | 18.83    1.61
               0.917    0.80 | 6.917    1.61 |12.917    4.80 | 18.92    1.61
               1.000    0.80 | 7.000    1.61 |13.000    4.80 | 19.00    1.61
               1.083    0.80 | 7.083    1.61 |13.083    4.02 | 19.08    1.20
               1.167    0.80 | 7.167    1.61 |13.167    4.02 | 19.17    1.20
               1.250    0.80 | 7.250    1.61 |13.250    4.02 | 19.25    1.20
               1.333    0.80 | 7.333    1.61 |13.333    4.02 | 19.33    1.20
               1.417    0.80 | 7.417    1.61 |13.417    4.02 | 19.42    1.20
               1.500    0.80 | 7.500    1.61 |13.500    4.02 | 19.50    1.20
               1.583    0.80 | 7.583    1.61 |13.583    4.02 | 19.58    1.20
               1.667    0.80 | 7.667    1.61 |13.667    4.02 | 19.67    1.20
               1.750    0.80 | 7.750    1.61 |13.750    4.02 | 19.75    1.20
               1.833    0.80 | 7.833    1.61 |13.833    4.02 | 19.83    1.20
               1.917    0.80 | 7.917    1.61 |13.917    4.02 | 19.92    1.20
               2.000    0.80 | 8.000    1.61 |14.000    4.02 | 20.00    1.20
               2.083    0.80 | 8.083    2.41 |14.083    2.41 | 20.08    1.20
               2.167    0.80 | 8.167    2.41 |14.167    2.41 | 20.17    1.20
               2.250    0.80 | 8.250    2.41 |14.250    2.41 | 20.25    1.20
               2.333    0.80 | 8.333    2.41 |14.333    2.41 | 20.33    1.20
               2.417    0.80 | 8.417    2.41 |14.417    2.41 | 20.42    1.20
               2.500    0.80 | 8.500    2.41 |14.500    2.41 | 20.50    1.20
               2.583    0.80 | 8.583    2.41 |14.583    2.41 | 20.58    1.20
               2.667    0.80 | 8.667    2.41 |14.667    2.41 | 20.67    1.20
```

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              2.750    0.80 | 8.750    2.41 |14.750    2.41 | 20.75    1.20
              2.833    0.80 | 8.833    2.41 |14.833    2.41 | 20.83    1.20
              2.917    0.80 | 8.917    2.41 |14.917    2.41 | 20.92    1.20
              3.000    0.80 | 9.000    2.41 |15.000    2.41 | 21.00    1.20
              3.083    0.80 | 9.083    2.41 |15.083    2.41 | 21.08    0.80
              3.167    0.80 | 9.167    2.41 |15.167    2.41 | 21.17    0.80
              3.250    0.80 | 9.250    2.41 |15.250    2.41 | 21.25    0.80
              3.333    0.80 | 9.333    2.41 |15.333    2.41 | 21.33    0.80
              3.417    0.80 | 9.417    2.41 |15.417    2.41 | 21.42    0.80
              3.500    0.80 | 9.500    2.41 |15.500    2.41 | 21.50    0.80
              3.583    0.80 | 9.583    2.41 |15.583    2.41 | 21.58    0.80
              3.667    0.80 | 9.667    2.41 |15.667    2.41 | 21.67    0.80
              3.750    0.80 | 9.750    2.41 |15.750    2.41 | 21.75    0.80
              3.833    0.80 | 9.833    2.41 |15.833    2.41 | 21.83    0.80
              3.917    0.80 | 9.917    2.41 |15.917    2.41 | 21.92    0.80
              4.000    0.80 |10.000    2.41 |16.000    2.41 | 22.00    0.80
              4.083    1.61 |10.083    4.40 |16.083    1.61 | 22.08    0.80
              4.167    1.61 |10.167    4.40 |16.167    1.61 | 22.17    0.80
              4.250    1.61 |10.250    4.40 |16.250    1.61 | 22.25    0.80
              4.333    1.61 |10.333    4.40 |16.333    1.61 | 22.33    0.80
              4.417    1.61 |10.417    4.40 |16.417    1.61 | 22.42    0.80
              4.500    1.61 |10.500    4.40 |16.500    1.61 | 22.50    0.80
              4.583    1.61 |10.583    4.40 |16.583    1.61 | 22.58    0.80
              4.667    1.61 |10.667    4.40 |16.667    1.61 | 22.67    0.80
              4.750    1.61 |10.750    4.40 |16.750    1.61 | 22.75    0.80
              4.833    1.61 |10.833    4.40 |16.833    1.61 | 22.83    0.80
              4.917    1.61 |10.917    4.40 |16.917    1.61 | 22.92    0.80
              5.000    1.61 |11.000    4.40 |17.000    1.61 | 23.00    0.80
              5.083    1.61 |11.083    6.01 |17.083    1.61 | 23.08    0.80
              5.167    1.61 |11.167    6.01 |17.167    1.61 | 23.17    0.80
              5.250    1.61 |11.250    7.70 |17.250    1.61 | 23.25    0.80
              5.333    1.61 |11.333    8.82 |17.333    1.61 | 23.33    0.80
              5.417    1.61 |11.417   11.06 |17.417    1.61 | 23.42    0.80
              5.500    1.61 |11.500   20.04 |17.500    1.61 | 23.50    0.80
              5.583    1.61 |11.583   20.04 |17.583    1.61 | 23.58    0.80
              5.667    1.61 |11.667   39.29 |17.667    1.61 | 23.67    0.80
              5.750    1.61 |11.750   44.11 |17.750    1.61 | 23.75    0.80
              5.833    1.61 |11.833   63.35 |17.833    1.61 | 23.83    0.80
              5.917    1.61 |11.917   92.23 |17.917    1.61 | 23.92    0.80
              6.000    1.61 |12.000   92.23 |18.000    1.61 | 24.00    0.80

     Max.Eff.Inten.(mm/hr)=      92.23        29.25
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.18 (ii)   12.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.28         0.06          0.330 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      78.55        16.27          41.18
     TOTAL RAINFALL   (mm)=      80.55        80.55          80.55
     RUNOFF COEFFICIENT   =       0.98         0.20           0.51

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
-------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.33     12.00   41.18
     ================================================

     MAJOR SYS.(ID= 2):   0.04      0.05     12.00   41.18
     MINOR SYS.(ID= 3):   2.75      0.28     11.92   41.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.75   0.283    11.92    41.18
     + ID2= 2 (  0302):     1.30   0.130    12.00    44.53
       ================================================
       ID = 3 (  0022):     4.05   0.413    12.00    42.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     4.05   0.413    12.00    42.26
     + ID2= 2 (  0025):     0.04   0.047    12.00    41.18
       ================================================
       ID = 3 (  0029):     4.09   0.459    12.00    42.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
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      V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\d9e62152-8176-4024-b817-4c048d3bec56\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\d9e62152-8176-4024-b817-4c048d3bec56\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____
```

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  ************************************************
  ** SIMULATION : Run 05: 25yr 24hr SCS Barrie  **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\349c9367
| Ptotal= 95.55 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.97 |  6.20    1.95 | 12.20   19.48 | 18.20    1.95
                0.40    0.97 |  6.40    1.95 | 12.40   12.18 | 18.40    1.95
                0.60    0.97 |  6.60    1.95 | 12.60    8.76 | 18.60    1.95
                0.80    0.97 |  6.80    1.95 | 12.80    8.28 | 18.80    1.95
                1.00    0.97 |  7.00    1.95 | 13.00    5.83 | 19.00    1.95
                1.20    0.97 |  7.20    1.95 | 13.20    4.88 | 19.20    1.46
                1.40    0.97 |  7.40    1.95 | 13.40    4.88 | 19.40    1.46
                1.60    0.97 |  7.60    1.95 | 13.60    4.88 | 19.60    1.46
                1.80    0.97 |  7.80    1.95 | 13.80    4.88 | 19.80    1.46
                2.00    0.97 |  8.00    1.95 | 14.00    4.88 | 20.00    1.46
                2.20    0.97 |  8.20    2.93 | 14.20    2.92 | 20.20    1.46
                2.40    0.97 |  8.40    2.93 | 14.40    2.92 | 20.40    1.46
                2.60    0.97 |  8.60    2.93 | 14.60    2.92 | 20.60    1.46
                2.80    0.97 |  8.80    2.93 | 14.80    2.92 | 20.80    1.46
                3.00    0.97 |  9.00    2.93 | 15.00    2.92 | 21.00    1.46
                3.20    0.97 |  9.20    2.93 | 15.20    2.92 | 21.20    0.97
                3.40    0.97 |  9.40    2.93 | 15.40    2.92 | 21.40    0.97
                3.60    0.97 |  9.60    2.93 | 15.60    2.92 | 21.60    0.97
                3.80    0.97 |  9.80    2.93 | 15.80    2.92 | 21.80    0.97
                4.00    0.97 | 10.00    2.93 | 16.00    2.92 | 22.00    0.97
                4.20    1.95 | 10.20    5.35 | 16.20    1.95 | 22.20    0.97
                4.40    1.95 | 10.40    5.35 | 16.40    1.95 | 22.40    0.97
                4.60    1.95 | 10.60    5.35 | 16.60    1.95 | 22.60    0.97
                4.80    1.95 | 10.80    5.35 | 16.80    1.95 | 22.80    0.97
                5.00    1.95 | 11.00    5.35 | 17.00    1.95 | 23.00    0.97
                5.20    1.95 | 11.20    7.30 | 17.20    1.95 | 23.20    0.97
                5.40    1.95 | 11.40   10.72 | 17.40    1.95 | 23.40    0.97
                5.60    1.95 | 11.60   24.35 | 17.60    1.95 | 23.60    0.97
                5.80    1.95 | 11.80   53.57 | 17.80    1.95 | 23.80    0.97
                6.00    1.95 | 12.00  100.81 | 18.00    1.95 | 24.00    0.97

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--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

        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    0.97 | 6.083    1.95 |12.083   19.49 | 18.08    1.95
               0.167    0.97 | 6.167    1.95 |12.167   19.48 | 18.17    1.95
               0.250    0.97 | 6.250    1.95 |12.250   15.10 | 18.25    1.95
               0.333    0.97 | 6.333    1.95 |12.333   12.18 | 18.33    1.95
               0.417    0.97 | 6.417    1.95 |12.417   11.50 | 18.42    1.95
               0.500    0.97 | 6.500    1.95 |12.500    8.76 | 18.50    1.95
               0.583    0.97 | 6.583    1.95 |12.583    8.76 | 18.58    1.95
               0.667    0.97 | 6.667    1.95 |12.667    8.38 | 18.67    1.95
               0.750    0.97 | 6.750    1.95 |12.750    8.28 | 18.75    1.95
               0.833    0.97 | 6.833    1.95 |12.833    7.30 | 18.83    1.95
               0.917    0.97 | 6.917    1.95 |12.917    5.83 | 18.92    1.95
               1.000    0.97 | 7.000    1.95 |13.000    5.83 | 19.00    1.95
               1.083    0.97 | 7.083    1.95 |13.083    4.88 | 19.08    1.46
               1.167    0.97 | 7.167    1.95 |13.167    4.88 | 19.17    1.46
               1.250    0.97 | 7.250    1.95 |13.250    4.88 | 19.25    1.46
               1.333    0.97 | 7.333    1.95 |13.333    4.88 | 19.33    1.46
               1.417    0.97 | 7.417    1.95 |13.417    4.88 | 19.42    1.46
               1.500    0.97 | 7.500    1.95 |13.500    4.88 | 19.50    1.46
               1.583    0.97 | 7.583    1.95 |13.583    4.88 | 19.58    1.46
               1.667    0.97 | 7.667    1.95 |13.667    4.88 | 19.67    1.46
               1.750    0.97 | 7.750    1.95 |13.750    4.88 | 19.75    1.46
               1.833    0.97 | 7.833    1.95 |13.833    4.88 | 19.83    1.46
               1.917    0.97 | 7.917    1.95 |13.917    4.88 | 19.92    1.46
               2.000    0.97 | 8.000    1.95 |14.000    4.88 | 20.00    1.46
               2.083    0.97 | 8.083    2.93 |14.083    2.92 | 20.08    1.46
               2.167    0.97 | 8.167    2.93 |14.167    2.92 | 20.17    1.46
               2.250    0.97 | 8.250    2.93 |14.250    2.92 | 20.25    1.46
               2.333    0.97 | 8.333    2.93 |14.333    2.92 | 20.33    1.46
               2.417    0.97 | 8.417    2.93 |14.417    2.92 | 20.42    1.46
               2.500    0.97 | 8.500    2.93 |14.500    2.92 | 20.50    1.46
               2.583    0.97 | 8.583    2.93 |14.583    2.92 | 20.58    1.46
               2.667    0.97 | 8.667    2.93 |14.667    2.92 | 20.67    1.46
               2.750    0.97 | 8.750    2.93 |14.750    2.92 | 20.75    1.46
               2.833    0.97 | 8.833    2.93 |14.833    2.92 | 20.83    1.46
               2.917    0.97 | 8.917    2.93 |14.917    2.92 | 20.92    1.46
               3.000    0.97 | 9.000    2.93 |15.000    2.92 | 21.00    1.46
               3.083    0.97 | 9.083    2.93 |15.083    2.92 | 21.08    0.97
               3.167    0.97 | 9.167    2.93 |15.167    2.92 | 21.17    0.97
               3.250    0.97 | 9.250    2.93 |15.250    2.92 | 21.25    0.97
               3.333    0.97 | 9.333    2.93 |15.333    2.92 | 21.33    0.97
               3.417    0.97 | 9.417    2.93 |15.417    2.92 | 21.42    0.97
               3.500    0.97 | 9.500    2.93 |15.500    2.92 | 21.50    0.97
               3.583    0.97 | 9.583    2.93 |15.583    2.92 | 21.58    0.97
               3.667    0.97 | 9.667    2.93 |15.667    2.92 | 21.67    0.97
               3.750    0.97 | 9.750    2.93 |15.750    2.92 | 21.75    0.97
               3.833    0.97 | 9.833    2.93 |15.833    2.92 | 21.83    0.97
               3.917    0.97 | 9.917    2.93 |15.917    2.92 | 21.92    0.97
               4.000    0.97 |10.000    2.93 |16.000    2.92 | 22.00    0.97
               4.083    1.95 |10.083    5.35 |16.083    1.95 | 22.08    0.97
               4.167    1.95 |10.167    5.35 |16.167    1.95 | 22.17    0.97
               4.250    1.95 |10.250    5.35 |16.250    1.95 | 22.25    0.97
               4.333    1.95 |10.333    5.35 |16.333    1.95 | 22.33    0.97
               4.417    1.95 |10.417    5.35 |16.417    1.95 | 22.42    0.97
               4.500    1.95 |10.500    5.35 |16.500    1.95 | 22.50    0.97
               4.583    1.95 |10.583    5.35 |16.583    1.95 | 22.58    0.97
               4.667    1.95 |10.667    5.35 |16.667    1.95 | 22.67    0.97
               4.750    1.95 |10.750    5.35 |16.750    1.95 | 22.75    0.97
               4.833    1.95 |10.833    5.35 |16.833    1.95 | 22.83    0.97
               4.917    1.95 |10.917    5.35 |16.917    1.95 | 22.92    0.97
               5.000    1.95 |11.000    5.35 |17.000    1.95 | 23.00    0.97
               5.083    1.95 |11.083    7.30 |17.083    1.95 | 23.08    0.97
               5.167    1.95 |11.167    7.30 |17.167    1.95 | 23.17    0.97
               5.250    1.95 |11.250    9.35 |17.250    1.95 | 23.25    0.97
               5.333    1.95 |11.333   10.72 |17.333    1.95 | 23.33    0.97
               5.417    1.95 |11.417   13.44 |17.417    1.95 | 23.42    0.97
               5.500    1.95 |11.500   24.35 |17.500    1.95 | 23.50    0.97
               5.583    1.95 |11.583   24.35 |17.583    1.95 | 23.58    0.97
               5.667    1.95 |11.667   47.72 |17.667    1.95 | 23.67    0.97
               5.750    1.95 |11.750   53.57 |17.750    1.95 | 23.75    0.97
               5.833    1.95 |11.833   72.46 |17.833    1.95 | 23.83    0.97
               5.917    1.95 |11.917  100.81 |17.917    1.95 | 23.92    0.97
               6.000    1.95 |12.000  100.81 |18.000    1.95 | 24.00    0.97

Unit Hyd Qpeak  (cms)=   0.020

PEAK FLOW       (cms)=   0.005 (i)
TIME TO PEAK    (hrs)=  12.333
RUNOFF VOLUME    (mm)=  17.380
TOTAL RAINFALL   (mm)=  95.546
RUNOFF COEFFICIENT   =   0.182
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     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\349c9367
| Ptotal= 95.55 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.97	6.20	1.95	12.20	19.48	18.20	1.95
0.40	0.97	6.40	1.95	12.40	12.18	18.40	1.95
0.60	0.97	6.60	1.95	12.60	8.76	18.60	1.95
0.80	0.97	6.80	1.95	12.80	8.28	18.80	1.95
1.00	0.97	7.00	1.95	13.00	5.83	19.00	1.95
1.20	0.97	7.20	1.95	13.20	4.88	19.20	1.46
1.40	0.97	7.40	1.95	13.40	4.88	19.40	1.46
1.60	0.97	7.60	1.95	13.60	4.88	19.60	1.46
1.80	0.97	7.80	1.95	13.80	4.88	19.80	1.46
2.00	0.97	8.00	1.95	14.00	4.88	20.00	1.46
2.20	0.97	8.20	2.93	14.20	2.92	20.20	1.46
2.40	0.97	8.40	2.93	14.40	2.92	20.40	1.46
2.60	0.97	8.60	2.93	14.60	2.92	20.60	1.46
2.80	0.97	8.80	2.93	14.80	2.92	20.80	1.46
3.00	0.97	9.00	2.93	15.00	2.92	21.00	1.46
3.20	0.97	9.20	2.93	15.20	2.92	21.20	0.97
3.40	0.97	9.40	2.93	15.40	2.92	21.40	0.97
3.60	0.97	9.60	2.93	15.60	2.92	21.60	0.97
3.80	0.97	9.80	2.93	15.80	2.92	21.80	0.97
4.00	0.97	10.00	2.93	16.00	2.92	22.00	0.97
4.20	1.95	10.20	5.35	16.20	1.95	22.20	0.97
4.40	1.95	10.40	5.35	16.40	1.95	22.40	0.97
4.60	1.95	10.60	5.35	16.60	1.95	22.60	0.97
4.80	1.95	10.80	5.35	16.80	1.95	22.80	0.97
5.00	1.95	11.00	5.35	17.00	1.95	23.00	0.97
5.20	1.95	11.20	7.30	17.20	1.95	23.20	0.97
5.40	1.95	11.40	10.72	17.40	1.95	23.40	0.97
5.60	1.95	11.60	24.35	17.60	1.95	23.60	0.97
5.80	1.95	11.80	53.57	17.80	1.95	23.80	0.97
6.00	1.95	12.00	100.81	18.00	1.95	24.00	0.97

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| CALIB            |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.47

        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	0.97	6.083	1.95	12.083	19.49	18.08	1.95
0.167	0.97	6.167	1.95	12.167	19.48	18.17	1.95
0.250	0.97	6.250	1.95	12.250	15.10	18.25	1.95
0.333	0.97	6.333	1.95	12.333	12.18	18.33	1.95
0.417	0.97	6.417	1.95	12.417	11.50	18.42	1.95
0.500	0.97	6.500	1.95	12.500	8.76	18.50	1.95
0.583	0.97	6.583	1.95	12.583	8.76	18.58	1.95
0.667	0.97	6.667	1.95	12.667	8.38	18.67	1.95
0.750	0.97	6.750	1.95	12.750	8.28	18.75	1.95
0.833	0.97	6.833	1.95	12.833	7.30	18.83	1.95
0.917	0.97	6.917	1.95	12.917	5.83	18.92	1.95
1.000	0.97	7.000	1.95	13.000	5.83	19.00	1.95
1.083	0.97	7.083	1.95	13.083	4.88	19.08	1.46
1.167	0.97	7.167	1.95	13.167	4.88	19.17	1.46
1.250	0.97	7.250	1.95	13.250	4.88	19.25	1.46
1.333	0.97	7.333	1.95	13.333	4.88	19.33	1.46
1.417	0.97	7.417	1.95	13.417	4.88	19.42	1.46
1.500	0.97	7.500	1.95	13.500	4.88	19.50	1.46
1.583	0.97	7.583	1.95	13.583	4.88	19.58	1.46
1.667	0.97	7.667	1.95	13.667	4.88	19.67	1.46
1.750	0.97	7.750	1.95	13.750	4.88	19.75	1.46
1.833	0.97	7.833	1.95	13.833	4.88	19.83	1.46
1.917	0.97	7.917	1.95	13.917	4.88	19.92	1.46
2.000	0.97	8.000	1.95	14.000	4.88	20.00	1.46
2.083	0.97	8.083	2.93	14.083	2.92	20.08	1.46
2.167	0.97	8.167	2.93	14.167	2.92	20.17	1.46
2.250	0.97	8.250	2.93	14.250	2.92	20.25	1.46
2.333	0.97	8.333	2.93	14.333	2.92	20.33	1.46
2.417	0.97	8.417	2.93	14.417	2.92	20.42	1.46
2.500	0.97	8.500	2.93	14.500	2.92	20.50	1.46
2.583	0.97	8.583	2.93	14.583	2.92	20.58	1.46
2.667	0.97	8.667	2.93	14.667	2.92	20.67	1.46
2.750	0.97	8.750	2.93	14.750	2.92	20.75	1.46
2.833	0.97	8.833	2.93	14.833	2.92	20.83	1.46
2.917	0.97	8.917	2.93	14.917	2.92	20.92	1.46
3.000	0.97	9.000	2.93	15.000	2.92	21.00	1.46
3.083	0.97	9.083	2.93	15.083	2.92	21.08	0.97
3.167	0.97	9.167	2.93	15.167	2.92	21.17	0.97
3.250	0.97	9.250	2.93	15.250	2.92	21.25	0.97
3.333	0.97	9.333	2.93	15.333	2.92	21.33	0.97
3.417	0.97	9.417	2.93	15.417	2.92	21.42	0.97
3.500	0.97	9.500	2.93	15.500	2.92	21.50	0.97
3.583	0.97	9.583	2.93	15.583	2.92	21.58	0.97
3.667	0.97	9.667	2.93	15.667	2.92	21.67	0.97
3.750	0.97	9.750	2.93	15.750	2.92	21.75	0.97
3.833	0.97	9.833	2.93	15.833	2.92	21.83	0.97
3.917	0.97	9.917	2.93	15.917	2.92	21.92	0.97
4.000	0.97	10.000	2.93	16.000	2.92	22.00	0.97
4.083	1.95	10.083	5.35	16.083	1.95	22.08	0.97
4.167	1.95	10.167	5.35	16.167	1.95	22.17	0.97
4.250	1.95	10.250	5.35	16.250	1.95	22.25	0.97
4.333	1.95	10.333	5.35	16.333	1.95	22.33	0.97
4.417	1.95	10.417	5.35	16.417	1.95	22.42	0.97
4.500	1.95	10.500	5.35	16.500	1.95	22.50	0.97
4.583	1.95	10.583	5.35	16.583	1.95	22.58	0.97
4.667	1.95	10.667	5.35	16.667	1.95	22.67	0.97
4.750	1.95	10.750	5.35	16.750	1.95	22.75	0.97
4.833	1.95	10.833	5.35	16.833	1.95	22.83	0.97
4.917	1.95	10.917	5.35	16.917	1.95	22.92	0.97
5.000	1.95	11.000	5.35	17.000	1.95	23.00	0.97
5.083	1.95	11.083	7.30	17.083	1.95	23.08	0.97
5.167	1.95	11.167	7.30	17.167	1.95	23.17	0.97
5.250	1.95	11.250	9.35	17.250	1.95	23.25	0.97
5.333	1.95	11.333	10.72	17.333	1.95	23.33	0.97
5.417	1.95	11.417	13.44	17.417	1.95	23.42	0.97
5.500	1.95	11.500	24.35	17.500	1.95	23.50	0.97
5.583	1.95	11.583	24.35	17.583	1.95	23.58	0.97
5.667	1.95	11.667	47.72	17.667	1.95	23.67	0.97
5.750	1.95	11.750	53.57	17.750	1.95	23.75	0.97
5.833	1.95	11.833	72.46	17.833	1.95	23.83	0.97
5.917	1.95	11.917	100.81	17.917	1.95	23.92	0.97
6.000	1.95	12.000	100.81	18.000	1.95	24.00	0.97

```
Unit Hyd Qpeak  (cms)=   0.011

PEAK FLOW       (cms)=   0.003 (i)
TIME TO PEAK    (hrs)=  12.333
RUNOFF VOLUME    (mm)=  17.377
TOTAL RAINFALL   (mm)=  95.546
RUNOFF COEFFICIENT   =   0.182

(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\349c9367
| Ptotal= 95.55 mm |    Comments:
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```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.97	6.20	1.95	12.20	19.48	18.20	1.95
0.40	0.97	6.40	1.95	12.40	12.18	18.40	1.95
0.60	0.97	6.60	1.95	12.60	8.76	18.60	1.95
0.80	0.97	6.80	1.95	12.80	8.28	18.80	1.95
1.00	0.97	7.00	1.95	13.00	5.83	19.00	1.95
1.20	0.97	7.20	1.95	13.20	4.88	19.20	1.46
1.40	0.97	7.40	1.95	13.40	4.88	19.40	1.46
1.60	0.97	7.60	1.95	13.60	4.88	19.60	1.46
1.80	0.97	7.80	1.95	13.80	4.88	19.80	1.46
2.00	0.97	8.00	1.95	14.00	4.88	20.00	1.46
2.20	0.97	8.20	2.93	14.20	2.92	20.20	1.46
2.40	0.97	8.40	2.93	14.40	2.92	20.40	1.46
2.60	0.97	8.60	2.93	14.60	2.92	20.60	1.46
2.80	0.97	8.80	2.93	14.80	2.92	20.80	1.46
3.00	0.97	9.00	2.93	15.00	2.92	21.00	1.46
3.20	0.97	9.20	2.93	15.20	2.92	21.20	0.97
3.40	0.97	9.40	2.93	15.40	2.92	21.40	0.97
3.60	0.97	9.60	2.93	15.60	2.92	21.60	0.97
3.80	0.97	9.80	2.93	15.80	2.92	21.80	0.97
4.00	0.97	10.00	2.93	16.00	2.92	22.00	0.97
4.20	1.95	10.20	5.35	16.20	1.95	22.20	0.97
4.40	1.95	10.40	5.35	16.40	1.95	22.40	0.97
4.60	1.95	10.60	5.35	16.60	1.95	22.60	0.97
4.80	1.95	10.80	5.35	16.80	1.95	22.80	0.97
5.00	1.95	11.00	5.35	17.00	1.95	23.00	0.97
5.20	1.95	11.20	7.30	17.20	1.95	23.20	0.97
5.40	1.95	11.40	10.72	17.40	1.95	23.40	0.97
5.60	1.95	11.60	24.35	17.60	1.95	23.60	0.97
5.80	1.95	11.80	53.57	17.80	1.95	23.80	0.97
6.00	1.95	12.00	100.81	18.00	1.95	24.00	0.97

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.57         0.38
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.58        30.00
     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	0.97	6.083	1.95	12.083	19.49	18.08	1.95
0.167	0.97	6.167	1.95	12.167	19.48	18.17	1.95
0.250	0.97	6.250	1.95	12.250	15.10	18.25	1.95
0.333	0.97	6.333	1.95	12.333	12.18	18.33	1.95
0.417	0.97	6.417	1.95	12.417	11.50	18.42	1.95
0.500	0.97	6.500	1.95	12.500	8.76	18.50	1.95
0.583	0.97	6.583	1.95	12.583	8.76	18.58	1.95
0.667	0.97	6.667	1.95	12.667	8.38	18.67	1.95
0.750	0.97	6.750	1.95	12.750	8.28	18.75	1.95
0.833	0.97	6.833	1.95	12.833	7.30	18.83	1.95
0.917	0.97	6.917	1.95	12.917	5.83	18.92	1.95
1.000	0.97	7.000	1.95	13.000	5.83	19.00	1.95
1.083	0.97	7.083	1.95	13.083	4.88	19.08	1.46
1.167	0.97	7.167	1.95	13.167	4.88	19.17	1.46
1.250	0.97	7.250	1.95	13.250	4.88	19.25	1.46
1.333	0.97	7.333	1.95	13.333	4.88	19.33	1.46
1.417	0.97	7.417	1.95	13.417	4.88	19.42	1.46
1.500	0.97	7.500	1.95	13.500	4.88	19.50	1.46
1.583	0.97	7.583	1.95	13.583	4.88	19.58	1.46
1.667	0.97	7.667	1.95	13.667	4.88	19.67	1.46
1.750	0.97	7.750	1.95	13.750	4.88	19.75	1.46
1.833	0.97	7.833	1.95	13.833	4.88	19.83	1.46
1.917	0.97	7.917	1.95	13.917	4.88	19.92	1.46
2.000	0.97	8.000	1.95	14.000	4.88	20.00	1.46
2.083	0.97	8.083	2.93	14.083	2.92	20.08	1.46
2.167	0.97	8.167	2.93	14.167	2.92	20.17	1.46
2.250	0.97	8.250	2.93	14.250	2.92	20.25	1.46
2.333	0.97	8.333	2.93	14.333	2.92	20.33	1.46
2.417	0.97	8.417	2.93	14.417	2.92	20.42	1.46
2.500	0.97	8.500	2.93	14.500	2.92	20.50	1.46
2.583	0.97	8.583	2.93	14.583	2.92	20.58	1.46
2.667	0.97	8.667	2.93	14.667	2.92	20.67	1.46
2.750	0.97	8.750	2.93	14.750	2.92	20.75	1.46
2.833	0.97	8.833	2.93	14.833	2.92	20.83	1.46
2.917	0.97	8.917	2.93	14.917	2.92	20.92	1.46
3.000	0.97	9.000	2.93	15.000	2.92	21.00	1.46
3.083	0.97	9.083	2.93	15.083	2.92	21.08	0.97
3.167	0.97	9.167	2.93	15.167	2.92	21.17	0.97
3.250	0.97	9.250	2.93	15.250	2.92	21.25	0.97
3.333	0.97	9.333	2.93	15.333	2.92	21.33	0.97
3.417	0.97	9.417	2.93	15.417	2.92	21.42	0.97
3.500	0.97	9.500	2.93	15.500	2.92	21.50	0.97
3.583	0.97	9.583	2.93	15.583	2.92	21.58	0.97
3.667	0.97	9.667	2.93	15.667	2.92	21.67	0.97
3.750	0.97	9.750	2.93	15.750	2.92	21.75	0.97
3.833	0.97	9.833	2.93	15.833	2.92	21.83	0.97
3.917	0.97	9.917	2.93	15.917	2.92	21.92	0.97
4.000	0.97	10.000	2.93	16.000	2.92	22.00	0.97
4.083	1.95	10.083	5.35	16.083	1.95	22.08	0.97
4.167	1.95	10.167	5.35	16.167	1.95	22.17	0.97
4.250	1.95	10.250	5.35	16.250	1.95	22.25	0.97
4.333	1.95	10.333	5.35	16.333	1.95	22.33	0.97
4.417	1.95	10.417	5.35	16.417	1.95	22.42	0.97
4.500	1.95	10.500	5.35	16.500	1.95	22.50	0.97
4.583	1.95	10.583	5.35	16.583	1.95	22.58	0.97
4.667	1.95	10.667	5.35	16.667	1.95	22.67	0.97
4.750	1.95	10.750	5.35	16.750	1.95	22.75	0.97
4.833	1.95	10.833	5.35	16.833	1.95	22.83	0.97
4.917	1.95	10.917	5.35	16.917	1.95	22.92	0.97
5.000	1.95	11.000	5.35	17.000	1.95	23.00	0.97
5.083	1.95	11.083	7.30	17.083	1.95	23.08	0.97
5.167	1.95	11.167	7.30	17.167	1.95	23.17	0.97
5.250	1.95	11.250	9.35	17.250	1.95	23.25	0.97
5.333	1.95	11.333	10.72	17.333	1.95	23.33	0.97
5.417	1.95	11.417	13.44	17.417	1.95	23.42	0.97
5.500	1.95	11.500	24.35	17.500	1.95	23.50	0.97
5.583	1.95	11.583	24.35	17.583	1.95	23.58	0.97
5.667	1.95	11.667	47.72	17.667	1.95	23.67	0.97
5.750	1.95	11.750	53.57	17.750	1.95	23.75	0.97
5.833	1.95	11.833	72.46	17.833	1.95	23.83	0.97
5.917	1.95	11.917	100.81	17.917	1.95	23.92	0.97
6.000	1.95	12.000	100.81	18.000	1.95	24.00	0.97

```
Max.Eff.Inten.(mm/hr)=     100.81        39.20
          over (min)          5.00        15.00
Storage Coeff.  (min)=       2.22 (ii)   10.86 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.30         0.09
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                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.12         0.03          0.142 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      93.55        22.89          54.68
     TOTAL RAINFALL   (mm)=      95.55        95.55          95.55
     RUNOFF COEFFICIENT   =       0.98         0.24           0.57

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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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--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\349c9367
| Ptotal= 95.55 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.97 |  6.20    1.95 | 12.20   19.48 | 18.20    1.95
                0.40    0.97 |  6.40    1.95 | 12.40   12.18 | 18.40    1.95
                0.60    0.97 |  6.60    1.95 | 12.60    8.76 | 18.60    1.95
                0.80    0.97 |  6.80    1.95 | 12.80    8.28 | 18.80    1.95
                1.00    0.97 |  7.00    1.95 | 13.00    5.83 | 19.00    1.95
                1.20    0.97 |  7.20    1.95 | 13.20    4.88 | 19.20    1.46
                1.40    0.97 |  7.40    1.95 | 13.40    4.88 | 19.40    1.46
                1.60    0.97 |  7.60    1.95 | 13.60    4.88 | 19.60    1.46
                1.80    0.97 |  7.80    1.95 | 13.80    4.88 | 19.80    1.46
                2.00    0.97 |  8.00    1.95 | 14.00    4.88 | 20.00    1.46
                2.20    0.97 |  8.20    2.93 | 14.20    2.92 | 20.20    1.46
                2.40    0.97 |  8.40    2.93 | 14.40    2.92 | 20.40    1.46
                2.60    0.97 |  8.60    2.93 | 14.60    2.92 | 20.60    1.46
                2.80    0.97 |  8.80    2.93 | 14.80    2.92 | 20.80    1.46
                3.00    0.97 |  9.00    2.93 | 15.00    2.92 | 21.00    1.46
                3.20    0.97 |  9.20    2.93 | 15.20    2.92 | 21.20    0.97
                3.40    0.97 |  9.40    2.93 | 15.40    2.92 | 21.40    0.97
                3.60    0.97 |  9.60    2.93 | 15.60    2.92 | 21.60    0.97
                3.80    0.97 |  9.80    2.93 | 15.80    2.92 | 21.80    0.97
                4.00    0.97 | 10.00    2.93 | 16.00    2.92 | 22.00    0.97
                4.20    1.95 | 10.20    5.35 | 16.20    1.95 | 22.20    0.97
                4.40    1.95 | 10.40    5.35 | 16.40    1.95 | 22.40    0.97
                4.60    1.95 | 10.60    5.35 | 16.60    1.95 | 22.60    0.97
                4.80    1.95 | 10.80    5.35 | 16.80    1.95 | 22.80    0.97
                5.00    1.95 | 11.00    5.35 | 17.00    1.95 | 23.00    0.97
                5.20    1.95 | 11.20    7.30 | 17.20    1.95 | 23.20    0.97
                5.40    1.95 | 11.40   10.72 | 17.40    1.95 | 23.40    0.97
                5.60    1.95 | 11.60   24.35 | 17.60    1.95 | 23.60    0.97
                5.80    1.95 | 11.80   53.57 | 17.80    1.95 | 23.80    0.97
                6.00    1.95 | 12.00  100.81 | 18.00    1.95 | 24.00    0.97

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| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.61         0.40
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      82.06        30.00
     Mannings n             =     0.013        0.250
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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    0.97 | 6.083    1.95 |12.083   19.49 | 18.08    1.95
0.167    0.97 | 6.167    1.95 |12.167   19.48 | 18.17    1.95
0.250    0.97 | 6.250    1.95 |12.250   15.10 | 18.25    1.95
0.333    0.97 | 6.333    1.95 |12.333   12.18 | 18.33    1.95
0.417    0.97 | 6.417    1.95 |12.417   11.50 | 18.42    1.95
0.500    0.97 | 6.500    1.95 |12.500    8.76 | 18.50    1.95
0.583    0.97 | 6.583    1.95 |12.583    8.76 | 18.58    1.95
0.667    0.97 | 6.667    1.95 |12.667    8.38 | 18.67    1.95
0.750    0.97 | 6.750    1.95 |12.750    8.28 | 18.75    1.95
0.833    0.97 | 6.833    1.95 |12.833    7.30 | 18.83    1.95
0.917    0.97 | 6.917    1.95 |12.917    5.83 | 18.92    1.95
1.000    0.97 | 7.000    1.95 |13.000    5.83 | 19.00    1.95
1.083    0.97 | 7.083    1.95 |13.083    4.88 | 19.08    1.46
1.167    0.97 | 7.167    1.95 |13.167    4.88 | 19.17    1.46
1.250    0.97 | 7.250    1.95 |13.250    4.88 | 19.25    1.46
1.333    0.97 | 7.333    1.95 |13.333    4.88 | 19.33    1.46
1.417    0.97 | 7.417    1.95 |13.417    4.88 | 19.42    1.46
1.500    0.97 | 7.500    1.95 |13.500    4.88 | 19.50    1.46
1.583    0.97 | 7.583    1.95 |13.583    4.88 | 19.58    1.46
1.667    0.97 | 7.667    1.95 |13.667    4.88 | 19.67    1.46
1.750    0.97 | 7.750    1.95 |13.750    4.88 | 19.75    1.46
1.833    0.97 | 7.833    1.95 |13.833    4.88 | 19.83    1.46
1.917    0.97 | 7.917    1.95 |13.917    4.88 | 19.92    1.46
2.000    0.97 | 8.000    1.95 |14.000    4.88 | 20.00    1.46
2.083    0.97 | 8.083    2.93 |14.083    2.92 | 20.08    1.46
2.167    0.97 | 8.167    2.93 |14.167    2.92 | 20.17    1.46
2.250    0.97 | 8.250    2.93 |14.250    2.92 | 20.25    1.46
2.333    0.97 | 8.333    2.93 |14.333    2.92 | 20.33    1.46
2.417    0.97 | 8.417    2.93 |14.417    2.92 | 20.42    1.46
2.500    0.97 | 8.500    2.93 |14.500    2.92 | 20.50    1.46
2.583    0.97 | 8.583    2.93 |14.583    2.92 | 20.58    1.46
2.667    0.97 | 8.667    2.93 |14.667    2.92 | 20.67    1.46
2.750    0.97 | 8.750    2.93 |14.750    2.92 | 20.75    1.46
2.833    0.97 | 8.833    2.93 |14.833    2.92 | 20.83    1.46
2.917    0.97 | 8.917    2.93 |14.917    2.92 | 20.92    1.46
3.000    0.97 | 9.000    2.93 |15.000    2.92 | 21.00    1.46
3.083    0.97 | 9.083    2.93 |15.083    2.92 | 21.08    0.97
3.167    0.97 | 9.167    2.93 |15.167    2.92 | 21.17    0.97
3.250    0.97 | 9.250    2.93 |15.250    2.92 | 21.25    0.97
3.333    0.97 | 9.333    2.93 |15.333    2.92 | 21.33    0.97
3.417    0.97 | 9.417    2.93 |15.417    2.92 | 21.42    0.97
3.500    0.97 | 9.500    2.93 |15.500    2.92 | 21.50    0.97
3.583    0.97 | 9.583    2.93 |15.583    2.92 | 21.58    0.97
3.667    0.97 | 9.667    2.93 |15.667    2.92 | 21.67    0.97
3.750    0.97 | 9.750    2.93 |15.750    2.92 | 21.75    0.97
3.833    0.97 | 9.833    2.93 |15.833    2.92 | 21.83    0.97
3.917    0.97 | 9.917    2.93 |15.917    2.92 | 21.92    0.97
4.000    0.97 |10.000    2.93 |16.000    2.92 | 22.00    0.97
4.083    1.95 |10.083    5.35 |16.083    1.95 | 22.08    0.97
4.167    1.95 |10.167    5.35 |16.167    1.95 | 22.17    0.97
4.250    1.95 |10.250    5.35 |16.250    1.95 | 22.25    0.97
4.333    1.95 |10.333    5.35 |16.333    1.95 | 22.33    0.97
4.417    1.95 |10.417    5.35 |16.417    1.95 | 22.42    0.97
4.500    1.95 |10.500    5.35 |16.500    1.95 | 22.50    0.97
4.583    1.95 |10.583    5.35 |16.583    1.95 | 22.58    0.97
4.667    1.95 |10.667    5.35 |16.667    1.95 | 22.67    0.97
4.750    1.95 |10.750    5.35 |16.750    1.95 | 22.75    0.97
4.833    1.95 |10.833    5.35 |16.833    1.95 | 22.83    0.97
4.917    1.95 |10.917    5.35 |16.917    1.95 | 22.92    0.97
5.000    1.95 |11.000    5.35 |17.000    1.95 | 23.00    0.97
5.083    1.95 |11.083    7.30 |17.083    1.95 | 23.08    0.97
5.167    1.95 |11.167    7.30 |17.167    1.95 | 23.17    0.97
5.250    1.95 |11.250    9.35 |17.250    1.95 | 23.25    0.97
5.333    1.95 |11.333   10.72 |17.333    1.95 | 23.33    0.97
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              5.417    1.95 |11.417   13.44 |17.417    1.95 | 23.42    0.97
              5.500    1.95 |11.500   24.35 |17.500    1.95 | 23.50    0.97
              5.583    1.95 |11.583   24.35 |17.583    1.95 | 23.58    0.97
              5.667    1.95 |11.667   47.72 |17.667    1.95 | 23.67    0.97
              5.750    1.95 |11.750   53.57 |17.750    1.95 | 23.75    0.97
              5.833    1.95 |11.833   72.46 |17.833    1.95 | 23.83    0.97
              5.917    1.95 |11.917  100.81 |17.917    1.95 | 23.92    0.97
              6.000    1.95 |12.000  100.81 |18.000    1.95 | 24.00    0.97

     Max.Eff.Inten.(mm/hr)=     100.81        39.20
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.26 (ii)   10.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.03          0.150 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      93.55        22.89          54.68
     TOTAL RAINFALL   (mm)=      95.55        95.55          95.55
     RUNOFF COEFFICIENT   =       0.98         0.24           0.57

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.95   0.142    12.00    54.68
      + ID2= 2 (  0202):     1.01   0.150    12.00    54.68
        ================================================
        ID = 3 (  0006):     1.96   0.292    12.00    54.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000     0.0000   |   0.2093     0.0094
                        0.0320     0.0013   |   0.2332     0.0108
                        0.0641     0.0027   |   0.2542     0.0121
                        0.1019     0.0040   |   0.2733     0.0135
                        0.1289     0.0054   |   0.2910     0.0148
                        0.1547     0.0067   |   0.3076     0.0162
                        0.1776     0.0081   |   0.0000     0.0000

                             AREA     QPEAK     TPEAK       R.V.
                             (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)     1.960      0.292     12.00      54.68
   OUTFLOW: ID= 1 (  0301)     1.960      0.227     12.00      54.68

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 77.58
                TIME SHIFT OF PEAK FLOW         (min)=  0.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0114

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-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
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     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                           AREA     QPEAK     TPEAK     R.V.
                           (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):    1.96      0.23     12.00    54.68
     ================================================
     ID= 2  (   2)    :    0.67      0.08     12.00    54.68
     ID= 3  (   2)    :    1.29      0.14     12.00    54.68
     ID= 4  (   2)    :    0.00      0.00      0.00     0.00
     ID= 5  (   2)    :    0.00      0.00      0.00     0.00
     ID= 6  (   2)    :    0.00      0.00      0.00     0.00
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--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\349c9367
| Ptotal= 95.55 mm |    Comments:
--------------------

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    0.97 |  6.20    1.95 | 12.20   19.48 | 18.20    1.95
                0.40    0.97 |  6.40    1.95 | 12.40   12.18 | 18.40    1.95
                0.60    0.97 |  6.60    1.95 | 12.60    8.76 | 18.60    1.95
                0.80    0.97 |  6.80    1.95 | 12.80    8.28 | 18.80    1.95
                1.00    0.97 |  7.00    1.95 | 13.00    5.83 | 19.00    1.95
                1.20    0.97 |  7.20    1.95 | 13.20    4.88 | 19.20    1.46
                1.40    0.97 |  7.40    1.95 | 13.40    4.88 | 19.40    1.46
                1.60    0.97 |  7.60    1.95 | 13.60    4.88 | 19.60    1.46
                1.80    0.97 |  7.80    1.95 | 13.80    4.88 | 19.80    1.46
                2.00    0.97 |  8.00    1.95 | 14.00    4.88 | 20.00    1.46
                2.20    0.97 |  8.20    2.93 | 14.20    2.92 | 20.20    1.46
                2.40    0.97 |  8.40    2.93 | 14.40    2.92 | 20.40    1.46
                2.60    0.97 |  8.60    2.93 | 14.60    2.92 | 20.60    1.46
                2.80    0.97 |  8.80    2.93 | 14.80    2.92 | 20.80    1.46
                3.00    0.97 |  9.00    2.93 | 15.00    2.92 | 21.00    1.46
                3.20    0.97 |  9.20    2.93 | 15.20    2.92 | 21.20    0.97
                3.40    0.97 |  9.40    2.93 | 15.40    2.92 | 21.40    0.97
                3.60    0.97 |  9.60    2.93 | 15.60    2.92 | 21.60    0.97
                3.80    0.97 |  9.80    2.93 | 15.80    2.92 | 21.80    0.97
                4.00    0.97 | 10.00    2.93 | 16.00    2.92 | 22.00    0.97
                4.20    1.95 | 10.20    5.35 | 16.20    1.95 | 22.20    0.97
                4.40    1.95 | 10.40    5.35 | 16.40    1.95 | 22.40    0.97
                4.60    1.95 | 10.60    5.35 | 16.60    1.95 | 22.60    0.97
                4.80    1.95 | 10.80    5.35 | 16.80    1.95 | 22.80    0.97
                5.00    1.95 | 11.00    5.35 | 17.00    1.95 | 23.00    0.97
                5.20    1.95 | 11.20    7.30 | 17.20    1.95 | 23.20    0.97
                5.40    1.95 | 11.40   10.72 | 17.40    1.95 | 23.40    0.97
                5.60    1.95 | 11.60   24.35 | 17.60    1.95 | 23.60    0.97
                5.80    1.95 | 11.80   53.57 | 17.80    1.95 | 23.80    0.97
                6.00    1.95 | 12.00  100.81 | 18.00    1.95 | 24.00    0.97

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| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     115.18        30.00
     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	0.97	6.083	1.95	12.083	19.49	18.08	1.95
0.167	0.97	6.167	1.95	12.167	19.48	18.17	1.95
0.250	0.97	6.250	1.95	12.250	15.10	18.25	1.95
0.333	0.97	6.333	1.95	12.333	12.18	18.33	1.95
0.417	0.97	6.417	1.95	12.417	11.50	18.42	1.95
0.500	0.97	6.500	1.95	12.500	8.76	18.50	1.95
0.583	0.97	6.583	1.95	12.583	8.76	18.58	1.95
0.667	0.97	6.667	1.95	12.667	8.38	18.67	1.95
0.750	0.97	6.750	1.95	12.750	8.28	18.75	1.95
0.833	0.97	6.833	1.95	12.833	7.30	18.83	1.95
0.917	0.97	6.917	1.95	12.917	5.83	18.92	1.95
1.000	0.97	7.000	1.95	13.000	5.83	19.00	1.95
1.083	0.97	7.083	1.95	13.083	4.88	19.08	1.46
1.167	0.97	7.167	1.95	13.167	4.88	19.17	1.46
1.250	0.97	7.250	1.95	13.250	4.88	19.25	1.46
1.333	0.97	7.333	1.95	13.333	4.88	19.33	1.46
1.417	0.97	7.417	1.95	13.417	4.88	19.42	1.46
1.500	0.97	7.500	1.95	13.500	4.88	19.50	1.46
1.583	0.97	7.583	1.95	13.583	4.88	19.58	1.46
1.667	0.97	7.667	1.95	13.667	4.88	19.67	1.46
1.750	0.97	7.750	1.95	13.750	4.88	19.75	1.46
1.833	0.97	7.833	1.95	13.833	4.88	19.83	1.46
1.917	0.97	7.917	1.95	13.917	4.88	19.92	1.46
2.000	0.97	8.000	1.95	14.000	4.88	20.00	1.46
2.083	0.97	8.083	2.93	14.083	2.92	20.08	1.46
2.167	0.97	8.167	2.93	14.167	2.92	20.17	1.46
2.250	0.97	8.250	2.93	14.250	2.92	20.25	1.46
2.333	0.97	8.333	2.93	14.333	2.92	20.33	1.46
2.417	0.97	8.417	2.93	14.417	2.92	20.42	1.46
2.500	0.97	8.500	2.93	14.500	2.92	20.50	1.46
2.583	0.97	8.583	2.93	14.583	2.92	20.58	1.46
2.667	0.97	8.667	2.93	14.667	2.92	20.67	1.46
2.750	0.97	8.750	2.93	14.750	2.92	20.75	1.46
2.833	0.97	8.833	2.93	14.833	2.92	20.83	1.46
2.917	0.97	8.917	2.93	14.917	2.92	20.92	1.46
3.000	0.97	9.000	2.93	15.000	2.92	21.00	1.46
3.083	0.97	9.083	2.93	15.083	2.92	21.08	0.97
3.167	0.97	9.167	2.93	15.167	2.92	21.17	0.97
3.250	0.97	9.250	2.93	15.250	2.92	21.25	0.97
3.333	0.97	9.333	2.93	15.333	2.92	21.33	0.97
3.417	0.97	9.417	2.93	15.417	2.92	21.42	0.97
3.500	0.97	9.500	2.93	15.500	2.92	21.50	0.97
3.583	0.97	9.583	2.93	15.583	2.92	21.58	0.97
3.667	0.97	9.667	2.93	15.667	2.92	21.67	0.97
3.750	0.97	9.750	2.93	15.750	2.92	21.75	0.97
3.833	0.97	9.833	2.93	15.833	2.92	21.83	0.97
3.917	0.97	9.917	2.93	15.917	2.92	21.92	0.97
4.000	0.97	10.000	2.93	16.000	2.92	22.00	0.97
4.083	1.95	10.083	5.35	16.083	1.95	22.08	0.97
4.167	1.95	10.167	5.35	16.167	1.95	22.17	0.97
4.250	1.95	10.250	5.35	16.250	1.95	22.25	0.97
4.333	1.95	10.333	5.35	16.333	1.95	22.33	0.97
4.417	1.95	10.417	5.35	16.417	1.95	22.42	0.97
4.500	1.95	10.500	5.35	16.500	1.95	22.50	0.97
4.583	1.95	10.583	5.35	16.583	1.95	22.58	0.97
4.667	1.95	10.667	5.35	16.667	1.95	22.67	0.97
4.750	1.95	10.750	5.35	16.750	1.95	22.75	0.97
4.833	1.95	10.833	5.35	16.833	1.95	22.83	0.97
4.917	1.95	10.917	5.35	16.917	1.95	22.92	0.97
5.000	1.95	11.000	5.35	17.000	1.95	23.00	0.97
5.083	1.95	11.083	7.30	17.083	1.95	23.08	0.97
5.167	1.95	11.167	7.30	17.167	1.95	23.17	0.97
5.250	1.95	11.250	9.35	17.250	1.95	23.25	0.97
5.333	1.95	11.333	10.72	17.333	1.95	23.33	0.97
5.417	1.95	11.417	13.44	17.417	1.95	23.42	0.97
5.500	1.95	11.500	24.35	17.500	1.95	23.50	0.97
5.583	1.95	11.583	24.35	17.583	1.95	23.58	0.97
5.667	1.95	11.667	47.72	17.667	1.95	23.67	0.97
5.750	1.95	11.750	53.57	17.750	1.95	23.75	0.97
5.833	1.95	11.833	72.46	17.833	1.95	23.83	0.97
5.917	1.95	11.917	100.81	17.917	1.95	23.92	0.97
6.000	1.95	12.000	100.81	18.000	1.95	24.00	0.97

```
     Max.Eff.Inten.(mm/hr)=     100.81        37.04
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.77 (ii)   11.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.22         0.06          0.269 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      93.55        22.32          50.81
     TOTAL RAINFALL   (mm)=      95.55        95.55          95.55
     RUNOFF COEFFICIENT   =       0.98         0.23           0.53

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     1.99   0.269    12.00    50.81
      + ID2= 2 (  0302):     0.67   0.083    12.00    54.68
        ================================================
        ID = 3 (  0021):     2.66   0.352    12.00    51.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1053      0.0240
                          0.0083     0.0024   |   0.1266      0.0264
                          0.0166     0.0048   |   0.1494      0.0288
                          0.0223     0.0072   |   0.1736      0.0312
                          0.0268     0.0096   |   0.1992      0.0336
                          0.0306     0.0120   |   0.2261      0.0360
                          0.0394     0.0144   |   0.2595      0.0384
                          0.0523     0.0168   |   0.2985      0.0408
                          0.0679     0.0192   |   0.3416      0.0432
                          0.0857     0.0216   |   0.0000      0.0000
```

```
                            AREA     QPEAK     TPEAK       R.V.
                            (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)      2.657     0.352     12.00      51.78
   OUTFLOW: ID= 1 (  0303)      2.657     0.191     12.08      51.75

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 54.13
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0331
```

```
--------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.003    12.33    17.38
     + ID2= 2 (  0303):     2.66   0.191    12.08    51.75
       ================================================
       ID = 3 (  0024):     2.79   0.193    12.08    50.15

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

```
--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\349c9367
| Ptotal= 95.55 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	0.97	6.20	1.95	12.20	19.48	18.20	1.95
0.40	0.97	6.40	1.95	12.40	12.18	18.40	1.95
0.60	0.97	6.60	1.95	12.60	8.76	18.60	1.95
0.80	0.97	6.80	1.95	12.80	8.28	18.80	1.95
1.00	0.97	7.00	1.95	13.00	5.83	19.00	1.95
1.20	0.97	7.20	1.95	13.20	4.88	19.20	1.46
1.40	0.97	7.40	1.95	13.40	4.88	19.40	1.46
1.60	0.97	7.60	1.95	13.60	4.88	19.60	1.46
1.80	0.97	7.80	1.95	13.80	4.88	19.80	1.46
2.00	0.97	8.00	1.95	14.00	4.88	20.00	1.46
2.20	0.97	8.20	2.93	14.20	2.92	20.20	1.46
2.40	0.97	8.40	2.93	14.40	2.92	20.40	1.46
2.60	0.97	8.60	2.93	14.60	2.92	20.60	1.46
2.80	0.97	8.80	2.93	14.80	2.92	20.80	1.46
3.00	0.97	9.00	2.93	15.00	2.92	21.00	1.46
3.20	0.97	9.20	2.93	15.20	2.92	21.20	0.97
3.40	0.97	9.40	2.93	15.40	2.92	21.40	0.97
3.60	0.97	9.60	2.93	15.60	2.92	21.60	0.97
3.80	0.97	9.80	2.93	15.80	2.92	21.80	0.97
4.00	0.97	10.00	2.93	16.00	2.92	22.00	0.97
4.20	1.95	10.20	5.35	16.20	1.95	22.20	0.97
4.40	1.95	10.40	5.35	16.40	1.95	22.40	0.97
4.60	1.95	10.60	5.35	16.60	1.95	22.60	0.97
4.80	1.95	10.80	5.35	16.80	1.95	22.80	0.97
5.00	1.95	11.00	5.35	17.00	1.95	23.00	0.97
5.20	1.95	11.20	7.30	17.20	1.95	23.20	0.97
5.40	1.95	11.40	10.72	17.40	1.95	23.40	0.97
5.60	1.95	11.60	24.35	17.60	1.95	23.60	0.97
5.80	1.95	11.80	53.57	17.80	1.95	23.80	0.97
6.00	1.95	12.00	100.81	18.00	1.95	24.00	0.97

```
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     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	0.97	6.083	1.95	12.083	19.49	18.08	1.95
0.167	0.97	6.167	1.95	12.167	19.48	18.17	1.95
0.250	0.97	6.250	1.95	12.250	15.10	18.25	1.95
0.333	0.97	6.333	1.95	12.333	12.18	18.33	1.95
0.417	0.97	6.417	1.95	12.417	11.50	18.42	1.95
0.500	0.97	6.500	1.95	12.500	8.76	18.50	1.95
0.583	0.97	6.583	1.95	12.583	8.76	18.58	1.95
0.667	0.97	6.667	1.95	12.667	8.38	18.67	1.95
0.750	0.97	6.750	1.95	12.750	8.28	18.75	1.95
0.833	0.97	6.833	1.95	12.833	7.30	18.83	1.95
0.917	0.97	6.917	1.95	12.917	5.83	18.92	1.95
1.000	0.97	7.000	1.95	13.000	5.83	19.00	1.95
1.083	0.97	7.083	1.95	13.083	4.88	19.08	1.46
1.167	0.97	7.167	1.95	13.167	4.88	19.17	1.46
1.250	0.97	7.250	1.95	13.250	4.88	19.25	1.46
1.333	0.97	7.333	1.95	13.333	4.88	19.33	1.46
1.417	0.97	7.417	1.95	13.417	4.88	19.42	1.46
1.500	0.97	7.500	1.95	13.500	4.88	19.50	1.46
1.583	0.97	7.583	1.95	13.583	4.88	19.58	1.46
1.667	0.97	7.667	1.95	13.667	4.88	19.67	1.46
1.750	0.97	7.750	1.95	13.750	4.88	19.75	1.46
1.833	0.97	7.833	1.95	13.833	4.88	19.83	1.46
1.917	0.97	7.917	1.95	13.917	4.88	19.92	1.46
2.000	0.97	8.000	1.95	14.000	4.88	20.00	1.46
2.083	0.97	8.083	2.93	14.083	2.92	20.08	1.46
2.167	0.97	8.167	2.93	14.167	2.92	20.17	1.46
2.250	0.97	8.250	2.93	14.250	2.92	20.25	1.46
2.333	0.97	8.333	2.93	14.333	2.92	20.33	1.46
2.417	0.97	8.417	2.93	14.417	2.92	20.42	1.46
2.500	0.97	8.500	2.93	14.500	2.92	20.50	1.46
2.583	0.97	8.583	2.93	14.583	2.92	20.58	1.46
2.667	0.97	8.667	2.93	14.667	2.92	20.67	1.46
2.750	0.97	8.750	2.93	14.750	2.92	20.75	1.46
2.833	0.97	8.833	2.93	14.833	2.92	20.83	1.46
2.917	0.97	8.917	2.93	14.917	2.92	20.92	1.46
3.000	0.97	9.000	2.93	15.000	2.92	21.00	1.46
3.083	0.97	9.083	2.93	15.083	2.92	21.08	0.97
3.167	0.97	9.167	2.93	15.167	2.92	21.17	0.97
3.250	0.97	9.250	2.93	15.250	2.92	21.25	0.97
3.333	0.97	9.333	2.93	15.333	2.92	21.33	0.97
3.417	0.97	9.417	2.93	15.417	2.92	21.42	0.97
3.500	0.97	9.500	2.93	15.500	2.92	21.50	0.97
3.583	0.97	9.583	2.93	15.583	2.92	21.58	0.97
3.667	0.97	9.667	2.93	15.667	2.92	21.67	0.97
3.750	0.97	9.750	2.93	15.750	2.92	21.75	0.97
3.833	0.97	9.833	2.93	15.833	2.92	21.83	0.97
3.917	0.97	9.917	2.93	15.917	2.92	21.92	0.97
4.000	0.97	10.000	2.93	16.000	2.92	22.00	0.97
4.083	1.95	10.083	5.35	16.083	1.95	22.08	0.97
4.167	1.95	10.167	5.35	16.167	1.95	22.17	0.97
4.250	1.95	10.250	5.35	16.250	1.95	22.25	0.97
4.333	1.95	10.333	5.35	16.333	1.95	22.33	0.97
4.417	1.95	10.417	5.35	16.417	1.95	22.42	0.97
4.500	1.95	10.500	5.35	16.500	1.95	22.50	0.97
4.583	1.95	10.583	5.35	16.583	1.95	22.58	0.97
4.667	1.95	10.667	5.35	16.667	1.95	22.67	0.97

```
               4.750    1.95 |10.750    5.35 |16.750    1.95 | 22.75    0.97
               4.833    1.95 |10.833    5.35 |16.833    1.95 | 22.83    0.97
               4.917    1.95 |10.917    5.35 |16.917    1.95 | 22.92    0.97
               5.000    1.95 |11.000    5.35 |17.000    1.95 | 23.00    0.97
               5.083    1.95 |11.083    7.30 |17.083    1.95 | 23.08    0.97
               5.167    1.95 |11.167    7.30 |17.167    1.95 | 23.17    0.97
               5.250    1.95 |11.250    9.35 |17.250    1.95 | 23.25    0.97
               5.333    1.95 |11.333   10.72 |17.333    1.95 | 23.33    0.97
               5.417    1.95 |11.417   13.44 |17.417    1.95 | 23.42    0.97
               5.500    1.95 |11.500   24.35 |17.500    1.95 | 23.50    0.97
               5.583    1.95 |11.583   24.35 |17.583    1.95 | 23.58    0.97
               5.667    1.95 |11.667   47.72 |17.667    1.95 | 23.67    0.97
               5.750    1.95 |11.750   53.57 |17.750    1.95 | 23.75    0.97
               5.833    1.95 |11.833   72.46 |17.833    1.95 | 23.83    0.97
               5.917    1.95 |11.917  100.81 |17.917    1.95 | 23.92    0.97
               6.000    1.95 |12.000  100.81 |18.000    1.95 | 24.00    0.97

     Max.Eff.Inten.(mm/hr)=     100.81        37.04
                  over (min)        5.00        15.00
     Storage Coeff.  (min)=       3.07 (ii)   11.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.27         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.31         0.08          0.376 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      93.55        22.32          50.81
     TOTAL RAINFALL   (mm)=      95.55        95.55          95.55
     RUNOFF COEFFICIENT   =       0.98         0.23           0.53

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
-------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.38     12.00   50.81
     ================================================
     MAJOR SYS.(ID= 2):   0.09      0.09     12.00   50.81
     MINOR SYS.(ID= 3):   2.70      0.28     11.92   50.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0025):     2.70   0.283    11.92    50.81
      + ID2= 2 (  0302):     1.29   0.143    12.00    54.68
        ================================================
        ID = 3 (  0022):     4.00   0.426    12.00    52.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0022):     4.00   0.426    12.00    52.06
      + ID2= 2 (  0025):     0.09   0.093    12.00    50.81
        ================================================
        ID = 3 (  0029):     4.08   0.519    12.00    52.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================================
===============

      V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\b1fca256-f90d-42e0-bfb4-50b37f117560\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\b1fca256-f90d-42e0-bfb4-50b37f117560\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------------------
---------------
  ***********************************************
  ** SIMULATION : Run 06: 50yr 24hr SCS Barrie  **
  ***********************************************


-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e07e5647
| Ptotal=108.06 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    1.10 |  6.20    2.20 | 12.20   22.04 | 18.20    2.20
                0.40    1.10 |  6.40    2.20 | 12.40   13.78 | 18.40    2.20
                0.60    1.10 |  6.60    2.20 | 12.60    9.92 | 18.60    2.20
                0.80    1.10 |  6.80    2.20 | 12.80    9.37 | 18.80    2.20
                1.00    1.10 |  7.00    2.20 | 13.00    6.61 | 19.00    2.20
                1.20    1.10 |  7.20    2.20 | 13.20    5.51 | 19.20    1.65
                1.40    1.10 |  7.40    2.20 | 13.40    5.51 | 19.40    1.65
                1.60    1.10 |  7.60    2.20 | 13.60    5.51 | 19.60    1.65
                1.80    1.10 |  7.80    2.20 | 13.80    5.51 | 19.80    1.65
                2.00    1.10 |  8.00    2.20 | 14.00    5.51 | 20.00    1.65
```

2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

CALIB					
NASHYD (0207)	Area (ha)=	0.23	Curve Number (CN)=	40.0	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.43			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

Unit Hyd Qpeak (cms)= 0.020

PEAK FLOW (cms)= 0.007 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 21.937
TOTAL RAINFALL (mm)= 108.064
RUNOFF COEFFICIENT = 0.203

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e07e5647
Ptotal=108.06 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20
0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65

2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

CALIB			
NASHYD (0205)	Area (ha)=	0.13	Curve Number (CN)= 40.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.47	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 12.333
RUNOFF VOLUME (mm)= 21.934
TOTAL RAINFALL (mm)= 108.064
RUNOFF COEFFICIENT = 0.203

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

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e07e5647
Ptotal=108.06 mm	Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20
0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65

3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

CALIB	
STANDHYD (0201)	Area (ha)= 0.95
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.57	0.38
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	79.58	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

				TOTALS
Max.Eff.Inten.(mm/hr)=		114.06	49.02	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.11 (ii)	10.01 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.31	0.10	
PEAK FLOW	(cms)=	0.14	0.03	0.164 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	106.06	28.58	63.44
TOTAL RAINFALL	(mm)=	108.06	108.06	108.06
RUNOFF COEFFICIENT	=	0.98	0.26	0.59

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

READ STORM	Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e07e5647
Ptotal=108.06 mm	Comments:

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

0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20
0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

CALIB	
STANDHYD (0202)	Area (ha)= 1.01
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.61	0.40
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	82.06	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

Max.Eff.Inten.(mm/hr)=	114.06	49.02	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.15 (ii)	10.05 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.31	0.10	
			TOTALS
PEAK FLOW (cms)=	0.14	0.04	0.174 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	106.06	28.58	63.44
TOTAL RAINFALL (mm)=	108.06	108.06	108.06
RUNOFF COEFFICIENT =	0.98	0.26	0.59

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.95   0.164    12.00    63.44
      + ID2= 2 (  0202):     1.01   0.174    12.00    63.44
        ================================================
        ID = 3 (  0006):     1.96   0.338    12.00    63.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2093     0.0094
                         0.0320     0.0013   |   0.2332     0.0108
                         0.0641     0.0027   |   0.2542     0.0121
                         0.1019     0.0040   |   0.2733     0.0135
                         0.1289     0.0054   |   0.2910     0.0148
                         0.1547     0.0067   |   0.3076     0.0162
                         0.1776     0.0081   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)     1.960     0.338     12.00      63.44
   OUTFLOW: ID= 1 (  0301)     1.960     0.255     12.00      63.44

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 75.32
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0134

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-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                           AREA     QPEAK     TPEAK     R.V.
                           (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):    1.96      0.25     12.00    63.44
     ================================================
     ID= 2  (   2)    :    0.68      0.10     12.00    63.44
     ID= 3  (   2)    :    1.28      0.16     12.00    63.44
     ID= 4  (   2)    :    0.00      0.00      0.00     0.00
     ID= 5  (   2)    :    0.00      0.00      0.00     0.00
     ID= 6  (   2)    :    0.00      0.00      0.00     0.00
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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e07e5647
| Ptotal=108.06 mm |    Comments:
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20
0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

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-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     115.18        30.00
     Mannings n           =      0.013        0.250

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

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20

```
 0.667   1.10 | 6.667   2.20 |12.667   9.48 | 18.67   2.20
 0.750   1.10 | 6.750   2.20 |12.750   9.37 | 18.75   2.20
 0.833   1.10 | 6.833   2.20 |12.833   8.27 | 18.83   2.20
 0.917   1.10 | 6.917   2.20 |12.917   6.61 | 18.92   2.20
 1.000   1.10 | 7.000   2.20 |13.000   6.61 | 19.00   2.20
 1.083   1.10 | 7.083   2.20 |13.083   5.51 | 19.08   1.65
 1.167   1.10 | 7.167   2.20 |13.167   5.51 | 19.17   1.65
 1.250   1.10 | 7.250   2.20 |13.250   5.51 | 19.25   1.65
 1.333   1.10 | 7.333   2.20 |13.333   5.51 | 19.33   1.65
 1.417   1.10 | 7.417   2.20 |13.417   5.51 | 19.42   1.65
 1.500   1.10 | 7.500   2.20 |13.500   5.51 | 19.50   1.65
 1.583   1.10 | 7.583   2.20 |13.583   5.51 | 19.58   1.65
 1.667   1.10 | 7.667   2.20 |13.667   5.51 | 19.67   1.65
 1.750   1.10 | 7.750   2.20 |13.750   5.51 | 19.75   1.65
 1.833   1.10 | 7.833   2.20 |13.833   5.51 | 19.83   1.65
 1.917   1.10 | 7.917   2.20 |13.917   5.51 | 19.92   1.65
 2.000   1.10 | 8.000   2.20 |14.000   5.51 | 20.00   1.65
 2.083   1.10 | 8.083   3.31 |14.083   3.31 | 20.08   1.65
 2.167   1.10 | 8.167   3.31 |14.167   3.31 | 20.17   1.65
 2.250   1.10 | 8.250   3.31 |14.250   3.31 | 20.25   1.65
 2.333   1.10 | 8.333   3.31 |14.333   3.31 | 20.33   1.65
 2.417   1.10 | 8.417   3.31 |14.417   3.31 | 20.42   1.65
 2.500   1.10 | 8.500   3.31 |14.500   3.31 | 20.50   1.65
 2.583   1.10 | 8.583   3.31 |14.583   3.31 | 20.58   1.65
 2.667   1.10 | 8.667   3.31 |14.667   3.31 | 20.67   1.65
 2.750   1.10 | 8.750   3.31 |14.750   3.31 | 20.75   1.65
 2.833   1.10 | 8.833   3.31 |14.833   3.31 | 20.83   1.65
 2.917   1.10 | 8.917   3.31 |14.917   3.31 | 20.92   1.65
 3.000   1.10 | 9.000   3.31 |15.000   3.31 | 21.00   1.65
 3.083   1.10 | 9.083   3.31 |15.083   3.31 | 21.08   1.10
 3.167   1.10 | 9.167   3.31 |15.167   3.31 | 21.17   1.10
 3.250   1.10 | 9.250   3.31 |15.250   3.31 | 21.25   1.10
 3.333   1.10 | 9.333   3.31 |15.333   3.31 | 21.33   1.10
 3.417   1.10 | 9.417   3.31 |15.417   3.31 | 21.42   1.10
 3.500   1.10 | 9.500   3.31 |15.500   3.31 | 21.50   1.10
 3.583   1.10 | 9.583   3.31 |15.583   3.31 | 21.58   1.10
 3.667   1.10 | 9.667   3.31 |15.667   3.31 | 21.67   1.10
 3.750   1.10 | 9.750   3.31 |15.750   3.31 | 21.75   1.10
 3.833   1.10 | 9.833   3.31 |15.833   3.31 | 21.83   1.10
 3.917   1.10 | 9.917   3.31 |15.917   3.31 | 21.92   1.10
 4.000   1.10 |10.000   3.31 |16.000   3.31 | 22.00   1.10
 4.083   2.20 |10.083   6.05 |16.083   2.20 | 22.08   1.10
 4.167   2.20 |10.167   6.05 |16.167   2.20 | 22.17   1.10
 4.250   2.20 |10.250   6.05 |16.250   2.20 | 22.25   1.10
 4.333   2.20 |10.333   6.05 |16.333   2.20 | 22.33   1.10
 4.417   2.20 |10.417   6.05 |16.417   2.20 | 22.42   1.10
 4.500   2.20 |10.500   6.05 |16.500   2.20 | 22.50   1.10
 4.583   2.20 |10.583   6.05 |16.583   2.20 | 22.58   1.10
 4.667   2.20 |10.667   6.05 |16.667   2.20 | 22.67   1.10
 4.750   2.20 |10.750   6.05 |16.750   2.20 | 22.75   1.10
 4.833   2.20 |10.833   6.05 |16.833   2.20 | 22.83   1.10
 4.917   2.20 |10.917   6.05 |16.917   2.20 | 22.92   1.10
 5.000   2.20 |11.000   6.05 |17.000   2.20 | 23.00   1.10
 5.083   2.20 |11.083   8.26 |17.083   2.20 | 23.08   1.10
 5.167   2.20 |11.167   8.26 |17.167   2.20 | 23.17   1.10
 5.250   2.20 |11.250  10.58 |17.250   2.20 | 23.25   1.10
 5.333   2.20 |11.333  12.12 |17.333   2.20 | 23.33   1.10
 5.417   2.20 |11.417  15.20 |17.417   2.20 | 23.42   1.10
 5.500   2.20 |11.500  27.55 |17.500   2.20 | 23.50   1.10
 5.583   2.20 |11.583  27.55 |17.583   2.20 | 23.58   1.10
 5.667   2.20 |11.667  53.99 |17.667   2.20 | 23.67   1.10
 5.750   2.20 |11.750  60.61 |17.750   2.20 | 23.75   1.10
 5.833   2.20 |11.833  81.98 |17.833   2.20 | 23.83   1.10
 5.917   2.20 |11.917 114.06 |17.917   2.20 | 23.92   1.10
 6.000   2.20 |12.000 114.06 |18.000   2.20 | 24.00   1.10

Max.Eff.Inten.(mm/hr)=     114.06        46.38
          over (min)         5.00        15.00
Storage Coeff.  (min)=       2.64 (ii)   10.71 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00

     Unit Hyd. peak  (cms)=       0.29         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.25         0.07          0.313 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=     106.06        27.90          59.16
     TOTAL RAINFALL   (mm)=     108.06       108.06         108.06
     RUNOFF COEFFICIENT   =       0.98         0.26           0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.313    12.00    59.16
     + ID2= 2 (  0302):     0.68   0.097    12.00    63.44
       ==========================================================
       ID = 3 (  0021):     2.67   0.410    12.00    60.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053      0.0240
                         0.0083     0.0024   |   0.1266      0.0264
                         0.0166     0.0048   |   0.1494      0.0288
                         0.0223     0.0072   |   0.1736      0.0312
                         0.0268     0.0096   |   0.1992      0.0336
                         0.0306     0.0120   |   0.2261      0.0360
                         0.0394     0.0144   |   0.2595      0.0384
                         0.0523     0.0168   |   0.2985      0.0408
                         0.0679     0.0192   |   0.3416      0.0432
                         0.0857     0.0216   |   0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     2.666     0.410     12.00      60.25
   OUTFLOW: ID= 1 (  0303)     2.666     0.238     12.08      60.22

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 58.14
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0370

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-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.004    12.33    21.93
     + ID2= 2 (  0303):     2.67   0.238    12.08    60.22
       ==========================================================
       ID = 3 (  0024):     2.80   0.241    12.08    58.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\e07e5647
| Ptotal=108.06 mm |    Comments:
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.10	6.20	2.20	12.20	22.04	18.20	2.20
0.40	1.10	6.40	2.20	12.40	13.78	18.40	2.20
0.60	1.10	6.60	2.20	12.60	9.92	18.60	2.20
0.80	1.10	6.80	2.20	12.80	9.37	18.80	2.20
1.00	1.10	7.00	2.20	13.00	6.61	19.00	2.20
1.20	1.10	7.20	2.20	13.20	5.51	19.20	1.65
1.40	1.10	7.40	2.20	13.40	5.51	19.40	1.65
1.60	1.10	7.60	2.20	13.60	5.51	19.60	1.65
1.80	1.10	7.80	2.20	13.80	5.51	19.80	1.65
2.00	1.10	8.00	2.20	14.00	5.51	20.00	1.65
2.20	1.10	8.20	3.31	14.20	3.31	20.20	1.65
2.40	1.10	8.40	3.31	14.40	3.31	20.40	1.65
2.60	1.10	8.60	3.31	14.60	3.31	20.60	1.65
2.80	1.10	8.80	3.31	14.80	3.31	20.80	1.65
3.00	1.10	9.00	3.31	15.00	3.31	21.00	1.65
3.20	1.10	9.20	3.31	15.20	3.31	21.20	1.10
3.40	1.10	9.40	3.31	15.40	3.31	21.40	1.10
3.60	1.10	9.60	3.31	15.60	3.31	21.60	1.10
3.80	1.10	9.80	3.31	15.80	3.31	21.80	1.10
4.00	1.10	10.00	3.31	16.00	3.31	22.00	1.10
4.20	2.20	10.20	6.05	16.20	2.20	22.20	1.10
4.40	2.20	10.40	6.05	16.40	2.20	22.40	1.10
4.60	2.20	10.60	6.05	16.60	2.20	22.60	1.10
4.80	2.20	10.80	6.05	16.80	2.20	22.80	1.10
5.00	2.20	11.00	6.05	17.00	2.20	23.00	1.10
5.20	2.20	11.20	8.26	17.20	2.20	23.20	1.10
5.40	2.20	11.40	12.12	17.40	2.20	23.40	1.10
5.60	2.20	11.60	27.55	17.60	2.20	23.60	1.10
5.80	2.20	11.80	60.61	17.80	2.20	23.80	1.10
6.00	2.20	12.00	114.06	18.00	2.20	24.00	1.10

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--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.53	1.26
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	136.38	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.10	6.083	2.20	12.083	22.05	18.08	2.20
0.167	1.10	6.167	2.20	12.167	22.04	18.17	2.20
0.250	1.10	6.250	2.20	12.250	17.08	18.25	2.20
0.333	1.10	6.333	2.20	12.333	13.78	18.33	2.20
0.417	1.10	6.417	2.20	12.417	13.01	18.42	2.20
0.500	1.10	6.500	2.20	12.500	9.92	18.50	2.20
0.583	1.10	6.583	2.20	12.583	9.92	18.58	2.20
0.667	1.10	6.667	2.20	12.667	9.48	18.67	2.20
0.750	1.10	6.750	2.20	12.750	9.37	18.75	2.20
0.833	1.10	6.833	2.20	12.833	8.27	18.83	2.20
0.917	1.10	6.917	2.20	12.917	6.61	18.92	2.20
1.000	1.10	7.000	2.20	13.000	6.61	19.00	2.20
1.083	1.10	7.083	2.20	13.083	5.51	19.08	1.65
1.167	1.10	7.167	2.20	13.167	5.51	19.17	1.65
1.250	1.10	7.250	2.20	13.250	5.51	19.25	1.65
1.333	1.10	7.333	2.20	13.333	5.51	19.33	1.65
1.417	1.10	7.417	2.20	13.417	5.51	19.42	1.65
1.500	1.10	7.500	2.20	13.500	5.51	19.50	1.65
1.583	1.10	7.583	2.20	13.583	5.51	19.58	1.65
1.667	1.10	7.667	2.20	13.667	5.51	19.67	1.65
1.750	1.10	7.750	2.20	13.750	5.51	19.75	1.65
1.833	1.10	7.833	2.20	13.833	5.51	19.83	1.65
1.917	1.10	7.917	2.20	13.917	5.51	19.92	1.65
2.000	1.10	8.000	2.20	14.000	5.51	20.00	1.65
2.083	1.10	8.083	3.31	14.083	3.31	20.08	1.65
2.167	1.10	8.167	3.31	14.167	3.31	20.17	1.65
2.250	1.10	8.250	3.31	14.250	3.31	20.25	1.65
2.333	1.10	8.333	3.31	14.333	3.31	20.33	1.65
2.417	1.10	8.417	3.31	14.417	3.31	20.42	1.65
2.500	1.10	8.500	3.31	14.500	3.31	20.50	1.65
2.583	1.10	8.583	3.31	14.583	3.31	20.58	1.65
2.667	1.10	8.667	3.31	14.667	3.31	20.67	1.65
2.750	1.10	8.750	3.31	14.750	3.31	20.75	1.65
2.833	1.10	8.833	3.31	14.833	3.31	20.83	1.65
2.917	1.10	8.917	3.31	14.917	3.31	20.92	1.65
3.000	1.10	9.000	3.31	15.000	3.31	21.00	1.65
3.083	1.10	9.083	3.31	15.083	3.31	21.08	1.10
3.167	1.10	9.167	3.31	15.167	3.31	21.17	1.10
3.250	1.10	9.250	3.31	15.250	3.31	21.25	1.10
3.333	1.10	9.333	3.31	15.333	3.31	21.33	1.10
3.417	1.10	9.417	3.31	15.417	3.31	21.42	1.10
3.500	1.10	9.500	3.31	15.500	3.31	21.50	1.10
3.583	1.10	9.583	3.31	15.583	3.31	21.58	1.10
3.667	1.10	9.667	3.31	15.667	3.31	21.67	1.10
3.750	1.10	9.750	3.31	15.750	3.31	21.75	1.10
3.833	1.10	9.833	3.31	15.833	3.31	21.83	1.10
3.917	1.10	9.917	3.31	15.917	3.31	21.92	1.10
4.000	1.10	10.000	3.31	16.000	3.31	22.00	1.10
4.083	2.20	10.083	6.05	16.083	2.20	22.08	1.10
4.167	2.20	10.167	6.05	16.167	2.20	22.17	1.10
4.250	2.20	10.250	6.05	16.250	2.20	22.25	1.10
4.333	2.20	10.333	6.05	16.333	2.20	22.33	1.10
4.417	2.20	10.417	6.05	16.417	2.20	22.42	1.10
4.500	2.20	10.500	6.05	16.500	2.20	22.50	1.10
4.583	2.20	10.583	6.05	16.583	2.20	22.58	1.10
4.667	2.20	10.667	6.05	16.667	2.20	22.67	1.10
4.750	2.20	10.750	6.05	16.750	2.20	22.75	1.10
4.833	2.20	10.833	6.05	16.833	2.20	22.83	1.10
4.917	2.20	10.917	6.05	16.917	2.20	22.92	1.10
5.000	2.20	11.000	6.05	17.000	2.20	23.00	1.10
5.083	2.20	11.083	8.26	17.083	2.20	23.08	1.10
5.167	2.20	11.167	8.26	17.167	2.20	23.17	1.10
5.250	2.20	11.250	10.58	17.250	2.20	23.25	1.10
5.333	2.20	11.333	12.12	17.333	2.20	23.33	1.10
5.417	2.20	11.417	15.20	17.417	2.20	23.42	1.10
5.500	2.20	11.500	27.55	17.500	2.20	23.50	1.10
5.583	2.20	11.583	27.55	17.583	2.20	23.58	1.10
5.667	2.20	11.667	53.99	17.667	2.20	23.67	1.10
5.750	2.20	11.750	60.61	17.750	2.20	23.75	1.10
5.833	2.20	11.833	81.98	17.833	2.20	23.83	1.10
5.917	2.20	11.917	114.06	17.917	2.20	23.92	1.10
6.000	2.20	12.000	114.06	18.000	2.20	24.00	1.10

Max.Eff.Inten.	(mm/hr)=	114.06	46.38	
	over (min)	5.00	15.00	
Storage Coeff.	(min)=	2.92 (ii)	11.00 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.28	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.35	0.10	0.437 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00

```
     RUNOFF VOLUME    (mm)=     106.06        27.90          59.16
     TOTAL RAINFALL   (mm)=     108.06       108.06         108.06
     RUNOFF COEFFICIENT   =       0.98         0.26           0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  40.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
--------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.44     12.00   59.16
     ==================================================
     MAJOR SYS.(ID= 2):   0.13      0.15     12.00   59.16
     MINOR SYS.(ID= 3):   2.66      0.28     11.92   59.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0025):     2.66   0.283    11.92    59.16
      + ID2= 2 (  0302):     1.28   0.158    12.00    63.44
        ==================================================
        ID = 3 (  0022):     3.94   0.441    12.00    60.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0022):     3.94   0.441    12.00    60.56
      + ID2= 2 (  0025):     0.13   0.154    12.00    59.16
        ==================================================
        ID = 3 (  0029):     4.07   0.595    12.00    60.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
==============

       V    V   I    SSSSS  U   U    A    L              (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\ec541389-3fa3-4a46-add4-3f2bec7a0ee7\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\ec541389-3fa3-4a46-add4-3f2bec7a0ee7\scena

DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________

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  **********************************************
  ** SIMULATION : Run 07: 100yr 24hr SCS Barrie **
  **********************************************

--------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\3d6f8854
| Ptotal=120.68 mm |    Comments:
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    1.23 |  6.20    2.46 | 12.20   24.60 | 18.20    2.46
                0.40    1.23 |  6.40    2.46 | 12.40   15.38 | 18.40    2.46
                0.60    1.23 |  6.60    2.46 | 12.60   11.07 | 18.60    2.46
                0.80    1.23 |  6.80    2.46 | 12.80   10.46 | 18.80    2.46
                1.00    1.23 |  7.00    2.46 | 13.00    7.38 | 19.00    2.46
                1.20    1.23 |  7.20    2.46 | 13.20    6.15 | 19.20    1.84
                1.40    1.23 |  7.40    2.46 | 13.40    6.15 | 19.40    1.84
                1.60    1.23 |  7.60    2.46 | 13.60    6.15 | 19.60    1.84
                1.80    1.23 |  7.80    2.46 | 13.80    6.15 | 19.80    1.84
                2.00    1.23 |  8.00    2.46 | 14.00    6.15 | 20.00    1.84
                2.20    1.23 |  8.20    3.70 | 14.20    3.70 | 20.20    1.84
                2.40    1.23 |  8.40    3.70 | 14.40    3.70 | 20.40    1.84
                2.60    1.23 |  8.60    3.70 | 14.60    3.70 | 20.60    1.84
                2.80    1.23 |  8.80    3.70 | 14.80    3.70 | 20.80    1.84
                3.00    1.23 |  9.00    3.70 | 15.00    3.70 | 21.00    1.84
                3.20    1.23 |  9.20    3.70 | 15.20    3.70 | 21.20    1.23
                3.40    1.23 |  9.40    3.70 | 15.40    3.70 | 21.40    1.23
                3.60    1.23 |  9.60    3.70 | 15.60    3.70 | 21.60    1.23
                3.80    1.23 |  9.80    3.70 | 15.80    3.70 | 21.80    1.23
                4.00    1.23 | 10.00    3.70 | 16.00    3.70 | 22.00    1.23
                4.20    2.46 | 10.20    6.75 | 16.20    2.46 | 22.20    1.23
                4.40    2.46 | 10.40    6.75 | 16.40    2.46 | 22.40    1.23
                4.60    2.46 | 10.60    6.75 | 16.60    2.46 | 22.60    1.23
                4.80    2.46 | 10.80    6.75 | 16.80    2.46 | 22.80    1.23
                5.00    2.46 | 11.00    6.75 | 17.00    2.46 | 23.00    1.23
                5.20    2.46 | 11.20    9.22 | 17.20    2.46 | 23.20    1.23
                5.40    2.46 | 11.40   13.53 | 17.40    2.46 | 23.40    1.23
                5.60    2.46 | 11.60   30.75 | 17.60    2.46 | 23.60    1.23
                5.80    2.46 | 11.80   67.65 | 17.80    2.46 | 23.80    1.23
                6.00    2.46 | 12.00  127.30 | 18.00    2.46 | 24.00    1.23

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

--------------------
| CALIB            |
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```
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.23	6.083	2.46	12.083	24.61	18.08	2.46
0.167	1.23	6.167	2.46	12.167	24.60	18.17	2.46
0.250	1.23	6.250	2.46	12.250	19.07	18.25	2.46
0.333	1.23	6.333	2.46	12.333	15.38	18.33	2.46
0.417	1.23	6.417	2.46	12.417	14.52	18.42	2.46
0.500	1.23	6.500	2.46	12.500	11.07	18.50	2.46
0.583	1.23	6.583	2.46	12.583	11.07	18.58	2.46
0.667	1.23	6.667	2.46	12.667	10.58	18.67	2.46
0.750	1.23	6.750	2.46	12.750	10.46	18.75	2.46
0.833	1.23	6.833	2.46	12.833	9.23	18.83	2.46
0.917	1.23	6.917	2.46	12.917	7.38	18.92	2.46
1.000	1.23	7.000	2.46	13.000	7.38	19.00	2.46
1.083	1.23	7.083	2.46	13.083	6.15	19.08	1.84
1.167	1.23	7.167	2.46	13.167	6.15	19.17	1.84
1.250	1.23	7.250	2.46	13.250	6.15	19.25	1.84
1.333	1.23	7.333	2.46	13.333	6.15	19.33	1.84
1.417	1.23	7.417	2.46	13.417	6.15	19.42	1.84
1.500	1.23	7.500	2.46	13.500	6.15	19.50	1.84
1.583	1.23	7.583	2.46	13.583	6.15	19.58	1.84
1.667	1.23	7.667	2.46	13.667	6.15	19.67	1.84
1.750	1.23	7.750	2.46	13.750	6.15	19.75	1.84
1.833	1.23	7.833	2.46	13.833	6.15	19.83	1.84
1.917	1.23	7.917	2.46	13.917	6.15	19.92	1.84
2.000	1.23	8.000	2.46	14.000	6.15	20.00	1.84
2.083	1.23	8.083	3.70	14.083	3.70	20.08	1.84
2.167	1.23	8.167	3.70	14.167	3.70	20.17	1.84
2.250	1.23	8.250	3.70	14.250	3.70	20.25	1.84
2.333	1.23	8.333	3.70	14.333	3.70	20.33	1.84
2.417	1.23	8.417	3.70	14.417	3.70	20.42	1.84
2.500	1.23	8.500	3.70	14.500	3.70	20.50	1.84
2.583	1.23	8.583	3.70	14.583	3.70	20.58	1.84
2.667	1.23	8.667	3.70	14.667	3.70	20.67	1.84
2.750	1.23	8.750	3.70	14.750	3.70	20.75	1.84
2.833	1.23	8.833	3.70	14.833	3.70	20.83	1.84
2.917	1.23	8.917	3.70	14.917	3.70	20.92	1.84
3.000	1.23	9.000	3.70	15.000	3.70	21.00	1.84
3.083	1.23	9.083	3.70	15.083	3.70	21.08	1.23
3.167	1.23	9.167	3.70	15.167	3.70	21.17	1.23
3.250	1.23	9.250	3.70	15.250	3.70	21.25	1.23
3.333	1.23	9.333	3.70	15.333	3.70	21.33	1.23
3.417	1.23	9.417	3.70	15.417	3.70	21.42	1.23
3.500	1.23	9.500	3.70	15.500	3.70	21.50	1.23
3.583	1.23	9.583	3.70	15.583	3.70	21.58	1.23
3.667	1.23	9.667	3.70	15.667	3.70	21.67	1.23
3.750	1.23	9.750	3.70	15.750	3.70	21.75	1.23
3.833	1.23	9.833	3.70	15.833	3.70	21.83	1.23
3.917	1.23	9.917	3.70	15.917	3.70	21.92	1.23
4.000	1.23	10.000	3.70	16.000	3.70	22.00	1.23
4.083	2.46	10.083	6.75	16.083	2.46	22.08	1.23
4.167	2.46	10.167	6.75	16.167	2.46	22.17	1.23
4.250	2.46	10.250	6.75	16.250	2.46	22.25	1.23
4.333	2.46	10.333	6.75	16.333	2.46	22.33	1.23
4.417	2.46	10.417	6.75	16.417	2.46	22.42	1.23
4.500	2.46	10.500	6.75	16.500	2.46	22.50	1.23
4.583	2.46	10.583	6.75	16.583	2.46	22.58	1.23
4.667	2.46	10.667	6.75	16.667	2.46	22.67	1.23
4.750	2.46	10.750	6.75	16.750	2.46	22.75	1.23
4.833	2.46	10.833	6.75	16.833	2.46	22.83	1.23
4.917	2.46	10.917	6.75	16.917	2.46	22.92	1.23
5.000	2.46	11.000	6.75	17.000	2.46	23.00	1.23
5.083	2.46	11.083	9.22	17.083	2.46	23.08	1.23
5.167	2.46	11.167	9.22	17.167	2.46	23.17	1.23
5.250	2.46	11.250	11.81	17.250	2.46	23.25	1.23
5.333	2.46	11.333	13.53	17.333	2.46	23.33	1.23
5.417	2.46	11.417	16.97	17.417	2.46	23.42	1.23
5.500	2.46	11.500	30.75	17.500	2.46	23.50	1.23
5.583	2.46	11.583	30.75	17.583	2.46	23.58	1.23
5.667	2.46	11.667	60.27	17.667	2.46	23.67	1.23
5.750	2.46	11.750	67.65	17.750	2.46	23.75	1.23
5.833	2.46	11.833	91.50	17.833	2.46	23.83	1.23
5.917	2.46	11.917	127.30	17.917	2.46	23.92	1.23
6.000	2.46	12.000	127.30	18.000	2.46	24.00	1.23

```
     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.008 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  26.935
     TOTAL RAINFALL   (mm)= 120.678
     RUNOFF COEFFICIENT   =   0.223

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

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

-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\3d6f8854
| Ptotal=120.68 mm |    Comments:
-------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.23	6.20	2.46	12.20	24.60	18.20	2.46
0.40	1.23	6.40	2.46	12.40	15.38	18.40	2.46
0.60	1.23	6.60	2.46	12.60	11.07	18.60	2.46
0.80	1.23	6.80	2.46	12.80	10.46	18.80	2.46
1.00	1.23	7.00	2.46	13.00	7.38	19.00	2.46
1.20	1.23	7.20	2.46	13.20	6.15	19.20	1.84
1.40	1.23	7.40	2.46	13.40	6.15	19.40	1.84
1.60	1.23	7.60	2.46	13.60	6.15	19.60	1.84
1.80	1.23	7.80	2.46	13.80	6.15	19.80	1.84
2.00	1.23	8.00	2.46	14.00	6.15	20.00	1.84
2.20	1.23	8.20	3.70	14.20	3.70	20.20	1.84
2.40	1.23	8.40	3.70	14.40	3.70	20.40	1.84
2.60	1.23	8.60	3.70	14.60	3.70	20.60	1.84
2.80	1.23	8.80	3.70	14.80	3.70	20.80	1.84
3.00	1.23	9.00	3.70	15.00	3.70	21.00	1.84
3.20	1.23	9.20	3.70	15.20	3.70	21.20	1.23
3.40	1.23	9.40	3.70	15.40	3.70	21.40	1.23
3.60	1.23	9.60	3.70	15.60	3.70	21.60	1.23
3.80	1.23	9.80	3.70	15.80	3.70	21.80	1.23
4.00	1.23	10.00	3.70	16.00	3.70	22.00	1.23
4.20	2.46	10.20	6.75	16.20	2.46	22.20	1.23
4.40	2.46	10.40	6.75	16.40	2.46	22.40	1.23
4.60	2.46	10.60	6.75	16.60	2.46	22.60	1.23
4.80	2.46	10.80	6.75	16.80	2.46	22.80	1.23
5.00	2.46	11.00	6.75	17.00	2.46	23.00	1.23
5.20	2.46	11.20	9.22	17.20	2.46	23.20	1.23
5.40	2.46	11.40	13.53	17.40	2.46	23.40	1.23
5.60	2.46	11.60	30.75	17.60	2.46	23.60	1.23
5.80	2.46	11.80	67.65	17.80	2.46	23.80	1.23
6.00	2.46	12.00	127.30	18.00	2.46	24.00	1.23

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

-------------------
| CALIB            |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
```

```
--------------------   U.H. Tp(hrs)=   0.47

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.23	6.083	2.46	12.083	24.61	18.08	2.46
0.167	1.23	6.167	2.46	12.167	24.60	18.17	2.46
0.250	1.23	6.250	2.46	12.250	19.07	18.25	2.46
0.333	1.23	6.333	2.46	12.333	15.38	18.33	2.46
0.417	1.23	6.417	2.46	12.417	14.52	18.42	2.46
0.500	1.23	6.500	2.46	12.500	11.07	18.50	2.46
0.583	1.23	6.583	2.46	12.583	11.07	18.58	2.46
0.667	1.23	6.667	2.46	12.667	10.58	18.67	2.46
0.750	1.23	6.750	2.46	12.750	10.46	18.75	2.46
0.833	1.23	6.833	2.46	12.833	9.23	18.83	2.46
0.917	1.23	6.917	2.46	12.917	7.38	18.92	2.46
1.000	1.23	7.000	2.46	13.000	7.38	19.00	2.46
1.083	1.23	7.083	2.46	13.083	6.15	19.08	1.84
1.167	1.23	7.167	2.46	13.167	6.15	19.17	1.84
1.250	1.23	7.250	2.46	13.250	6.15	19.25	1.84
1.333	1.23	7.333	2.46	13.333	6.15	19.33	1.84
1.417	1.23	7.417	2.46	13.417	6.15	19.42	1.84
1.500	1.23	7.500	2.46	13.500	6.15	19.50	1.84
1.583	1.23	7.583	2.46	13.583	6.15	19.58	1.84
1.667	1.23	7.667	2.46	13.667	6.15	19.67	1.84
1.750	1.23	7.750	2.46	13.750	6.15	19.75	1.84
1.833	1.23	7.833	2.46	13.833	6.15	19.83	1.84
1.917	1.23	7.917	2.46	13.917	6.15	19.92	1.84
2.000	1.23	8.000	2.46	14.000	6.15	20.00	1.84
2.083	1.23	8.083	3.70	14.083	3.70	20.08	1.84
2.167	1.23	8.167	3.70	14.167	3.70	20.17	1.84
2.250	1.23	8.250	3.70	14.250	3.70	20.25	1.84
2.333	1.23	8.333	3.70	14.333	3.70	20.33	1.84
2.417	1.23	8.417	3.70	14.417	3.70	20.42	1.84
2.500	1.23	8.500	3.70	14.500	3.70	20.50	1.84
2.583	1.23	8.583	3.70	14.583	3.70	20.58	1.84
2.667	1.23	8.667	3.70	14.667	3.70	20.67	1.84
2.750	1.23	8.750	3.70	14.750	3.70	20.75	1.84
2.833	1.23	8.833	3.70	14.833	3.70	20.83	1.84
2.917	1.23	8.917	3.70	14.917	3.70	20.92	1.84
3.000	1.23	9.000	3.70	15.000	3.70	21.00	1.84
3.083	1.23	9.083	3.70	15.083	3.70	21.08	1.23
3.167	1.23	9.167	3.70	15.167	3.70	21.17	1.23
3.250	1.23	9.250	3.70	15.250	3.70	21.25	1.23
3.333	1.23	9.333	3.70	15.333	3.70	21.33	1.23
3.417	1.23	9.417	3.70	15.417	3.70	21.42	1.23
3.500	1.23	9.500	3.70	15.500	3.70	21.50	1.23
3.583	1.23	9.583	3.70	15.583	3.70	21.58	1.23
3.667	1.23	9.667	3.70	15.667	3.70	21.67	1.23
3.750	1.23	9.750	3.70	15.750	3.70	21.75	1.23
3.833	1.23	9.833	3.70	15.833	3.70	21.83	1.23
3.917	1.23	9.917	3.70	15.917	3.70	21.92	1.23
4.000	1.23	10.000	3.70	16.000	3.70	22.00	1.23
4.083	2.46	10.083	6.75	16.083	2.46	22.08	1.23
4.167	2.46	10.167	6.75	16.167	2.46	22.17	1.23
4.250	2.46	10.250	6.75	16.250	2.46	22.25	1.23
4.333	2.46	10.333	6.75	16.333	2.46	22.33	1.23
4.417	2.46	10.417	6.75	16.417	2.46	22.42	1.23
4.500	2.46	10.500	6.75	16.500	2.46	22.50	1.23
4.583	2.46	10.583	6.75	16.583	2.46	22.58	1.23
4.667	2.46	10.667	6.75	16.667	2.46	22.67	1.23
4.750	2.46	10.750	6.75	16.750	2.46	22.75	1.23
4.833	2.46	10.833	6.75	16.833	2.46	22.83	1.23
4.917	2.46	10.917	6.75	16.917	2.46	22.92	1.23
5.000	2.46	11.000	6.75	17.000	2.46	23.00	1.23
5.083	2.46	11.083	9.22	17.083	2.46	23.08	1.23
5.167	2.46	11.167	9.22	17.167	2.46	23.17	1.23
5.250	2.46	11.250	11.81	17.250	2.46	23.25	1.23
5.333	2.46	11.333	13.53	17.333	2.46	23.33	1.23
5.417	2.46	11.417	16.97	17.417	2.46	23.42	1.23
5.500	2.46	11.500	30.75	17.500	2.46	23.50	1.23
5.583	2.46	11.583	30.75	17.583	2.46	23.58	1.23
5.667	2.46	11.667	60.27	17.667	2.46	23.67	1.23
5.750	2.46	11.750	67.65	17.750	2.46	23.75	1.23
5.833	2.46	11.833	91.50	17.833	2.46	23.83	1.23
5.917	2.46	11.917	127.30	17.917	2.46	23.92	1.23
6.000	2.46	12.000	127.30	18.000	2.46	24.00	1.23

```
     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=  12.333
     RUNOFF VOLUME    (mm)=  26.930
     TOTAL RAINFALL   (mm)= 120.678
     RUNOFF COEFFICIENT   =   0.223

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

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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\3d6f8854
| Ptotal=120.68 mm |    Comments:
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.23	6.20	2.46	12.20	24.60	18.20	2.46
0.40	1.23	6.40	2.46	12.40	15.38	18.40	2.46
0.60	1.23	6.60	2.46	12.60	11.07	18.60	2.46
0.80	1.23	6.80	2.46	12.80	10.46	18.80	2.46
1.00	1.23	7.00	2.46	13.00	7.38	19.00	2.46
1.20	1.23	7.20	2.46	13.20	6.15	19.20	1.84
1.40	1.23	7.40	2.46	13.40	6.15	19.40	1.84
1.60	1.23	7.60	2.46	13.60	6.15	19.60	1.84
1.80	1.23	7.80	2.46	13.80	6.15	19.80	1.84
2.00	1.23	8.00	2.46	14.00	6.15	20.00	1.84
2.20	1.23	8.20	3.70	14.20	3.70	20.20	1.84
2.40	1.23	8.40	3.70	14.40	3.70	20.40	1.84
2.60	1.23	8.60	3.70	14.60	3.70	20.60	1.84
2.80	1.23	8.80	3.70	14.80	3.70	20.80	1.84
3.00	1.23	9.00	3.70	15.00	3.70	21.00	1.84
3.20	1.23	9.20	3.70	15.20	3.70	21.20	1.23
3.40	1.23	9.40	3.70	15.40	3.70	21.40	1.23
3.60	1.23	9.60	3.70	15.60	3.70	21.60	1.23
3.80	1.23	9.80	3.70	15.80	3.70	21.80	1.23
4.00	1.23	10.00	3.70	16.00	3.70	22.00	1.23
4.20	2.46	10.20	6.75	16.20	2.46	22.20	1.23
4.40	2.46	10.40	6.75	16.40	2.46	22.40	1.23
4.60	2.46	10.60	6.75	16.60	2.46	22.60	1.23
4.80	2.46	10.80	6.75	16.80	2.46	22.80	1.23
5.00	2.46	11.00	6.75	17.00	2.46	23.00	1.23
5.20	2.46	11.20	9.22	17.20	2.46	23.20	1.23
5.40	2.46	11.40	13.53	17.40	2.46	23.40	1.23
5.60	2.46	11.60	30.75	17.60	2.46	23.60	1.23
5.80	2.46	11.80	67.65	17.80	2.46	23.80	1.23
6.00	2.46	12.00	127.30	18.00	2.46	24.00	1.23

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
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                           IMPERVIOUS    PERVIOUS (i)
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Surface Area	(ha)=	0.57	0.38
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	79.58	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.23	6.083	2.46	12.083	24.61	18.08	2.46
0.167	1.23	6.167	2.46	12.167	24.60	18.17	2.46
0.250	1.23	6.250	2.46	12.250	19.07	18.25	2.46
0.333	1.23	6.333	2.46	12.333	15.38	18.33	2.46
0.417	1.23	6.417	2.46	12.417	14.52	18.42	2.46
0.500	1.23	6.500	2.46	12.500	11.07	18.50	2.46
0.583	1.23	6.583	2.46	12.583	11.07	18.58	2.46
0.667	1.23	6.667	2.46	12.667	10.58	18.67	2.46
0.750	1.23	6.750	2.46	12.750	10.46	18.75	2.46
0.833	1.23	6.833	2.46	12.833	9.23	18.83	2.46
0.917	1.23	6.917	2.46	12.917	7.38	18.92	2.46
1.000	1.23	7.000	2.46	13.000	7.38	19.00	2.46
1.083	1.23	7.083	2.46	13.083	6.15	19.08	1.84
1.167	1.23	7.167	2.46	13.167	6.15	19.17	1.84
1.250	1.23	7.250	2.46	13.250	6.15	19.25	1.84
1.333	1.23	7.333	2.46	13.333	6.15	19.33	1.84
1.417	1.23	7.417	2.46	13.417	6.15	19.42	1.84
1.500	1.23	7.500	2.46	13.500	6.15	19.50	1.84
1.583	1.23	7.583	2.46	13.583	6.15	19.58	1.84
1.667	1.23	7.667	2.46	13.667	6.15	19.67	1.84
1.750	1.23	7.750	2.46	13.750	6.15	19.75	1.84
1.833	1.23	7.833	2.46	13.833	6.15	19.83	1.84
1.917	1.23	7.917	2.46	13.917	6.15	19.92	1.84
2.000	1.23	8.000	2.46	14.000	6.15	20.00	1.84
2.083	1.23	8.083	3.70	14.083	3.70	20.08	1.84
2.167	1.23	8.167	3.70	14.167	3.70	20.17	1.84
2.250	1.23	8.250	3.70	14.250	3.70	20.25	1.84
2.333	1.23	8.333	3.70	14.333	3.70	20.33	1.84
2.417	1.23	8.417	3.70	14.417	3.70	20.42	1.84
2.500	1.23	8.500	3.70	14.500	3.70	20.50	1.84
2.583	1.23	8.583	3.70	14.583	3.70	20.58	1.84
2.667	1.23	8.667	3.70	14.667	3.70	20.67	1.84
2.750	1.23	8.750	3.70	14.750	3.70	20.75	1.84
2.833	1.23	8.833	3.70	14.833	3.70	20.83	1.84
2.917	1.23	8.917	3.70	14.917	3.70	20.92	1.84
3.000	1.23	9.000	3.70	15.000	3.70	21.00	1.84
3.083	1.23	9.083	3.70	15.083	3.70	21.08	1.23
3.167	1.23	9.167	3.70	15.167	3.70	21.17	1.23
3.250	1.23	9.250	3.70	15.250	3.70	21.25	1.23
3.333	1.23	9.333	3.70	15.333	3.70	21.33	1.23
3.417	1.23	9.417	3.70	15.417	3.70	21.42	1.23
3.500	1.23	9.500	3.70	15.500	3.70	21.50	1.23
3.583	1.23	9.583	3.70	15.583	3.70	21.58	1.23
3.667	1.23	9.667	3.70	15.667	3.70	21.67	1.23
3.750	1.23	9.750	3.70	15.750	3.70	21.75	1.23
3.833	1.23	9.833	3.70	15.833	3.70	21.83	1.23
3.917	1.23	9.917	3.70	15.917	3.70	21.92	1.23
4.000	1.23	10.000	3.70	16.000	3.70	22.00	1.23
4.083	2.46	10.083	6.75	16.083	2.46	22.08	1.23
4.167	2.46	10.167	6.75	16.167	2.46	22.17	1.23
4.250	2.46	10.250	6.75	16.250	2.46	22.25	1.23
4.333	2.46	10.333	6.75	16.333	2.46	22.33	1.23
4.417	2.46	10.417	6.75	16.417	2.46	22.42	1.23
4.500	2.46	10.500	6.75	16.500	2.46	22.50	1.23
4.583	2.46	10.583	6.75	16.583	2.46	22.58	1.23
4.667	2.46	10.667	6.75	16.667	2.46	22.67	1.23
4.750	2.46	10.750	6.75	16.750	2.46	22.75	1.23
4.833	2.46	10.833	6.75	16.833	2.46	22.83	1.23
4.917	2.46	10.917	6.75	16.917	2.46	22.92	1.23
5.000	2.46	11.000	6.75	17.000	2.46	23.00	1.23
5.083	2.46	11.083	9.22	17.083	2.46	23.08	1.23
5.167	2.46	11.167	9.22	17.167	2.46	23.17	1.23
5.250	2.46	11.250	11.81	17.250	2.46	23.25	1.23
5.333	2.46	11.333	13.53	17.333	2.46	23.33	1.23
5.417	2.46	11.417	16.97	17.417	2.46	23.42	1.23
5.500	2.46	11.500	30.75	17.500	2.46	23.50	1.23
5.583	2.46	11.583	30.75	17.583	2.46	23.58	1.23
5.667	2.46	11.667	60.27	17.667	2.46	23.67	1.23
5.750	2.46	11.750	67.65	17.750	2.46	23.75	1.23
5.833	2.46	11.833	91.50	17.833	2.46	23.83	1.23
5.917	2.46	11.917	127.30	17.917	2.46	23.92	1.23
6.000	2.46	12.000	127.30	18.000	2.46	24.00	1.23

Max.Eff.Inten.(mm/hr)=		127.30	59.65	
over (min)		5.00	10.00	
Storage Coeff. (min)=		2.02 (ii)	9.32 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.31	0.12	
				TOTALS
PEAK FLOW	(cms)=	0.15	0.04	0.195 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	118.68	34.76	72.51
TOTAL RAINFALL	(mm)=	120.68	120.68	120.68
RUNOFF COEFFICIENT	=	0.98	0.29	0.60

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

READ STORM | Filename: C:\Users\Valdor\AppData\Local\Temp\f4571bb6-bd47-4443-b3bc-69eb9d051ca4\3d6f8854
Ptotal=120.68 mm | Comments:

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	1.23	6.20	2.46	12.20	24.60	18.20	2.46
0.40	1.23	6.40	2.46	12.40	15.38	18.40	2.46
0.60	1.23	6.60	2.46	12.60	11.07	18.60	2.46
0.80	1.23	6.80	2.46	12.80	10.46	18.80	2.46
1.00	1.23	7.00	2.46	13.00	7.38	19.00	2.46
1.20	1.23	7.20	2.46	13.20	6.15	19.20	1.84
1.40	1.23	7.40	2.46	13.40	6.15	19.40	1.84
1.60	1.23	7.60	2.46	13.60	6.15	19.60	1.84
1.80	1.23	7.80	2.46	13.80	6.15	19.80	1.84
2.00	1.23	8.00	2.46	14.00	6.15	20.00	1.84
2.20	1.23	8.20	3.70	14.20	3.70	20.20	1.84
2.40	1.23	8.40	3.70	14.40	3.70	20.40	1.84
2.60	1.23	8.60	3.70	14.60	3.70	20.60	1.84
2.80	1.23	8.80	3.70	14.80	3.70	20.80	1.84
3.00	1.23	9.00	3.70	15.00	3.70	21.00	1.84
3.20	1.23	9.20	3.70	15.20	3.70	21.20	1.23
3.40	1.23	9.40	3.70	15.40	3.70	21.40	1.23
3.60	1.23	9.60	3.70	15.60	3.70	21.60	1.23
3.80	1.23	9.80	3.70	15.80	3.70	21.80	1.23
4.00	1.23	10.00	3.70	16.00	3.70	22.00	1.23
4.20	2.46	10.20	6.75	16.20	2.46	22.20	1.23
4.40	2.46	10.40	6.75	16.40	2.46	22.40	1.23
4.60	2.46	10.60	6.75	16.60	2.46	22.60	1.23
4.80	2.46	10.80	6.75	16.80	2.46	22.80	1.23
5.00	2.46	11.00	6.75	17.00	2.46	23.00	1.23

5.20	2.46	11.20	9.22	17.20	2.46	23.20	1.23
5.40	2.46	11.40	13.53	17.40	2.46	23.40	1.23
5.60	2.46	11.60	30.75	17.60	2.46	23.60	1.23
5.80	2.46	11.80	67.65	17.80	2.46	23.80	1.23
6.00	2.46	12.00	127.30	18.00	2.46	24.00	1.23

CALIB	
STANDHYD (0202)	Area (ha)= 1.01
ID= 1 DT= 5.0 min	Total Imp(%)= 60.00 Dir. Conn.(%)= 45.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.61	0.40
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	82.06	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.23	6.083	2.46	12.083	24.61	18.08	2.46
0.167	1.23	6.167	2.46	12.167	24.60	18.17	2.46
0.250	1.23	6.250	2.46	12.250	19.07	18.25	2.46
0.333	1.23	6.333	2.46	12.333	15.38	18.33	2.46
0.417	1.23	6.417	2.46	12.417	14.52	18.42	2.46
0.500	1.23	6.500	2.46	12.500	11.07	18.50	2.46
0.583	1.23	6.583	2.46	12.583	11.07	18.58	2.46
0.667	1.23	6.667	2.46	12.667	10.58	18.67	2.46
0.750	1.23	6.750	2.46	12.750	10.46	18.75	2.46
0.833	1.23	6.833	2.46	12.833	9.23	18.83	2.46
0.917	1.23	6.917	2.46	12.917	7.38	18.92	2.46
1.000	1.23	7.000	2.46	13.000	7.38	19.00	2.46
1.083	1.23	7.083	2.46	13.083	6.15	19.08	1.84
1.167	1.23	7.167	2.46	13.167	6.15	19.17	1.84
1.250	1.23	7.250	2.46	13.250	6.15	19.25	1.84
1.333	1.23	7.333	2.46	13.333	6.15	19.33	1.84
1.417	1.23	7.417	2.46	13.417	6.15	19.42	1.84
1.500	1.23	7.500	2.46	13.500	6.15	19.50	1.84
1.583	1.23	7.583	2.46	13.583	6.15	19.58	1.84
1.667	1.23	7.667	2.46	13.667	6.15	19.67	1.84
1.750	1.23	7.750	2.46	13.750	6.15	19.75	1.84
1.833	1.23	7.833	2.46	13.833	6.15	19.83	1.84
1.917	1.23	7.917	2.46	13.917	6.15	19.92	1.84
2.000	1.23	8.000	2.46	14.000	6.15	20.00	1.84
2.083	1.23	8.083	3.70	14.083	3.70	20.08	1.84
2.167	1.23	8.167	3.70	14.167	3.70	20.17	1.84
2.250	1.23	8.250	3.70	14.250	3.70	20.25	1.84
2.333	1.23	8.333	3.70	14.333	3.70	20.33	1.84
2.417	1.23	8.417	3.70	14.417	3.70	20.42	1.84
2.500	1.23	8.500	3.70	14.500	3.70	20.50	1.84
2.583	1.23	8.583	3.70	14.583	3.70	20.58	1.84
2.667	1.23	8.667	3.70	14.667	3.70	20.67	1.84
2.750	1.23	8.750	3.70	14.750	3.70	20.75	1.84
2.833	1.23	8.833	3.70	14.833	3.70	20.83	1.84
2.917	1.23	8.917	3.70	14.917	3.70	20.92	1.84
3.000	1.23	9.000	3.70	15.000	3.70	21.00	1.84
3.083	1.23	9.083	3.70	15.083	3.70	21.08	1.23
3.167	1.23	9.167	3.70	15.167	3.70	21.17	1.23
3.250	1.23	9.250	3.70	15.250	3.70	21.25	1.23
3.333	1.23	9.333	3.70	15.333	3.70	21.33	1.23
3.417	1.23	9.417	3.70	15.417	3.70	21.42	1.23
3.500	1.23	9.500	3.70	15.500	3.70	21.50	1.23
3.583	1.23	9.583	3.70	15.583	3.70	21.58	1.23
3.667	1.23	9.667	3.70	15.667	3.70	21.67	1.23
3.750	1.23	9.750	3.70	15.750	3.70	21.75	1.23
3.833	1.23	9.833	3.70	15.833	3.70	21.83	1.23
3.917	1.23	9.917	3.70	15.917	3.70	21.92	1.23
4.000	1.23	10.000	3.70	16.000	3.70	22.00	1.23
4.083	2.46	10.083	6.75	16.083	2.46	22.08	1.23
4.167	2.46	10.167	6.75	16.167	2.46	22.17	1.23
4.250	2.46	10.250	6.75	16.250	2.46	22.25	1.23
4.333	2.46	10.333	6.75	16.333	2.46	22.33	1.23
4.417	2.46	10.417	6.75	16.417	2.46	22.42	1.23
4.500	2.46	10.500	6.75	16.500	2.46	22.50	1.23
4.583	2.46	10.583	6.75	16.583	2.46	22.58	1.23
4.667	2.46	10.667	6.75	16.667	2.46	22.67	1.23
4.750	2.46	10.750	6.75	16.750	2.46	22.75	1.23
4.833	2.46	10.833	6.75	16.833	2.46	22.83	1.23
4.917	2.46	10.917	6.75	16.917	2.46	22.92	1.23
5.000	2.46	11.000	6.75	17.000	2.46	23.00	1.23
5.083	2.46	11.083	9.22	17.083	2.46	23.08	1.23
5.167	2.46	11.167	9.22	17.167	2.46	23.17	1.23
5.250	2.46	11.250	11.81	17.250	2.46	23.25	1.23
5.333	2.46	11.333	13.53	17.333	2.46	23.33	1.23
5.417	2.46	11.417	16.97	17.417	2.46	23.42	1.23
5.500	2.46	11.500	30.75	17.500	2.46	23.50	1.23
5.583	2.46	11.583	30.75	17.583	2.46	23.58	1.23
5.667	2.46	11.667	60.27	17.667	2.46	23.67	1.23
5.750	2.46	11.750	67.65	17.750	2.46	23.75	1.23
5.833	2.46	11.833	91.50	17.833	2.46	23.83	1.23
5.917	2.46	11.917	127.30	17.917	2.46	23.92	1.23
6.000	2.46	12.000	127.30	18.000	2.46	24.00	1.23

Max.Eff.Inten.(mm/hr)=	127.30	59.65	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.06 (ii)	9.36 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.12	
			TOTALS
PEAK FLOW (cms)=	0.16	0.05	0.207 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	118.68	34.76	72.51
TOTAL RAINFALL (mm)=	120.68	120.68	120.68
RUNOFF COEFFICIENT =	0.98	0.29	0.60

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. 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 (0006)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0201):		0.95	0.195	12.00	72.51
+ ID2= 2 (0202):		1.01	0.207	12.00	72.51
ID = 3 (0006):		1.96	0.403	12.00	72.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2093	0.0094
	0.0320	0.0013	0.2332	0.0108

```
                        0.0641     0.0027   |   0.2542      0.0121
                        0.1019     0.0040   |   0.2733      0.0135
                        0.1289     0.0054   |   0.2910      0.0148
                        0.1547     0.0067   |   0.3076      0.0162
                        0.1776     0.0081   |   0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)    1.960      0.403     12.00      72.51
   OUTFLOW: ID= 1 (  0301)    1.960      0.291     12.00      72.51

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 72.29
                  TIME SHIFT OF PEAK FLOW        (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0165

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-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                         AREA     QPEAK     TPEAK     R.V.
                         (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   1.96      0.29     12.00    72.51
     ==========================================================
     ID= 2  (   2)    :   0.68      0.11     12.00    72.51
     ID= 3  (   2)    :   1.28      0.18     12.00    72.51
     ID= 4  (   2)    :   0.00      0.00      0.00     0.00
     ID= 5  (   2)    :   0.00      0.00      0.00     0.00
     ID= 6  (   2)    :   0.00      0.00      0.00     0.00
--------------------------------------------------------------------------------

-------------------
|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\3d6f8854
| Ptotal=120.68 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    1.23 |  6.20    2.46 | 12.20   24.60 | 18.20    2.46
                0.40    1.23 |  6.40    2.46 | 12.40   15.38 | 18.40    2.46
                0.60    1.23 |  6.60    2.46 | 12.60   11.07 | 18.60    2.46
                0.80    1.23 |  6.80    2.46 | 12.80   10.46 | 18.80    2.46
                1.00    1.23 |  7.00    2.46 | 13.00    7.38 | 19.00    2.46
                1.20    1.23 |  7.20    2.46 | 13.20    6.15 | 19.20    1.84
                1.40    1.23 |  7.40    2.46 | 13.40    6.15 | 19.40    1.84
                1.60    1.23 |  7.60    2.46 | 13.60    6.15 | 19.60    1.84
                1.80    1.23 |  7.80    2.46 | 13.80    6.15 | 19.80    1.84
                2.00    1.23 |  8.00    2.46 | 14.00    6.15 | 20.00    1.84
                2.20    1.23 |  8.20    3.70 | 14.20    3.70 | 20.20    1.84
                2.40    1.23 |  8.40    3.70 | 14.40    3.70 | 20.40    1.84
                2.60    1.23 |  8.60    3.70 | 14.60    3.70 | 20.60    1.84
                2.80    1.23 |  8.80    3.70 | 14.80    3.70 | 20.80    1.84
                3.00    1.23 |  9.00    3.70 | 15.00    3.70 | 21.00    1.84
                3.20    1.23 |  9.20    3.70 | 15.20    3.70 | 21.20    1.23
                3.40    1.23 |  9.40    3.70 | 15.40    3.70 | 21.40    1.23
                3.60    1.23 |  9.60    3.70 | 15.60    3.70 | 21.60    1.23
                3.80    1.23 |  9.80    3.70 | 15.80    3.70 | 21.80    1.23
                4.00    1.23 | 10.00    3.70 | 16.00    3.70 | 22.00    1.23
                4.20    2.46 | 10.20    6.75 | 16.20    2.46 | 22.20    1.23
                4.40    2.46 | 10.40    6.75 | 16.40    2.46 | 22.40    1.23
                4.60    2.46 | 10.60    6.75 | 16.60    2.46 | 22.60    1.23
                4.80    2.46 | 10.80    6.75 | 16.80    2.46 | 22.80    1.23
                5.00    2.46 | 11.00    6.75 | 17.00    2.46 | 23.00    1.23
                5.20    2.46 | 11.20    9.22 | 17.20    2.46 | 23.20    1.23
                5.40    2.46 | 11.40   13.53 | 17.40    2.46 | 23.40    1.23
                5.60    2.46 | 11.60   30.75 | 17.60    2.46 | 23.60    1.23
                5.80    2.46 | 11.80   67.65 | 17.80    2.46 | 23.80    1.23
                6.00    2.46 | 12.00  127.30 | 18.00    2.46 | 24.00    1.23

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| CALIB           |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     115.18         30.00
     Mannings n           =      0.013         0.250

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

                                ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    1.23 | 6.083    2.46 |12.083   24.61 | 18.08    2.46
               0.167    1.23 | 6.167    2.46 |12.167   24.60 | 18.17    2.46
               0.250    1.23 | 6.250    2.46 |12.250   19.07 | 18.25    2.46
               0.333    1.23 | 6.333    2.46 |12.333   15.38 | 18.33    2.46
               0.417    1.23 | 6.417    2.46 |12.417   14.52 | 18.42    2.46
               0.500    1.23 | 6.500    2.46 |12.500   11.07 | 18.50    2.46
               0.583    1.23 | 6.583    2.46 |12.583   11.07 | 18.58    2.46
               0.667    1.23 | 6.667    2.46 |12.667   10.58 | 18.67    2.46
               0.750    1.23 | 6.750    2.46 |12.750   10.46 | 18.75    2.46
               0.833    1.23 | 6.833    2.46 |12.833    9.23 | 18.83    2.46
               0.917    1.23 | 6.917    2.46 |12.917    7.38 | 18.92    2.46
               1.000    1.23 | 7.000    2.46 |13.000    7.38 | 19.00    2.46
               1.083    1.23 | 7.083    2.46 |13.083    6.15 | 19.08    1.84
               1.167    1.23 | 7.167    2.46 |13.167    6.15 | 19.17    1.84
               1.250    1.23 | 7.250    2.46 |13.250    6.15 | 19.25    1.84
               1.333    1.23 | 7.333    2.46 |13.333    6.15 | 19.33    1.84
               1.417    1.23 | 7.417    2.46 |13.417    6.15 | 19.42    1.84
               1.500    1.23 | 7.500    2.46 |13.500    6.15 | 19.50    1.84
               1.583    1.23 | 7.583    2.46 |13.583    6.15 | 19.58    1.84
               1.667    1.23 | 7.667    2.46 |13.667    6.15 | 19.67    1.84
               1.750    1.23 | 7.750    2.46 |13.750    6.15 | 19.75    1.84
               1.833    1.23 | 7.833    2.46 |13.833    6.15 | 19.83    1.84
               1.917    1.23 | 7.917    2.46 |13.917    6.15 | 19.92    1.84
               2.000    1.23 | 8.000    2.46 |14.000    6.15 | 20.00    1.84
               2.083    1.23 | 8.083    3.70 |14.083    3.70 | 20.08    1.84
               2.167    1.23 | 8.167    3.70 |14.167    3.70 | 20.17    1.84
               2.250    1.23 | 8.250    3.70 |14.250    3.70 | 20.25    1.84
               2.333    1.23 | 8.333    3.70 |14.333    3.70 | 20.33    1.84
               2.417    1.23 | 8.417    3.70 |14.417    3.70 | 20.42    1.84
               2.500    1.23 | 8.500    3.70 |14.500    3.70 | 20.50    1.84
               2.583    1.23 | 8.583    3.70 |14.583    3.70 | 20.58    1.84
               2.667    1.23 | 8.667    3.70 |14.667    3.70 | 20.67    1.84
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              2.750    1.23 | 8.750    3.70 |14.750    3.70 | 20.75    1.84
              2.833    1.23 | 8.833    3.70 |14.833    3.70 | 20.83    1.84
              2.917    1.23 | 8.917    3.70 |14.917    3.70 | 20.92    1.84
              3.000    1.23 | 9.000    3.70 |15.000    3.70 | 21.00    1.84
              3.083    1.23 | 9.083    3.70 |15.083    3.70 | 21.08    1.23
              3.167    1.23 | 9.167    3.70 |15.167    3.70 | 21.17    1.23
              3.250    1.23 | 9.250    3.70 |15.250    3.70 | 21.25    1.23
              3.333    1.23 | 9.333    3.70 |15.333    3.70 | 21.33    1.23
              3.417    1.23 | 9.417    3.70 |15.417    3.70 | 21.42    1.23
              3.500    1.23 | 9.500    3.70 |15.500    3.70 | 21.50    1.23
              3.583    1.23 | 9.583    3.70 |15.583    3.70 | 21.58    1.23
              3.667    1.23 | 9.667    3.70 |15.667    3.70 | 21.67    1.23
              3.750    1.23 | 9.750    3.70 |15.750    3.70 | 21.75    1.23
              3.833    1.23 | 9.833    3.70 |15.833    3.70 | 21.83    1.23
              3.917    1.23 | 9.917    3.70 |15.917    3.70 | 21.92    1.23
              4.000    1.23 |10.000    3.70 |16.000    3.70 | 22.00    1.23
              4.083    2.46 |10.083    6.75 |16.083    2.46 | 22.08    1.23
              4.167    2.46 |10.167    6.75 |16.167    2.46 | 22.17    1.23
              4.250    2.46 |10.250    6.75 |16.250    2.46 | 22.25    1.23
              4.333    2.46 |10.333    6.75 |16.333    2.46 | 22.33    1.23
              4.417    2.46 |10.417    6.75 |16.417    2.46 | 22.42    1.23
              4.500    2.46 |10.500    6.75 |16.500    2.46 | 22.50    1.23
              4.583    2.46 |10.583    6.75 |16.583    2.46 | 22.58    1.23
              4.667    2.46 |10.667    6.75 |16.667    2.46 | 22.67    1.23
              4.750    2.46 |10.750    6.75 |16.750    2.46 | 22.75    1.23
              4.833    2.46 |10.833    6.75 |16.833    2.46 | 22.83    1.23
              4.917    2.46 |10.917    6.75 |16.917    2.46 | 22.92    1.23
              5.000    2.46 |11.000    6.75 |17.000    2.46 | 23.00    1.23
              5.083    2.46 |11.083    9.22 |17.083    2.46 | 23.08    1.23
              5.167    2.46 |11.167    9.22 |17.167    2.46 | 23.17    1.23
              5.250    2.46 |11.250   11.81 |17.250    2.46 | 23.25    1.23
              5.333    2.46 |11.333   13.53 |17.333    2.46 | 23.33    1.23
              5.417    2.46 |11.417   16.97 |17.417    2.46 | 23.42    1.23
              5.500    2.46 |11.500   30.75 |17.500    2.46 | 23.50    1.23
              5.583    2.46 |11.583   30.75 |17.583    2.46 | 23.58    1.23
              5.667    2.46 |11.667   60.27 |17.667    2.46 | 23.67    1.23
              5.750    2.46 |11.750   67.65 |17.750    2.46 | 23.75    1.23
              5.833    2.46 |11.833   91.50 |17.833    2.46 | 23.83    1.23
              5.917    2.46 |11.917  127.30 |17.917    2.46 | 23.92    1.23
              6.000    2.46 |12.000  127.30 |18.000    2.46 | 24.00    1.23

     Max.Eff.Inten.(mm/hr)=     127.30        56.49
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.52 (ii)    9.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.29         0.11
                                                          *TOTALS*
     PEAK FLOW      (cms)=       0.28         0.10          0.376 (iii)
     TIME TO PEAK   (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME   (mm)=     118.68        33.95         67.84
     TOTAL RAINFALL  (mm)=     120.68       120.68        120.68
     RUNOFF COEFFICIENT  =       0.98         0.28          0.56

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.376    12.00    67.84
     + ID2= 2 (  0302):     0.68   0.114    12.00    72.51
       ================================================

       ID = 3 (  0021):     2.67   0.490    12.00    69.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053      0.0240
                         0.0083     0.0024   |   0.1266      0.0264
                         0.0166     0.0048   |   0.1494      0.0288
                         0.0223     0.0072   |   0.1736      0.0312
                         0.0268     0.0096   |   0.1992      0.0336
                         0.0306     0.0120   |   0.2261      0.0360
                         0.0394     0.0144   |   0.2595      0.0384
                         0.0523     0.0168   |   0.2985      0.0408
                         0.0679     0.0192   |   0.3416      0.0432
                         0.0857     0.0216   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)      2.674      0.490     12.00      69.03
   OUTFLOW: ID= 1 (  0303)      2.674      0.312     12.08      69.01

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 63.64
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0418

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-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.004    12.33    26.93
     + ID2= 2 (  0303):     2.67   0.312    12.08    69.01
       ================================================
       ID = 3 (  0024):     2.80   0.315    12.08    67.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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|    READ STORM    |    Filename: C:\Users\Valdor\AppD
|                  |              ata\Local\Temp\
|                  |              f4571bb6-bd47-4443-b3bc-69eb9d051ca4\3d6f8854
| Ptotal=120.68 mm |    Comments:
-------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.20    1.23 |  6.20    2.46 | 12.20   24.60 | 18.20    2.46
                0.40    1.23 |  6.40    2.46 | 12.40   15.38 | 18.40    2.46
                0.60    1.23 |  6.60    2.46 | 12.60   11.07 | 18.60    2.46
                0.80    1.23 |  6.80    2.46 | 12.80   10.46 | 18.80    2.46
                1.00    1.23 |  7.00    2.46 | 13.00    7.38 | 19.00    2.46
                1.20    1.23 |  7.20    2.46 | 13.20    6.15 | 19.20    1.84
                1.40    1.23 |  7.40    2.46 | 13.40    6.15 | 19.40    1.84
                1.60    1.23 |  7.60    2.46 | 13.60    6.15 | 19.60    1.84
                1.80    1.23 |  7.80    2.46 | 13.80    6.15 | 19.80    1.84
                2.00    1.23 |  8.00    2.46 | 14.00    6.15 | 20.00    1.84
                2.20    1.23 |  8.20    3.70 | 14.20    3.70 | 20.20    1.84
                2.40    1.23 |  8.40    3.70 | 14.40    3.70 | 20.40    1.84
                2.60    1.23 |  8.60    3.70 | 14.60    3.70 | 20.60    1.84
                2.80    1.23 |  8.80    3.70 | 14.80    3.70 | 20.80    1.84
                3.00    1.23 |  9.00    3.70 | 15.00    3.70 | 21.00    1.84
                3.20    1.23 |  9.20    3.70 | 15.20    3.70 | 21.20    1.23
                3.40    1.23 |  9.40    3.70 | 15.40    3.70 | 21.40    1.23
```

3.60	1.23	9.60	3.70	15.60	3.70	21.60	1.23
3.80	1.23	9.80	3.70	15.80	3.70	21.80	1.23
4.00	1.23	10.00	3.70	16.00	3.70	22.00	1.23
4.20	2.46	10.20	6.75	16.20	2.46	22.20	1.23
4.40	2.46	10.40	6.75	16.40	2.46	22.40	1.23
4.60	2.46	10.60	6.75	16.60	2.46	22.60	1.23
4.80	2.46	10.80	6.75	16.80	2.46	22.80	1.23
5.00	2.46	11.00	6.75	17.00	2.46	23.00	1.23
5.20	2.46	11.20	9.22	17.20	2.46	23.20	1.23
5.40	2.46	11.40	13.53	17.40	2.46	23.40	1.23
5.60	2.46	11.60	30.75	17.60	2.46	23.60	1.23
5.80	2.46	11.80	67.65	17.80	2.46	23.80	1.23
6.00	2.46	12.00	127.30	18.00	2.46	24.00	1.23

CALIB	
STANDHYD (0206)	Area (ha)= 2.79
ID= 1 DT= 5.0 min	Total Imp(%)= 55.00 Dir. Conn.(%)= 40.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.53	1.26
Dep. Storage	(mm)=	2.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	136.38	30.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.23	6.083	2.46	12.083	24.61	18.08	2.46
0.167	1.23	6.167	2.46	12.167	24.60	18.17	2.46
0.250	1.23	6.250	2.46	12.250	19.07	18.25	2.46
0.333	1.23	6.333	2.46	12.333	15.38	18.33	2.46
0.417	1.23	6.417	2.46	12.417	14.52	18.42	2.46
0.500	1.23	6.500	2.46	12.500	11.07	18.50	2.46
0.583	1.23	6.583	2.46	12.583	11.07	18.58	2.46
0.667	1.23	6.667	2.46	12.667	10.58	18.67	2.46
0.750	1.23	6.750	2.46	12.750	10.46	18.75	2.46
0.833	1.23	6.833	2.46	12.833	9.23	18.83	2.46
0.917	1.23	6.917	2.46	12.917	7.38	18.92	2.46
1.000	1.23	7.000	2.46	13.000	7.38	19.00	2.46
1.083	1.23	7.083	2.46	13.083	6.15	19.08	1.84
1.167	1.23	7.167	2.46	13.167	6.15	19.17	1.84
1.250	1.23	7.250	2.46	13.250	6.15	19.25	1.84
1.333	1.23	7.333	2.46	13.333	6.15	19.33	1.84
1.417	1.23	7.417	2.46	13.417	6.15	19.42	1.84
1.500	1.23	7.500	2.46	13.500	6.15	19.50	1.84
1.583	1.23	7.583	2.46	13.583	6.15	19.58	1.84
1.667	1.23	7.667	2.46	13.667	6.15	19.67	1.84
1.750	1.23	7.750	2.46	13.750	6.15	19.75	1.84
1.833	1.23	7.833	2.46	13.833	6.15	19.83	1.84
1.917	1.23	7.917	2.46	13.917	6.15	19.92	1.84
2.000	1.23	8.000	2.46	14.000	6.15	20.00	1.84
2.083	1.23	8.083	3.70	14.083	3.70	20.08	1.84
2.167	1.23	8.167	3.70	14.167	3.70	20.17	1.84
2.250	1.23	8.250	3.70	14.250	3.70	20.25	1.84
2.333	1.23	8.333	3.70	14.333	3.70	20.33	1.84
2.417	1.23	8.417	3.70	14.417	3.70	20.42	1.84
2.500	1.23	8.500	3.70	14.500	3.70	20.50	1.84
2.583	1.23	8.583	3.70	14.583	3.70	20.58	1.84
2.667	1.23	8.667	3.70	14.667	3.70	20.67	1.84
2.750	1.23	8.750	3.70	14.750	3.70	20.75	1.84
2.833	1.23	8.833	3.70	14.833	3.70	20.83	1.84
2.917	1.23	8.917	3.70	14.917	3.70	20.92	1.84
3.000	1.23	9.000	3.70	15.000	3.70	21.00	1.84
3.083	1.23	9.083	3.70	15.083	3.70	21.08	1.23
3.167	1.23	9.167	3.70	15.167	3.70	21.17	1.23
3.250	1.23	9.250	3.70	15.250	3.70	21.25	1.23
3.333	1.23	9.333	3.70	15.333	3.70	21.33	1.23
3.417	1.23	9.417	3.70	15.417	3.70	21.42	1.23
3.500	1.23	9.500	3.70	15.500	3.70	21.50	1.23
3.583	1.23	9.583	3.70	15.583	3.70	21.58	1.23
3.667	1.23	9.667	3.70	15.667	3.70	21.67	1.23
3.750	1.23	9.750	3.70	15.750	3.70	21.75	1.23
3.833	1.23	9.833	3.70	15.833	3.70	21.83	1.23
3.917	1.23	9.917	3.70	15.917	3.70	21.92	1.23
4.000	1.23	10.000	3.70	16.000	3.70	22.00	1.23
4.083	2.46	10.083	6.75	16.083	2.46	22.08	1.23
4.167	2.46	10.167	6.75	16.167	2.46	22.17	1.23
4.250	2.46	10.250	6.75	16.250	2.46	22.25	1.23
4.333	2.46	10.333	6.75	16.333	2.46	22.33	1.23
4.417	2.46	10.417	6.75	16.417	2.46	22.42	1.23
4.500	2.46	10.500	6.75	16.500	2.46	22.50	1.23
4.583	2.46	10.583	6.75	16.583	2.46	22.58	1.23
4.667	2.46	10.667	6.75	16.667	2.46	22.67	1.23
4.750	2.46	10.750	6.75	16.750	2.46	22.75	1.23
4.833	2.46	10.833	6.75	16.833	2.46	22.83	1.23
4.917	2.46	10.917	6.75	16.917	2.46	22.92	1.23
5.000	2.46	11.000	6.75	17.000	2.46	23.00	1.23
5.083	2.46	11.083	9.22	17.083	2.46	23.08	1.23
5.167	2.46	11.167	9.22	17.167	2.46	23.17	1.23
5.250	2.46	11.250	11.81	17.250	2.46	23.25	1.23
5.333	2.46	11.333	13.53	17.333	2.46	23.33	1.23
5.417	2.46	11.417	16.97	17.417	2.46	23.42	1.23
5.500	2.46	11.500	30.75	17.500	2.46	23.50	1.23
5.583	2.46	11.583	30.75	17.583	2.46	23.58	1.23
5.667	2.46	11.667	60.27	17.667	2.46	23.67	1.23
5.750	2.46	11.750	67.65	17.750	2.46	23.75	1.23
5.833	2.46	11.833	91.50	17.833	2.46	23.83	1.23
5.917	2.46	11.917	127.30	17.917	2.46	23.92	1.23
6.000	2.46	12.000	127.30	18.000	2.46	24.00	1.23

				TOTALS
Max.Eff.Inten.(mm/hr)=		127.30	56.49	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.79 (ii)	10.26 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.28	0.09	
PEAK FLOW	(cms)=	0.39	0.13	0.501 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	118.68	33.95	67.84
TOTAL RAINFALL	(mm)=	120.68	120.68	120.68
RUNOFF COEFFICIENT	=	0.98	0.28	0.56

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 40.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

DUHYD (0025)				
Inlet Cap.= 0.283				
#of Inlets= 1				
Total(cms)= 0.3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	2.79	0.50	12.00	67.84
MAJOR SYS.(ID= 2):	0.19	0.22	12.00	67.84
MINOR SYS.(ID= 3):	2.60	0.28	11.83	67.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.60   0.283    11.83    67.84
     + ID2= 2 (  0302):     1.28   0.177    12.00    72.51
       ================================================
       ID = 3 (  0022):     3.88   0.460    12.00    69.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.88   0.460    12.00    69.38
     + ID2= 2 (  0025):     0.19   0.218    12.00    67.84
       ================================================
       ID = 3 (  0029):     4.07   0.678    12.00    69.31

     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 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
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  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\f0c25dcb-e911-4edc-872c-c2d9d833b62c\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:



COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : Run 08: 2yr 4hr Chicago Innis **
  ***********************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
                0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
                0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
                0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
                0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
                1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.43

        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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
               0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
               0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
               0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
               0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
               0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
               0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
               0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
               0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
               0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
               0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
               1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

    Unit Hyd Qpeak  (cms)=   0.020

    PEAK FLOW       (cms)=   0.001 (i)
    TIME TO PEAK    (hrs)=   1.833
    RUNOFF VOLUME    (mm)=   2.467
    TOTAL RAINFALL   (mm)=  36.955
    RUNOFF COEFFICIENT   =   0.067

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
               0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
               0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
               0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
               0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
               1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.47

        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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
               0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
               0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
               0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
               0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
               0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
               0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
               0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
               0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
               0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
               0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
               1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   2.463
     TOTAL RAINFALL   (mm)=  36.955
     RUNOFF COEFFICIENT   =   0.067

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
               0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
               0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
               0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
               0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
               1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15


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-------------------
| CALIB           |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
-------------------
                                   IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=           0.57          0.38
     Dep. Storage     (mm)=           2.00          5.00
     Average Slope     (%)=           1.00          2.00
     Length            (m)=          79.58         30.00
     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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
               0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
               0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
               0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
               0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
               0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
               0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
               0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
               0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
               0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
               0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
               1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Max.Eff.Inten.(mm/hr)=      83.11          6.32
               over (min)        5.00         25.00
     Storage Coeff.  (min)=      2.40 (ii)    20.32 (ii)
     Unit Hyd. Tpeak (min)=      5.00         25.00
     Unit Hyd. peak  (cms)=      0.30          0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=      0.10          0.00          0.098 (iii)
     TIME TO PEAK    (hrs)=      1.33          1.67           1.33
     RUNOFF VOLUME    (mm)=     34.96          3.58          17.68
     TOTAL RAINFALL   (mm)=     36.96         36.96          36.96
     RUNOFF COEFFICIENT   =      0.95          0.10           0.48

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

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
               0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
               0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
               0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
               0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
               1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15


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| CALIB           |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
-------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.61         0.40
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      82.06        30.00
     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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
              0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
              0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
              0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
              0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
              0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
              0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
              0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
              0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
              0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
              0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
              1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Max.Eff.Inten.(mm/hr)=      83.11         6.32
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       2.44 (ii)   20.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.30         0.05
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.10         0.00          0.104 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.67           1.33
     RUNOFF VOLUME    (mm)=      34.96         3.58          17.68
     TOTAL RAINFALL   (mm)=      36.96        36.96          36.96
     RUNOFF COEFFICIENT   =       0.95         0.10           0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.95   0.098     1.33    17.68
     + ID2= 2 (  0202):     1.01   0.104     1.33    17.68
       ================================================
       ID = 3 (  0006):     1.96   0.203     1.33    17.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2093     0.0094
                         0.0320     0.0013   |   0.2332     0.0108
                         0.0641     0.0027   |   0.2542     0.0121
                         0.1019     0.0040   |   0.2733     0.0135
                         0.1289     0.0054   |   0.2910     0.0148
                         0.1547     0.0067   |   0.3076     0.0162
                         0.1776     0.0081   |   0.0000     0.0000

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (  0006)      1.960     0.203      1.33      17.68
     OUTFLOW: ID= 1 (  0301)      1.960     0.139      1.42      17.68

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 68.48
                    TIME SHIFT OF PEAK FLOW         (min)=  5.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0068

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-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
       (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
        0.00     0.00     0.00     0.00     0.00     0.00
        0.01     0.02     0.00     0.00     0.00     0.03
        0.02     0.04     0.00     0.00     0.00     0.06
        0.03     0.07     0.00     0.00     0.00     0.10
        0.04     0.09     0.00     0.00     0.00     0.13
        0.05     0.11     0.00     0.00     0.00     0.15
        0.06     0.12     0.00     0.00     0.00     0.18
        0.07     0.14     0.00     0.00     0.00     0.21
        0.09     0.15     0.00     0.00     0.00     0.23
        0.10     0.16     0.00     0.00     0.00     0.25
        0.11     0.17     0.00     0.00     0.00     0.27
        0.11     0.18     0.00     0.00     0.00     0.29
        0.12     0.19     0.00     0.00     0.00     0.31

                          AREA     QPEAK     TPEAK     R.V.
                          (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   1.96      0.14      1.42    17.68
     ================================================
     ID= 2  (   2)    :   0.65      0.04      1.42    17.68
     ID= 3  (   2)    :   1.31      0.10      1.42    17.68
     ID= 4  (   2)    :   0.00      0.00      0.00     0.00
     ID= 5  (   2)    :   0.00      0.00      0.00     0.00
     ID= 6  (   2)    :   0.00      0.00      0.00     0.00
--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
                    0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
                    0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
                    0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
                    0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
                    1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15


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-------------------
| CALIB           |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     115.18        30.00
     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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
              0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
              0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
              0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
              0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
              0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
              0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
              0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
              0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
              0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
              0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
              1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Max.Eff.Inten.(mm/hr)=     83.11         5.91
               over (min)       5.00        25.00
     Storage Coeff.  (min)=     2.99 (ii)   21.41 (ii)
     Unit Hyd. Tpeak (min)=     5.00        25.00
     Unit Hyd. peak  (cms)=     0.28         0.05
                                                      *TOTALS*
     PEAK FLOW       (cms)=     0.18         0.01         0.180 (iii)
     TIME TO PEAK    (hrs)=     1.33         1.67          1.33
     RUNOFF VOLUME    (mm)=    34.96         3.46         16.05
     TOTAL RAINFALL   (mm)=    36.96        36.96         36.96
     RUNOFF COEFFICIENT   =     0.95         0.09          0.43

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     1.99   0.180     1.33    16.05
      + ID2= 2 (  0302):     0.65   0.041     1.42    17.68
        ================================================
        ID = 3 (  0021):     2.64   0.221     1.33    16.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053     0.0240
                         0.0083     0.0024   |   0.1266     0.0264
                         0.0166     0.0048   |   0.1494     0.0288
                         0.0223     0.0072   |   0.1736     0.0312
                         0.0268     0.0096   |   0.1992     0.0336
                         0.0306     0.0120   |   0.2261     0.0360
                         0.0394     0.0144   |   0.2595     0.0384
                         0.0523     0.0168   |   0.2985     0.0408
                         0.0679     0.0192   |   0.3416     0.0432
                         0.0857     0.0216   |   0.0000     0.0000

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)      2.636      0.221      1.33      16.45
   OUTFLOW: ID= 1 (  0303)      2.636      0.062      1.67      16.42

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 27.99
                TIME SHIFT OF PEAK FLOW         (min)= 20.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0183

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-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.001     1.92     2.46
     + ID2= 2 (  0303):     2.64   0.062     1.67    16.42
       ================================================
       ID = 3 (  0024):     2.77   0.062     1.67    15.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
-------------------                          C=   0.781
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    2.47 |  1.17   18.78 |  2.17    5.73 |  3.17    2.92
               0.33    2.82 |  1.33   83.11 |  2.33    4.89 |  3.33    2.72
               0.50    3.31 |  1.50   24.57 |  2.50    4.28 |  3.50    2.55
               0.67    4.05 |  1.67   13.01 |  2.67    3.82 |  3.67    2.39
               0.83    5.30 |  1.83    9.01 |  2.83    3.46 |  3.83    2.26
               1.00    7.98 |  2.00    6.97 |  3.00    3.17 |  4.00    2.15

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-------------------
| CALIB           |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     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    2.47 | 1.083   18.78 | 2.083    5.73 |  3.08    2.92
0.167    2.47 | 1.167   18.78 | 2.167    5.73 |  3.17    2.92
0.250    2.82 | 1.250   83.11 | 2.250    4.89 |  3.25    2.72
0.333    2.82 | 1.333   83.11 | 2.333    4.89 |  3.33    2.72
0.417    3.31 | 1.417   24.57 | 2.417    4.28 |  3.42    2.55
0.500    3.31 | 1.500   24.57 | 2.500    4.28 |  3.50    2.55
0.583    4.05 | 1.583   13.01 | 2.583    3.82 |  3.58    2.39
0.667    4.05 | 1.667   13.01 | 2.667    3.82 |  3.67    2.39
0.750    5.30 | 1.750    9.01 | 2.750    3.46 |  3.75    2.26
0.833    5.30 | 1.833    9.01 | 2.833    3.46 |  3.83    2.26
0.917    7.98 | 1.917    6.97 | 2.917    3.17 |  3.92    2.15
1.000    7.98 | 2.000    6.97 | 3.000    3.17 |  4.00    2.15

     Max.Eff.Inten.(mm/hr)=      83.11         5.91
               over (min)        5.00        25.00
     Storage Coeff.  (min)=      3.31 (ii)   21.73 (ii)
     Unit Hyd. Tpeak (min)=      5.00        25.00
     Unit Hyd. peak  (cms)=      0.26         0.05
                                                    *TOTALS*
     PEAK FLOW       (cms)=      0.25         0.01          0.250 (iii)
     TIME TO PEAK    (hrs)=      1.33         1.67           1.33
     RUNOFF VOLUME    (mm)=     34.96         3.46          16.05
     TOTAL RAINFALL   (mm)=     36.96        36.96          36.96
     RUNOFF COEFFICIENT   =      0.95         0.09           0.43

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
-------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.25      1.33   16.05
     ================================================
     MAJOR SYS.(ID= 2):   0.00      0.00      0.00    0.00
     MINOR SYS.(ID= 3):   2.79      0.25      1.33   16.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.79   0.250     1.33    16.05
     + ID2= 2 (  0302):     1.31   0.098     1.42    17.68
       ========================================================
       ID = 3 (  0022):     4.10   0.346     1.33    16.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0025 <ID= 2> IS DRY.

*** W A R N I N G :  HYDROGRAPH   0003 = HYDROGRAPH 0001
       ID1= 1 (  0022):     4.10   0.346     1.33    16.57
     + ID2= 2 (  0025):     0.00   0.000     0.00     0.00
       ================================================
       ID = 3 (  0029):     4.10   0.346     1.33    16.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
==============

      V    V   I    SSSSS  U   U    A    L             (v 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
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  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\bcd6c3ff-c8ff-4f35-9867-3a571232be9d\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : Run 09: 5yr 4hr Chicago Innis **
  ***********************************************

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| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
 0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
 0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
 0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
 0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
 1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12
```

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--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

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

                           ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
   0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
   0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
   0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
   0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
   0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
   0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
   0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
   0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
   0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
   0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
   1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=   4.853
     TOTAL RAINFALL   (mm)=  50.521
     RUNOFF COEFFICIENT   =   0.096

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
   0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
   0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
   0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
   0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
   1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


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--------------------
| CALIB            |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.47

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

                           ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
   0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
   0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
   0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
   0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
   0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
   0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
   0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
   0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
   0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
   0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
   1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   4.847
     TOTAL RAINFALL   (mm)=  50.521
     RUNOFF COEFFICIENT   =   0.096

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

--------------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
   0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
   0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
   0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
   0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
   1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------

                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.57         0.38
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.58        30.00
     Mannings n            =      0.013        0.250

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

                           ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
   0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
   0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
   0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
   0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
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               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Max.Eff.Inten.(mm/hr)=     108.92        12.97
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.15 (ii)   15.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.31         0.07
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.01          0.131 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.58           1.33
     RUNOFF VOLUME    (mm)=      48.52         6.79          25.56
     TOTAL RAINFALL   (mm)=      50.52        50.52          50.52
     RUNOFF COEFFICIENT   =       0.96         0.13           0.51

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0     Ia = Dep. 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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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


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--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.61         0.40
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      82.06        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Max.Eff.Inten.(mm/hr)=     108.92        12.97
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.19 (ii)   15.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.31         0.07
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.14         0.01          0.139 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.58           1.33
     RUNOFF VOLUME    (mm)=      48.52         6.79          25.56
     TOTAL RAINFALL   (mm)=      50.52        50.52          50.52
     RUNOFF COEFFICIENT   =       0.96         0.13           0.51

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0     Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0201):     0.95   0.131     1.33    25.56
      + ID2= 2 (  0202):     1.01   0.139     1.33    25.56
        ================================================
        ID = 3 (  0006):     1.96   0.270     1.33    25.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |  0.2093      0.0094
                          0.0320     0.0013   |  0.2332      0.0108
                          0.0641     0.0027   |  0.2542      0.0121
                          0.1019     0.0040   |  0.2733      0.0135
                          0.1289     0.0054   |  0.2910      0.0148
                          0.1547     0.0067   |  0.3076      0.0162
                          0.1776     0.0081   |  0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (  0006)     1.960     0.270      1.33      25.56
     OUTFLOW: ID= 1 (  0301)     1.960     0.181      1.42      25.55

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 67.02
                    TIME SHIFT OF PEAK FLOW         (min)=  5.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0093

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| DIVERTHYD(  0302)|
```

```
| IN= 1   # OUT= 5 |
--------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                          AREA     QPEAK     TPEAK     R.V.
                          (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   1.96      0.18      1.42    25.55
     ================================================
     ID= 2  (   2)    :   0.64      0.06      1.42    25.55
     ID= 3  (   2)    :   1.32      0.12      1.42    25.55
     ID= 4  (   2)    :   0.00      0.00      0.00     0.00
     ID= 5  (   2)    :   0.00      0.00      0.00     0.00
     ID= 6  (   2)    :   0.00      0.00      0.00     0.00
-------------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     115.18        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Max.Eff.Inten.(mm/hr)=     108.92        12.16
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.69 (ii)   16.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.29         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.24         0.02          0.242 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.58           1.33
     RUNOFF VOLUME    (mm)=      48.52         6.58          23.35
     TOTAL RAINFALL   (mm)=      50.52        50.52          50.52
     RUNOFF COEFFICIENT   =       0.96         0.13           0.46

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99    0.242     1.33    23.35
     + ID2= 2 (  0302):     0.64    0.058     1.42    25.55
       ================================================
       ID = 3 (  0021):     2.63    0.296     1.33    23.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1053     0.0240
                          0.0083     0.0024   |   0.1266     0.0264
                          0.0166     0.0048   |   0.1494     0.0288
                          0.0223     0.0072   |   0.1736     0.0312
                          0.0268     0.0096   |   0.1992     0.0336
                          0.0306     0.0120   |   0.2261     0.0360
                          0.0394     0.0144   |   0.2595     0.0384
                          0.0523     0.0168   |   0.2985     0.0408
                          0.0679     0.0192   |   0.3416     0.0432
                          0.0857     0.0216   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (  0021)     2.634     0.296      1.33      23.89
     OUTFLOW: ID= 1 (  0303)     2.634     0.103      1.58      23.86

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 34.96
                    TIME SHIFT OF PEAK FLOW         (min)= 15.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0239
```

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

-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.001     1.92     4.85
     + ID2= 2 (  0303):     2.63   0.103     1.58    23.86
       ====================================================
       ID = 3 (  0024):     2.76   0.104     1.58    22.97

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
-------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Max.Eff.Inten.(mm/hr)=     108.92        12.16
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       2.97 (ii)   16.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.28         0.06
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.33         0.02          0.336 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.58           1.33
     RUNOFF VOLUME    (mm)=      48.52         6.58          23.35
     TOTAL RAINFALL   (mm)=      50.52        50.52          50.52
     RUNOFF COEFFICIENT   =       0.96         0.13           0.46

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
-------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.34      1.33   23.35
     ==================================================
     MAJOR SYS.(ID= 2):   0.08      0.05      1.33   23.35
     MINOR SYS.(ID= 3):   2.71      0.28      1.25   23.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.71   0.283     1.25    23.35
     + ID2= 2 (  0302):     1.32   0.124     1.42    25.55
       ================================================
       ID = 3 (  0022):     4.03   0.403     1.33    24.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     4.03   0.403     1.33    24.07
     + ID2= 2 (  0025):     0.08   0.053     1.33    23.35
       ================================================
       ID = 3 (  0029):     4.11   0.456     1.33    24.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L              (v 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\b231da1a-b19e-46af-8b32-b36c4bd63db0\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\b231da1a-b19e-46af-8b32-b36c4bd63db0\scena

DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : Run 10: 10yr 4hr Chicago Inni **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                     used in:   INTENSITY =  A / (t + B)^C

                     Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.43

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=   6.861
     TOTAL RAINFALL   (mm)=  59.695
     RUNOFF COEFFICIENT   =   0.115

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
-------------------                          C=   0.760
                     used in:   INTENSITY =  A / (t + B)^C

                     Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.47

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   6.856
     TOTAL RAINFALL   (mm)=  59.695
```

```
     RUNOFF COEFFICIENT   =   0.115

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

---------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77


---------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.57         0.38
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.58        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Max.Eff.Inten.(mm/hr)=     126.55        18.00
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.03 (ii)   13.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.15         0.01          0.155 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      57.69         9.43          31.14
     TOTAL RAINFALL   (mm)=      59.69        59.69          59.69
     RUNOFF COEFFICIENT   =       0.97         0.16           0.52

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

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

---------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77


---------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.61         0.40
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      82.06        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Max.Eff.Inten.(mm/hr)=     126.55        18.00
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.06 (ii)   13.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.16         0.01          0.165 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      57.69         9.43          31.14
     TOTAL RAINFALL   (mm)=      59.69        59.69          59.69
```

```
     RUNOFF COEFFICIENT   =       0.97        0.16          0.52

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.95   0.155     1.33    31.14
     + ID2= 2 (  0202):     1.01   0.165     1.33    31.14
       ================================================
       ID = 3 (  0006):     1.96   0.320     1.33    31.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.2093      0.0094
                         0.0320     0.0013   |   0.2332      0.0108
                         0.0641     0.0027   |   0.2542      0.0121
                         0.1019     0.0040   |   0.2733      0.0135
                         0.1289     0.0054   |   0.2910      0.0148
                         0.1547     0.0067   |   0.3076      0.0162
                         0.1776     0.0081   |   0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)    1.960     0.320      1.33      31.14
   OUTFLOW: ID= 1 (  0301)    1.960     0.217      1.42      31.14

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 67.70
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0111

--------------------------------------------------------------------------------
-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                         AREA     QPEAK     TPEAK    R.V.
                          (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   1.96      0.22      1.42   31.14
     ================================================
     ID= 2  (   2)    :   0.66      0.08      1.42   31.14
     ID= 3  (   2)    :   1.30      0.14      1.42   31.14
     ID= 4  (   2)    :   0.00      0.00      0.00    0.00
     ID= 5  (   2)    :   0.00      0.00      0.00    0.00
     ID= 6  (   2)    :   0.00      0.00      0.00    0.00
--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
-------------------                          C=   0.760
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     115.18         30.00
     Mannings n           =      0.013         0.250

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

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Max.Eff.Inten.(mm/hr)=     126.55        16.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.53 (ii)   14.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.28         0.03        0.288 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50         1.33
     RUNOFF VOLUME    (mm)=      57.69         9.16        28.57
```

```
     TOTAL RAINFALL   (mm)=      59.69        59.69          59.69
     RUNOFF COEFFICIENT   =       0.97         0.15           0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.288     1.33    28.57
     + ID2= 2 (  0302):     0.66   0.078     1.42    31.14
       ====================================================
       ID = 3 (  0021):     2.65   0.362     1.33    29.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053      0.0240
                         0.0083     0.0024   |   0.1266      0.0264
                         0.0166     0.0048   |   0.1494      0.0288
                         0.0223     0.0072   |   0.1736      0.0312
                         0.0268     0.0096   |   0.1992      0.0336
                         0.0306     0.0120   |   0.2261      0.0360
                         0.0394     0.0144   |   0.2595      0.0384
                         0.0523     0.0168   |   0.2985      0.0408
                         0.0679     0.0192   |   0.3416      0.0432
                         0.0857     0.0216   |   0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     2.649     0.362      1.33      29.21
   OUTFLOW: ID= 1 (  0303)     2.649     0.140      1.58      29.18

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)= 38.67
                 TIME SHIFT OF PEAK FLOW         (min)= 15.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.0281

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

-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.001     1.92     6.86
     + ID2= 2 (  0303):     2.65   0.140     1.58    29.18
       ====================================================
       ID = 3 (  0024):     2.78   0.141     1.58    28.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
-------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                  0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                  0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                  0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                  0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                  1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------

                                  IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          1.53          1.26
     Dep. Storage     (mm)=          2.00          5.00
     Average Slope     (%)=          1.00          2.00
     Length            (m)=        136.38         30.00
     Mannings n           =         0.013         0.250

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

                                ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
                 0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
                 0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
                 0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
                 0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
                 0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
                 0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
                 0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
                 0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
                 0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
                 0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
                 1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Max.Eff.Inten.(mm/hr)=     126.55        16.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.80 (ii)   14.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.38         0.04        0.401 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50         1.33
     RUNOFF VOLUME    (mm)=      57.69         9.16        28.57
     TOTAL RAINFALL   (mm)=      59.69        59.69        59.69
     RUNOFF COEFFICIENT   =       0.97         0.15         0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
```

```
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
------------------       (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.40      1.33   28.57
     ==================================================
     MAJOR SYS.(ID= 2):   0.19      0.12      1.33   28.57
     MINOR SYS.(ID= 3):   2.60      0.28      1.25   28.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.60   0.283     1.25    28.57
     + ID2= 2 (  0302):     1.30   0.139     1.42    31.14
       ================================================
       ID = 3 (  0022):     3.90   0.418     1.33    29.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.90   0.418     1.33    29.43
     + ID2= 2 (  0025):     0.19   0.118     1.33    28.57
       ================================================
       ID = 3 (  0029):     4.09   0.536     1.33    29.39

     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 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\2daa5004-0023-4dc7-b3a5-caf81524fca3\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\2daa5004-0023-4dc7-b3a5-caf81524fca3\scena

DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________

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  ************************************************
  ** SIMULATION : Run 11: 25yr 4hr Chicago Inni **
  ************************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
-------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.43

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

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
               0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
               0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
               0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
               0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
               0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
               0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
               0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
               0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
               0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
               0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
               1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=   9.804
     TOTAL RAINFALL   (mm)=  71.236
     RUNOFF COEFFICIENT   =   0.138

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
--------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
               0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
               0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
               0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
               0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
               1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.47

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
              0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
              0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
              0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
              0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
              0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
              0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
              0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
              0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
              0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
              0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
              1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

    Unit Hyd Qpeak  (cms)=   0.011

    PEAK FLOW       (cms)=   0.002 (i)
    TIME TO PEAK    (hrs)=   1.917
    RUNOFF VOLUME    (mm)=   9.799
    TOTAL RAINFALL   (mm)=  71.236
    RUNOFF COEFFICIENT   =   0.138

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
--------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
               0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
               0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
               0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
               0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
               1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.57          0.38
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      79.58         30.00
     Mannings n            =      0.013         0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
              0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
              0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
              0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
              0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
              0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
              0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
              0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
              0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
              0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
              0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
              1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Max.Eff.Inten.(mm/hr)=     148.15        30.54
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.90 (ii)    6.74 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.18         0.03          0.195 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      69.24        13.26          38.44
     TOTAL RAINFALL   (mm)=      71.24        71.24          71.24
     RUNOFF COEFFICIENT   =       0.97         0.19           0.54

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
--------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
```

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                    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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


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--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.61         0.40
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      82.06        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
               0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
               0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
               0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
               0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
               0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
               0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
               0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
               0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
               0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
               0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
               1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Max.Eff.Inten.(mm/hr)=     148.15        30.54
                  over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.94 (ii)    6.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.31         0.14
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.19         0.03          0.207 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      69.24        13.26          38.44
     TOTAL RAINFALL   (mm)=      71.24        71.24          71.24
     RUNOFF COEFFICIENT   =       0.97         0.19           0.54

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.95   0.195     1.33    38.44
     + ID2= 2 (  0202):     1.01   0.207     1.33    38.44
       ================================================
       ID = 3 (  0006):     1.96   0.402     1.33    38.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2093     0.0094
                          0.0320     0.0013   |   0.2332     0.0108
                          0.0641     0.0027   |   0.2542     0.0121
                          0.1019     0.0040   |   0.2733     0.0135
                          0.1289     0.0054   |   0.2910     0.0148
                          0.1547     0.0067   |   0.3076     0.0162
                          0.1776     0.0081   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)     1.960      0.402      1.33      38.44
   OUTFLOW: ID= 1 (  0301)     1.960      0.265      1.42      38.44

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 66.00
                TIME SHIFT OF PEAK FLOW         (min)=  5.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0141

--------------------------------------------------------------------------------
--------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
--------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
       (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
        0.00     0.00     0.00     0.00     0.00     0.00
        0.01     0.02     0.00     0.00     0.00     0.03
        0.02     0.04     0.00     0.00     0.00     0.06
        0.03     0.07     0.00     0.00     0.00     0.10
        0.04     0.09     0.00     0.00     0.00     0.13
        0.05     0.11     0.00     0.00     0.00     0.15
        0.06     0.12     0.00     0.00     0.00     0.18
        0.07     0.14     0.00     0.00     0.00     0.21
        0.09     0.15     0.00     0.00     0.00     0.23
        0.10     0.16     0.00     0.00     0.00     0.25
        0.11     0.17     0.00     0.00     0.00     0.27
        0.11     0.18     0.00     0.00     0.00     0.29
        0.12     0.19     0.00     0.00     0.00     0.31

                              AREA     QPEAK     TPEAK     R.V.
                              (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):     1.96      0.27      1.42    38.44
     ================================================
     ID= 2  (   2)    :     0.68      0.10      1.42    38.44
     ID= 3  (   2)    :     1.28      0.16      1.42    38.44
     ID= 4  (   2)    :     0.00      0.00      0.00     0.00
     ID= 5  (   2)    :     0.00      0.00      0.00     0.00
     ID= 6  (   2)    :     0.00      0.00      0.00     0.00
--------------------------------------------------------------------------------
--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
--------------------                          C=   0.757
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


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-------------------
| CALIB           |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09         0.90
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     115.18        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
               0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
               0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
               0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
               0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
               0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
               0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
               0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
               0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
               0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
               0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
               1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Max.Eff.Inten.(mm/hr)=     148.15        28.70
                over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.38 (ii)   12.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.32         0.04          0.344 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      69.24        12.89          35.43
     TOTAL RAINFALL   (mm)=      71.24        71.24          71.24
     RUNOFF COEFFICIENT   =       0.97         0.18           0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.344     1.33    35.43
     + ID2= 2 (  0302):     0.68   0.102     1.42    38.44
       ================================================
       ID = 3 (  0021):     2.67   0.438     1.33    36.19

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |  0.1053      0.0240
                         0.0083     0.0024   |  0.1266      0.0264
                         0.0166     0.0048   |  0.1494      0.0288
                         0.0223     0.0072   |  0.1736      0.0312
                         0.0268     0.0096   |  0.1992      0.0336
                         0.0306     0.0120   |  0.2261      0.0360
                         0.0394     0.0144   |  0.2595      0.0384
                         0.0523     0.0168   |  0.2985      0.0408
                         0.0679     0.0192   |  0.3416      0.0432
                         0.0857     0.0216   |  0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     2.668     0.438      1.33      36.19
   OUTFLOW: ID= 1 (  0303)     2.668     0.192      1.58      36.17

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 43.79
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0334

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-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.002     1.92     9.80
     + ID2= 2 (  0303):     2.67   0.192     1.58    36.17
       ================================================
       ID = 3 (  0024):     2.80   0.193     1.58    34.94

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
-------------------                          C=   0.757
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


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| CALIB          |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
               0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
               0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
               0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
               0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
               0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
               0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
               0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
               0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
               0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
               0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
               1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Max.Eff.Inten.(mm/hr)=     148.15        28.70
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.63 (ii)   12.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.45         0.06          0.479 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      69.24        12.89          35.43
     TOTAL RAINFALL   (mm)=      71.24        71.24          71.24
     RUNOFF COEFFICIENT   =       0.97         0.18           0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
-------------------      (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.48      1.33   35.43
     ======================================================
     MAJOR SYS.(ID= 2):   0.28      0.20      1.33   35.43
     MINOR SYS.(ID= 3):   2.51      0.28      1.25   35.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.51   0.283     1.25    35.43
     + ID2= 2 (  0302):     1.28   0.163     1.42    38.44
       ================================================
       ID = 3 (  0022):     3.79   0.438     1.33    36.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.79   0.438     1.33    36.45
     + ID2= 2 (  0025):     0.28   0.196     1.33    35.43
       ================================================
       ID = 3 (  0029):     4.07   0.634     1.33    36.38

     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 5.1.2000)
      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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\f04fc8e7-ea41-46a1-aef6-b8e0dda831bb\scena
  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\f04fc8e7-ea41-46a1-aef6-b8e0dda831bb\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:


COMMENTS: _____________________________________________________


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  ********************************************
  ** SIMULATION : Run 12: 50yr 4hr Chicago Inni **
  ********************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
-------------------                          C=   0.751
                         used in:   INTENSITY =  A / (t + B)^C
```

```
                    Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
               0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
               0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
               0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
               0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
               1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.43

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Unit Hyd Qpeak  (cms)=   0.020

    PEAK FLOW       (cms)=   0.005 (i)
    TIME TO PEAK    (hrs)=   1.833
    RUNOFF VOLUME    (mm)=  12.166
    TOTAL RAINFALL   (mm)=  79.453
    RUNOFF COEFFICIENT   =   0.153

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
-------------------                          C=   0.751
                    used in:   INTENSITY =  A / (t + B)^C

                    Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
               0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
               0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
               0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
               0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
               1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.47

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Unit Hyd Qpeak  (cms)=   0.011

    PEAK FLOW       (cms)=   0.003 (i)
    TIME TO PEAK    (hrs)=   1.917
    RUNOFF VOLUME    (mm)=  12.161
    TOTAL RAINFALL   (mm)=  79.453
    RUNOFF COEFFICIENT   =   0.153

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
-------------------                          C=   0.751
                    used in:   INTENSITY =  A / (t + B)^C

                    Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
               0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
               0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
               0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
               0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
               1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.57          0.38
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      79.58         30.00
     Mannings n           =      0.013         0.250
```

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Max.Eff.Inten.(mm/hr)=     164.22        37.70
              over (min)        5.00        10.00
    Storage Coeff.  (min)=      1.83 (ii)    6.47 (ii)
    Unit Hyd. Tpeak (min)=      5.00        10.00
    Unit Hyd. peak  (cms)=      0.32         0.14
                                                      *TOTALS*
    PEAK FLOW       (cms)=      0.19         0.03          0.219 (iii)
    TIME TO PEAK    (hrs)=      1.33         1.42           1.33
    RUNOFF VOLUME    (mm)=     77.45        16.29          43.81
    TOTAL RAINFALL   (mm)=     79.45        79.45          79.45
    RUNOFF COEFFICIENT   =      0.97         0.21           0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
--------------------                          C=   0.751
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
               0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
               0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
               0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
               0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
               1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
-------------------
                        IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      0.61         0.40
    Dep. Storage     (mm)=      2.00         5.00
    Average Slope    (%)=      1.00         2.00
    Length           (m)=     82.06        30.00
    Mannings n          =     0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Max.Eff.Inten.(mm/hr)=     164.22        37.70
              over (min)        5.00        10.00
    Storage Coeff.  (min)=      1.86 (ii)    6.51 (ii)
    Unit Hyd. Tpeak (min)=      5.00        10.00
    Unit Hyd. peak  (cms)=      0.32         0.14
                                                      *TOTALS*
    PEAK FLOW       (cms)=      0.21         0.03          0.233 (iii)
    TIME TO PEAK    (hrs)=      1.33         1.42           1.33
    RUNOFF VOLUME    (mm)=     77.45        16.29          43.81
    TOTAL RAINFALL   (mm)=     79.45        79.45          79.45
    RUNOFF COEFFICIENT   =      0.97         0.21           0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.95   0.219     1.33    43.81
     + ID2= 2 (  0202):     1.01   0.233     1.33    43.81
       ================================================
       ID = 3 (  0006):     1.96   0.452     1.33    43.81

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.2093      0.0094
                         0.0320     0.0013    |   0.2332      0.0108
                         0.0641     0.0027    |   0.2542      0.0121
                         0.1019     0.0040    |   0.2733      0.0135
                         0.1289     0.0054    |   0.2910      0.0148
                         0.1547     0.0067    |   0.3076      0.0162
                         0.1776     0.0081    |   0.0000      0.0000
```

```
                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)     1.960     0.452      1.33      43.81
   OUTFLOW: ID= 1 (  0301)     1.960     0.292      1.42      43.81

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 64.70
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0161

--------------------------------------------------------------------------------
-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31

                         AREA     QPEAK     TPEAK    R.V.
                         (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   1.96      0.29      1.42   43.81
     ==================================================
     ID= 2  (   2)    :   0.69      0.11      1.42   43.81
     ID= 3  (   2)    :   1.27      0.18      1.42   43.81
     ID= 4  (   2)    :   0.00      0.00      0.00    0.00
     ID= 5  (   2)    :   0.00      0.00      0.00    0.00
     ID= 6  (   2)    :   0.00      0.00      0.00    0.00
--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
-------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
                 0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
                 0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
                 0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
                 0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
                 1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.09         0.90
     Dep. Storage     (mm)=      2.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=    115.18        30.00
     Mannings n           =     0.013        0.250

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

                                  ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
                 0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
                 0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
                 0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
                 0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
                 0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
                 0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
                 0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
                 0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
                 0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
                 0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
                 1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

     Max.Eff.Inten.(mm/hr)=     164.22        35.46
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.28 (ii)   11.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.36         0.05          0.385 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      77.45        15.86          40.49
     TOTAL RAINFALL   (mm)=      79.45        79.45          79.45
     RUNOFF COEFFICIENT   =       0.97         0.20           0.51

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0203):     1.99   0.385     1.33    40.49
     + ID2= 2 (  0302):     0.69   0.114     1.42    43.81
       ================================================
       ID = 3 (  0021):     2.68   0.491     1.33    41.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053     0.0240
                         0.0083     0.0024   |   0.1266     0.0264
                         0.0166     0.0048   |   0.1494     0.0288
                         0.0223     0.0072   |   0.1736     0.0312
                         0.0268     0.0096   |   0.1992     0.0336
                         0.0306     0.0120   |   0.2261     0.0360
                         0.0394     0.0144   |   0.2595     0.0384
```

```
                      0.0523     0.0168   |   0.2985      0.0408
                      0.0679     0.0192   |   0.3416      0.0432
                      0.0857     0.0216   |   0.0000      0.0000

                           AREA     QPEAK     TPEAK       R.V.
                           (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0021)      2.676     0.491     1.33      41.34
  OUTFLOW: ID= 1 (  0303)      2.676     0.228     1.58      41.32

               PEAK   FLOW   REDUCTION [Qout/Qin](%)= 46.37
               TIME SHIFT OF PEAK FLOW         (min)= 15.00
               MAXIMUM  STORAGE   USED       (ha.m.)=  0.0366

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

-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.13   0.003     1.92    12.16
     + ID2= 2 (  0303):     2.68   0.228     1.58    41.32
       ================================================
       ID = 3 (  0024):     2.81   0.229     1.58    39.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
-------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
                0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
                0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
                0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
                0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
                1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


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-------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53         1.26
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     136.38        30.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
               0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
               0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
               0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
               0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
               0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
               0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
               0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
               0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
               0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
               0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
               1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

     Max.Eff.Inten.(mm/hr)=     164.22        35.46
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.52 (ii)   11.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.50         0.07          0.537 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.33
     RUNOFF VOLUME    (mm)=      77.45        15.86          40.49
     TOTAL RAINFALL   (mm)=      79.45        79.45          79.45
     RUNOFF COEFFICIENT   =       0.97         0.20           0.51

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK     R.V.
-------------------      (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   2.79      0.54      1.33    40.49
     ================================================
     MAJOR SYS.(ID= 2):   0.33      0.25      1.33    40.49
     MINOR SYS.(ID= 3):   2.46      0.28      1.25    40.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0025):     2.46   0.283     1.25    40.49
     + ID2= 2 (  0302):     1.27   0.178     1.42    43.81
       ================================================
       ID = 3 (  0022):     3.74   0.450     1.33    41.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0022):     3.74   0.450     1.33    41.62
     + ID2= 2 (  0025):     0.33   0.254     1.33    40.49
       ================================================
       ID = 3 (  0029):     4.06   0.705     1.33    41.53

     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 5.1.2000)
       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 5.1\VO2\voin.dat
  Output  filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
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  Summary filename: C:\Users\Valdor\AppData\Local\Civica\VH5\26b5539c-1e03-4a0c-bd2c-
f5aac60dd9b6\c5d5024e-3bd8-4d89-bf1f-0ed249591530\scena


DATE: 01-09-2019                          TIME: 03:04:48

USER:



COMMENTS: _____________________________________________________________


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--------------
  ************************************************
  ** SIMULATION : Run 13: 100yr 4hr Chicago Inn **
  ************************************************

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
-------------------                          C=   0.759
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0207)|   Area    (ha)=   0.23   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.43

        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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
               0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
               0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
               0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
               0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
               1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Unit Hyd Qpeak  (cms)=   0.020

     PEAK FLOW       (cms)=   0.006 (i)
     TIME TO PEAK    (hrs)=   1.833
     RUNOFF VOLUME    (mm)=  14.704
     TOTAL RAINFALL   (mm)=  87.580
     RUNOFF COEFFICIENT   =   0.168

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
-------------------                          C=   0.759
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
-------------------
| CALIB           |
| NASHYD   (  0205)|   Area    (ha)=   0.13   Curve Number   (CN)= 40.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.47

        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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
```

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              0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
              0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
              0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
              0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
              1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Unit Hyd Qpeak  (cms)=   0.011

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=  14.699
     TOTAL RAINFALL   (mm)=  87.580
     RUNOFF COEFFICIENT   =   0.168

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

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
-------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.95
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.57         0.38
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.58        30.00
     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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
               0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
               0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
               0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
               0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
               1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Max.Eff.Inten.(mm/hr)=     180.15        45.43
                  over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.76 (ii)    6.24 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.15
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.21         0.04         0.244 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42          1.33
     RUNOFF VOLUME    (mm)=      85.58        19.52         49.24
     TOTAL RAINFALL   (mm)=      87.58        87.58         87.58
     RUNOFF COEFFICIENT   =       0.98         0.22          0.56

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
-------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   1.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  60.00   Dir. Conn.(%)=  45.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.61         0.40
     Dep. Storage     (mm)=       2.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      82.06        30.00
     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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
               0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
               0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
               0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
               0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
```
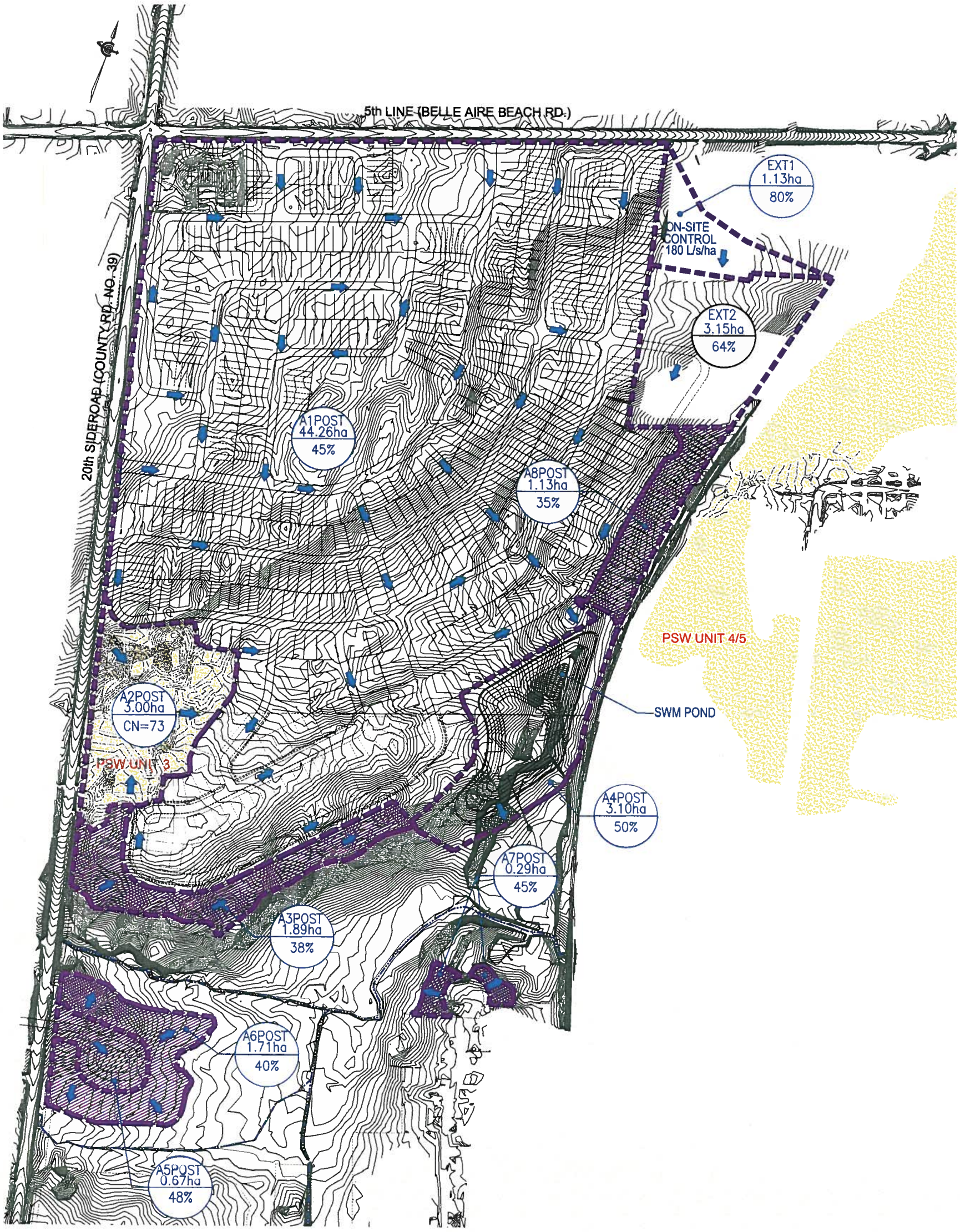

```
              1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Max.Eff.Inten.(mm/hr)=     180.15        45.43
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.79 (ii)    6.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.15
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.23         0.04          0.259 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      85.58        19.52          49.24
     TOTAL RAINFALL   (mm)=      87.58        87.58          87.58
     RUNOFF COEFFICIENT   =       0.98         0.22           0.56

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0201):     0.95   0.244     1.33    49.24
     + ID2= 2 (  0202):     1.01   0.259     1.33    49.24
       ================================================
       ID = 3 (  0006):     1.96   0.503     1.33    49.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000     0.0000    |   0.2093     0.0094
                        0.0320     0.0013    |   0.2332     0.0108
                        0.0641     0.0027    |   0.2542     0.0121
                        0.1019     0.0040    |   0.2733     0.0135
                        0.1289     0.0054    |   0.2910     0.0148
                        0.1547     0.0067    |   0.3076     0.0162
                        0.1776     0.0081    |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0006)    1.960     0.503      1.33      49.24
   OUTFLOW: ID= 1 (  0301)    1.960     0.319      1.42      49.24

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 63.38
                TIME SHIFT OF PEAK FLOW         (min)=  5.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0183

--------------------------------------------------------------------------------
-------------------
| DIVERTHYD(  0302)|
| IN= 1   # OUT= 5 |
-------------------
     Outflow / Inflow  Relationships

      Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
      (cms)    (cms)    (cms)    (cms)    (cms)    (cms)
       0.00     0.00     0.00     0.00     0.00     0.00
       0.01     0.02     0.00     0.00     0.00     0.03
       0.02     0.04     0.00     0.00     0.00     0.06
       0.03     0.07     0.00     0.00     0.00     0.10
       0.04     0.09     0.00     0.00     0.00     0.13
       0.05     0.11     0.00     0.00     0.00     0.15
       0.06     0.12     0.00     0.00     0.00     0.18
       0.07     0.14     0.00     0.00     0.00     0.21
       0.09     0.15     0.00     0.00     0.00     0.23
       0.10     0.16     0.00     0.00     0.00     0.25
       0.11     0.17     0.00     0.00     0.00     0.27
       0.11     0.18     0.00     0.00     0.00     0.29
       0.12     0.19     0.00     0.00     0.00     0.31
              OUTFLOW TABLES EXCEEDED

                          AREA     QPEAK     TPEAK     R.V.
                          (ha)     (cms)     (hrs)     (mm)
     TOTAL HYD.(ID= 1):   1.96      0.32      1.42    49.24
     ================================================
     ID= 2  (   2)    :   0.69      0.13      1.42    49.24
     ID= 3  (   2)    :   1.27      0.19      1.42    49.24
     ID= 4  (   2)    :   0.00      0.00      0.00     0.00
     ID= 5  (   2)    :   0.00      0.00      0.00     0.00
     ID= 6  (   2)    :   0.00      0.00      0.00     0.00
--------------------------------------------------------------------------------
-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
-------------------                          C=   0.759
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59


--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   1.99
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.09          0.90
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     115.18         30.00
     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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
               0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
               0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
               0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
               0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
               0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
               0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
               0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
               0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
```

```
              0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
              0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
              1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Max.Eff.Inten.(mm/hr)=     180.15        42.78
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.20 (ii)    7.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.30         0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.40         0.08          0.458 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      85.58        19.01          45.64
     TOTAL RAINFALL   (mm)=      87.58        87.58          87.58
     RUNOFF COEFFICIENT   =       0.98         0.22           0.52

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. 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  (  0021)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     1.99   0.458     1.33    45.64
      + ID2= 2 (  0302):     0.69   0.126     1.42    49.24
        ================================================
        ID = 3 (  0021):     2.68   0.574     1.33    46.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| RESERVOIR(  0303)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1053     0.0240
                         0.0083     0.0024   |   0.1266     0.0264
                         0.0166     0.0048   |   0.1494     0.0288
                         0.0223     0.0072   |   0.1736     0.0312
                         0.0268     0.0096   |   0.1992     0.0336
                         0.0306     0.0120   |   0.2261     0.0360
                         0.0394     0.0144   |   0.2595     0.0384
                         0.0523     0.0168   |   0.2985     0.0408
                         0.0679     0.0192   |   0.3416     0.0432
                         0.0857     0.0216   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0021)     2.683     0.574      1.33      46.57
   OUTFLOW: ID= 1 (  0303)     2.683     0.288      1.50      46.54

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 50.13
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0405

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

-------------------
| ADD HYD  (  0024)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0205):     0.13   0.003     1.92    14.70
      + ID2= 2 (  0303):     2.68   0.288     1.50    46.54
        ================================================
        ID = 3 (  0024):     2.81   0.290     1.50    45.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

-------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
-------------------                           C=   0.759
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 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    6.41 |  1.17   45.22 |  2.17   14.50 |  3.17    7.56
                  0.33    7.29 |  1.33  180.15 |  2.33   12.44 |  3.33    7.04
                  0.50    8.52 |  1.50   58.54 |  2.50   10.94 |  3.50    6.60
                  0.67   10.36 |  1.67   31.96 |  2.67    9.80 |  3.67    6.22
                  0.83   13.45 |  1.83   22.45 |  2.83    8.90 |  3.83    5.89
                  1.00   19.96 |  2.00   17.52 |  3.00    8.16 |  4.00    5.59

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

-------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   2.79
|ID= 1 DT= 5.0 min |   Total Imp(%)=  55.00   Dir. Conn.(%)=  40.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.53          1.26
     Dep. Storage     (mm)=       2.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     136.38         30.00
     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    6.41 | 1.083   45.22 | 2.083   14.50 |  3.08    7.56
                 0.167    6.41 | 1.167   45.22 | 2.167   14.50 |  3.17    7.56
                 0.250    7.29 | 1.250  180.15 | 2.250   12.44 |  3.25    7.04
                 0.333    7.29 | 1.333  180.15 | 2.333   12.44 |  3.33    7.04
                 0.417    8.52 | 1.417   58.54 | 2.417   10.94 |  3.42    6.60
                 0.500    8.52 | 1.500   58.54 | 2.500   10.94 |  3.50    6.60
                 0.583   10.36 | 1.583   31.96 | 2.583    9.80 |  3.58    6.22
                 0.667   10.36 | 1.667   31.96 | 2.667    9.80 |  3.67    6.22
                 0.750   13.45 | 1.750   22.45 | 2.750    8.90 |  3.75    5.89
                 0.833   13.45 | 1.833   22.45 | 2.833    8.90 |  3.83    5.89
                 0.917   19.96 | 1.917   17.52 | 2.917    8.16 |  3.92    5.59
                 1.000   19.96 | 2.000   17.52 | 3.000    8.16 |  4.00    5.59

     Max.Eff.Inten.(mm/hr)=     180.15        42.78
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.43 (ii)    7.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.30         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.55         0.11          0.639 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.33
     RUNOFF VOLUME    (mm)=      85.58        19.01          45.64
     TOTAL RAINFALL   (mm)=      87.58        87.58          87.58
     RUNOFF COEFFICIENT   =       0.98         0.22           0.52
```

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  40.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
------------------
| DUHYD    (  0025)|
| Inlet Cap.= 0.283|
| #of Inlets=     1|
| Total(cms)=   0.3|      AREA     QPEAK     TPEAK    R.V.
------------------       (ha)     (cms)     (hrs)    (mm)
     TOTAL HYD.(ID= 1):   2.79      0.64      1.33   45.64
     ================================================
     MAJOR SYS.(ID= 2):   0.44      0.36      1.33   45.64
     MINOR SYS.(ID= 3):   2.35      0.28      1.25   45.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

------------------
| ADD HYD  (  0022)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0025):     2.35   0.283     1.25    45.64
      + ID2= 2 (  0302):     1.27   0.193     1.42    49.24
        ======================================================
        ID = 3 (  0022):     3.62   0.476     1.42    46.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

------------------
| ADD HYD  (  0029)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0022):     3.62   0.476     1.42    46.90
      + ID2= 2 (  0025):     0.44   0.356     1.33    45.64
        ======================================================
        ID = 3 (  0029):     4.06   0.819     1.33    46.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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



LEGEND

- MAJOR OVERLAND FLOW ROUTE
- DRAINAGE AREA BOUNDARY
- CARSON CREEK
- WETLAND AREA
- UNCONTROLLED DRAINAGE AREA

A6POST
1.71ha
40%

- DRAINAGE AREA #
- STORM DRAINAGE AREA
- % IMPERVIOUSNESS/ CN VALUE

COLE ENGINEERING
70 VALLEYWOOD DRIVE, MARKHAM, ON L3R 4T5
T:416.987.6161 / 905.940.6161 F:905.940.2064

POST-DEVELOPMENT DRAINAGE AREA PLAN

BELLAIRE PROPERTIES INC.
PARCEL P1 - LEFROY
TOWN OF INNISFIL

DATE:	JULY 2011	PROJECT No.:	L08-372
SCALE:	1:5,000	FIGURE No.:	DAP-2

APPENDIX “F”

Stormwater Management - Quality Calculations

VALDOR ENGINEERING INC. **Table F1**
File: 15149
January 2018

1357 Belle Aire Beach Road, Innisfil

STORMWATER QUALITY CALCULATIONS

TABLE F1: OVERALL TSS REMOVAL

Surface Type	Area (Ha)	Effective TSS Removal	% Area	Weighted Overall TSS Removal
Rooftop	0.253	80%	12.7%	10.2%
Rooftop (Directed to Infiltration Trench)	0.253	94%	12.7%	12.0%
Pavement	0.511	0%	25.7%	0.0%
Landscape	0.610	80%	30.7%	24.5%
Landscape (Directed to Infiltration Trench)	0.363	94%	18.2%	17.1%
Total (before OGS)	1.990		100.0%	**63.8%**
Oil / Grit Separator provides an additional 80% removal rate to the remaining possible TSS removal of 36.2% (ie. 100.0%-63.6%), but this calculation is completed assuming only 50% TTS removal.		50%		**18.1%**
Total	1.990		100.0%	**81.9%**

Up-Flo® Filter

Sizing Calculator v3.0

Hydro International

Today's Date: 2019-01-08

Click to Check for Newer Version

STEP 1. Enter Project and Contact Information in YELLOW Cells

Project Name:	Valdor File: 15149	Contact Name:	
Location:	Innisfil, Ontario	Company:	Valdor Engineering Inc.
Development Type:	New Development	Phone:	
		E-mail:	

HELP

STEP 2. Select Sizing Methodology

Select Sizing Methodology from Drop Down:

Hydro Int'l Default Sizing (0.056 cfs/Filter Module)

The Filtration System Must be Offline (Yes/No)

Yes

STEP 3. Enter Project Flow Rate Info

Water Quality Flow Rate = 0.812 cfs

Peak Flow Rate = 4.03 cfs

STEP 4. Enter Site Values

Invert Elev of Storm Drain Pipe = 771 -ft.

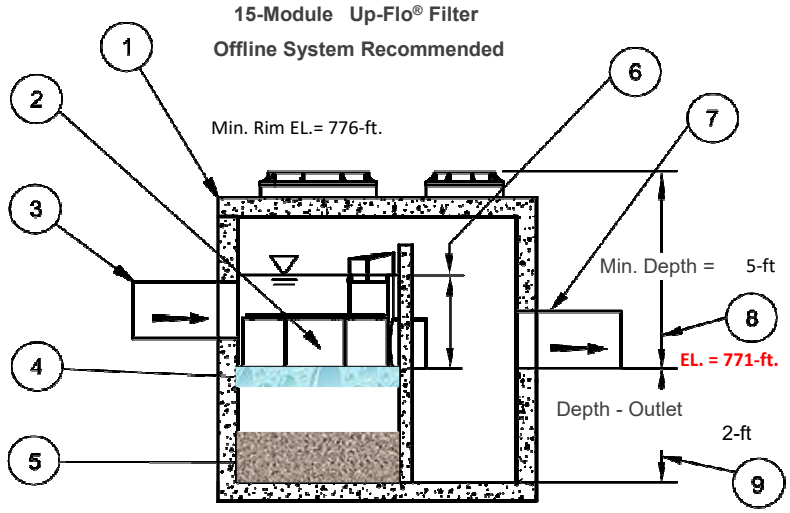
Pipe Diameter of Storm Drain Pipe = 24 -in.

Rim Elevation = 781.82 -ft.

STEP 5. Check Output: Sizing Recommendation and Design Parameters

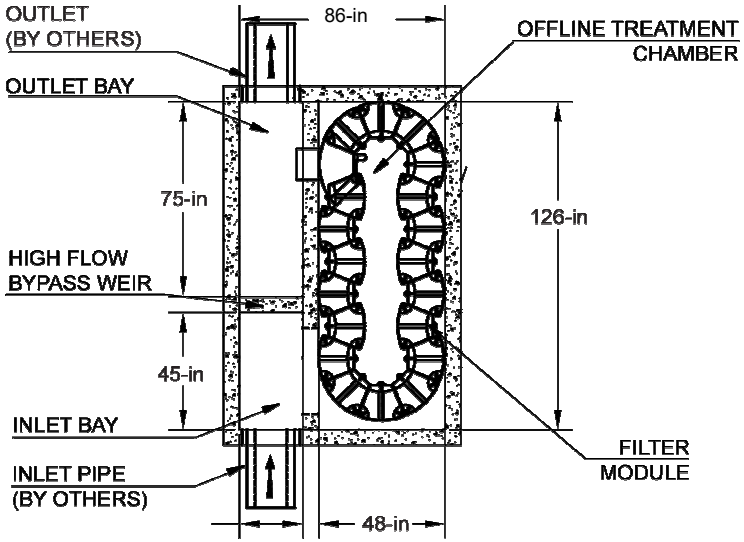
Peak Flow Note
Offline System Recommended
Use "DWG 8-19 Modules (On or Offline)" on Worksehet 3c.

1	Number of Filter Modules Req'd	15-Module
2	Typical Filter Chamber Size	86-in x 126-in
3	Maximum Inlet Pipe Diameter	36-in
4	Oil Storage Capacity	209-gal
5	Sediment Storage Capacity	55.9 cu-ft
6	Operating Head	29.5-in
7	Max Outlet Pipe Diameter	36-in
8	Minimum Stormdrain Depth (Final Grade to Outlet Invert)	5-ft
9	Standard Depth - Outlet Invert to Sump	2-ft

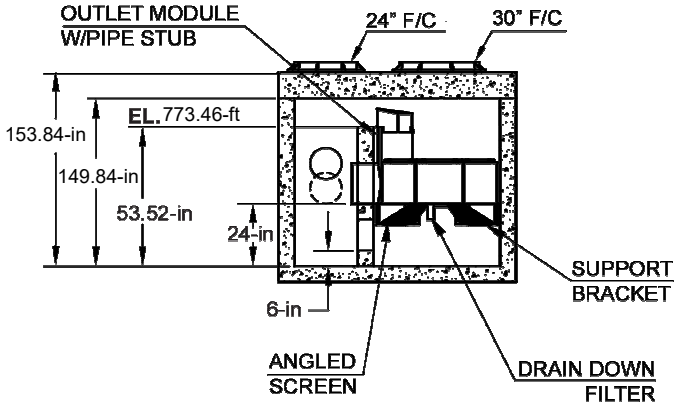


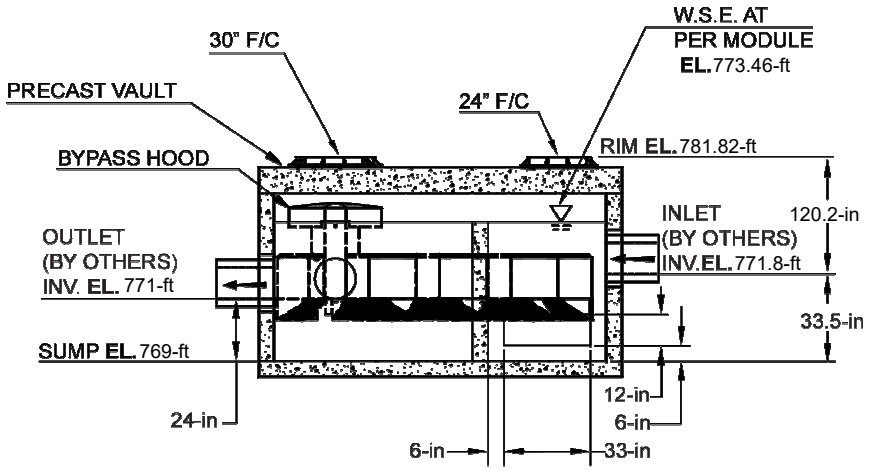
Click to Submit Your Design for a Price Estimate and a Complimentary Technical Review

94 Hutchins Drive, Portland, Maine 04102 t:(207) 756-6200 f:(207) 756-6212 www.hydro-int.com



Treatment System Specifications	
Filtration Chamber Dimensions	86-in x 126-in
No. Filter Modules	8 to 19
Max.Filtration Rate per Filter Module	0.056-cfs
Peak Internal Bypass Flow Rate	Varies
Operating Head at Max. Filtration Rate	29.5-in
Sediment Storage	55.9 cu-ft
Oil Storage	209-gal
Outlet / Inlet Pipe Diameter (Max.36-in)	24-in





CAPACITIES:
1. Minimum performance: 80% removal of Sil-Co-Sil 106 (d50=22 microns) at the max. filtration rate.
2. Maximum number of modules for vault size: 19*
3. Peak treatment flow: 1.064-cfs

ADDITIONAL DESIGN INFORMATION:
1. Normal operating W.S.E. is 29.5" (2.46') above the outlet invert at the max. filtration rate. For a given flow the head requirement can be reduced by adding additional Filter Modules.
2. *Treatment flows that require more modules will require a larger vault design.
3. Drop required from inlet pipe invert to outlet pipe invert is 9".
4. Filter Media: CPZ Mix Media

DO NOT USE FOR CONSTRUCTION OR FABRICATION

Notes

1. THIS IS A STANDARD DETAIL AND IS NOT SITE SPECIFIC. ACTUAL INLET PIPE DIAMETER AND ANGLE MAY BE DIFFERENT
2. REFER TO SUBMITTAL OR FABRICATION DRAWINGS FOR FINAL RIM AND INVERT ELEVATIONS.
3. CONTACT HYDRO INTERNATIONAL FOR SITE SPECIFIC DRAWINGS AND INSTALLATION REQUIREMENTS.

REVISION HISTORY

REV	BY	DATE	DESCRIPTION
A	JL	5/23/13	PARTS LIST

Date	Scale
02/28/13	NTS

Drawn	Checked	Approved
JLL3		

OFF-LINE UP-FLO® FILTER
8-19 MODULES
86-in x 126-in VAULT
Valdor File: 15149

Innisfil, Ontario

Hydro International

Stormwater Solutions
94 Hutchins Drive
Portland, Maine 04102
Tel: (207) 756-6200
Fax: (207) 756-6212
stormwaterinquiry@hydro-int.com

CAD Ref: SIZING CALC DWG
Project No.
Drawing No. Rev. A

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APPENDIX “G”

Stormwater Management - Infiltration LID Calculations

Table G.1: Infiltration Trench Sizing Calculations - North Catchment

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, Ontario L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069
info@valdor-engineering.com www.valdor-engineering.com

Designed By: O.B.
Checked By: D.G.
Project No: 15149
Date: January 2019

Total Req'd Annual Infiltration Volume to Achieve Target (m^3)	*[1] Req'd Design Storm Depth to Achieve Annual Infiltration Requirements (Assuming Ia=5.0 mm) (mm)*	*Initial Abstraction (RLCB Drainage Area, Excluding Roofs) (mm)*	*Total Annual Rainfall Depth (Per 1981-2010 Climate Normals for Barrie WPCC) (mm)*	*Total Rainfall Depth Available for Infiltration Per Rainfall Analysis Assuming Ia=5.0mm (mm)*	*Provided Event-Based Runoff Volume to be Infiltrated (Based on Req'd Design Storm Depth (m^3)*	*Minimum Total Drainage Area to Infiltration Facilities (ha)*	*Total Actual Annual Infiltration Volume per Design (m^3)*
1,120	15.0	5.0	709.9	262.26	46.1	0.46	**1,208**

Maximum Allowable Depth	
P, Soil Infiltration Rate (mm/h):	**10**
T, Drawdown Time (hr):	**48**
d, Maximum Allowable Depth (m):	**0.48**

Minimum Bottom Area	
V, Runoff Volume to be Infiltrated (m^3):	**46.1**
P, Soil Infiltration Rate (mm/h):	**10**
n, Void Ratio (clear stone):	**0.40**
Δt, Drawdown Time (hr):	**48**
A, Minimum Bottom Area (m^2):	**240**

$$d = \frac{P \cdot T}{1000}$$ *Equation 4.2, Stormwater Management Planning and Design Manual, MOE, 2003*

$$A = \frac{1000 \cdot V}{P \cdot n \cdot \Delta t}$$ *Equation 4.3, Stormwater Management Planning and Design Manual, MOE, 2003*

RLCB Infiltration Trench Design

Infiltration Trench Location	**Drainage Area (m^2)**	**Available Runoff Volume for Infiltration (m^3)**	**Length (m)**	**Width (m)**	**[3]Design Depth (m)**	**Bottom Area (m^2)**	**Void Ratio**	**Storage Volume Provided (m^3)**	**Infiltration Volume (Lesser of Available Runoff Volume or Storage Volume Provided) (m^3)**
Infiltration Trench #1	1,125	11.25	60.00	1.00	0.48	60.00	0.40	11.52	11.25
Infiltration Trench #2	700	7.00	37.00	1.00	0.48	37.00	0.40	7.10	7.00
Infiltration Trench #3	570	5.70	30.00	1.00	0.48	30.00	0.40	5.76	5.70
Infiltration Trench #4	3,275	32.75	90.00	1.00	0.48	90.00	0.40	17.28	17.28
Infiltration Trench #5	485	4.85	26.00	1.00	0.48	26.00	0.40	4.99	4.85
							Total Infiltration Volume Used (m^3):		**46.1**

Notes:

Infiltration facilities are sized based on the following criteria (SWMPDM, MOE, 2003) and/or assumptions:

(1) Infiltration trench volume should be sized based on the runoff generated by a 4-hr 15-mm event or smaller.
(2) The drainage area to each infiltration trench should be sufficient to provide required runoff quantity.
(3) The maximum allowable depth of the infiltration facility is based on the soil infiltrate rate and the retention time.
(4) It is feasible to convey the runoff to the infiltration facility.
(5) The seasonal high water table should be at least 1 m below the infiltration trench.

Table G.2: Infiltration Trench Sizing Calculations - South Catchment

VALDOR ENGINEERING INC.
741 Rowntree Dairy Road, Suite 2, Woodbridge, Ontario L4L 5T9
Tel: 905-264-0054 Fax: 905-264-0069
info@valdor-engineering.com www.valdor-engineering.com

Designed By: O.B.
Checked By: D.G.
Project No: 15149
Date: January 2019

Total Req'd Annual Infiltration Volume to Achieve Target (m^3)	*[1] Req'd Design Storm Depth to Achieve Annual Infiltration Requirements (Assuming Ia=5.0 mm) (mm)*	*Initial Abstraction (RLCB Drainage Area, Excluding Roofs) (mm)*	*Total Annual Rainfall Depth (Per 1981-2010 Climate Normals for Barrie WPCC) (mm)*	*Total Rainfall Depth Available for Infiltration Per Rainfall Analysis Assuming Ia=5.0mm (mm)*	*Provided Event-Based Runoff Volume to be Infiltrated (Based on Req'd Design Storm Depth (m^3)*	*Minimum Total Drainage Area to Infiltration Facilities (ha)*	*Total Actual Annual Infiltration Volume per Design (m^3)*
2,100	15.0	5.0	709.9	262.26	84.6	0.85	**2,219**

Maximum Allowable Depth	
P, Soil Infiltration Rate (mm/h):	**10**
T, Drawdown Time (hr):	**48**
d, Maximum Allowable Depth (m):	**0.48**

Minimum Bottom Area	
V, Runoff Volume to be Infiltrated (m^3):	**84.6**
P, Soil Infiltration Rate (mm/h):	**10**
n, Void Ratio (clear stone):	**0.40**
Δt, Drawdown Time (hr):	**48**
A, Minimum Bottom Area (m^2):	**441**

$$d = \frac{P \cdot T}{1000}$$ *Equation 4.2, Stormwater Management Planning and Design Manual, MOE, 2003*

$$A = \frac{1000 \cdot V}{P \cdot n \cdot \Delta t}$$ *Equation 4.3, Stormwater Management Planning and Design Manual, MOE, 2003*

RLCB Infiltration Trench Design

Infiltration Trench Location	**Drainage Area (m^2)**	**Available Runoff Volume for Infiltration (m^3)**	**Length (m)**	**Width (m)**	**[3]Design Depth (m)**	**Bottom Area (m^2)**	**Void Ratio**	**Storage Volume Provided (m^3)**	**Infiltration Volume (Lesser of Available Runoff Volume or Storage Volume Provided) (m^3)**
Infiltration Trench #6	2,360	23.60	90.00	1.00	0.48	90.00	0.40	17.28	17.28
Infiltration Trench #7	850	8.50	40.00	1.00	0.48	40.00	0.40	7.68	7.68
Infiltration Trench #8	1,960	19.60	65.00	1.00	0.48	65.00	0.40	12.48	12.48
Infiltration Trench #9	4,765	47.65	190.00	1.00	0.48	190.00	0.40	36.48	36.48
Infiltration Trench #10	500	5.00	27.00	1.00	0.48	27.00	0.40	5.18	5.00
Infiltration Trench #11	570	5.70	30.00	1.00	0.48	30.00	0.40	5.76	5.70
							Total Infiltration Volume Used (m^3):		**84.6**

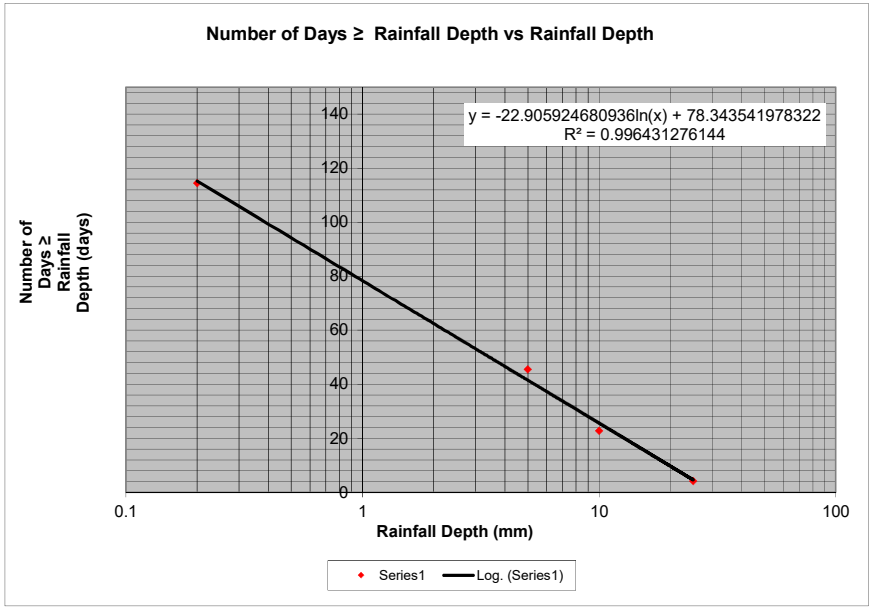
Notes:

Infiltration facilities are sized based on the following criteria (SWMPDM, MOE, 2003) and/or assumptions:

(1) Infiltration trench volume should be sized based on the runoff generated by a 4-hr 15-mm event or smaller.
(2) The drainage area to each infiltration trench should be sufficient to provide required runoff quantity.
(3) The maximum allowable depth of the infiltration facility is based on the soil infiltrate rate and the retention time.
(4) It is feasible to convey the runoff to the infiltration facility.
(5) The seasonal high water table should be at least 1 m below the infiltration trench.

Table G.3: Rainfall Analysis

VALDOR ENGINEERING INC.
File: 15149
Date: January 2019



Normal Rainfall Depth (mm)	Normal Days ≥ Rainfall Depth (days)
0.2	114.4
5	45.5
10	22.8
25	4.2

Barrie WPCC Climate Normals (1981 - 2010)
709.9 Normal Annual Rainfall Depth (mm)
114.4 Normal Annual Days with Rainfall (≥ 0.2 mm)
932.9 Normal Annual Precipitation Depth (mm)

Simulated Depth (mm)	Simulated Days ≥ Sim Depth (days)	Average Event Depth (mm)	Simulated Days Equal to Avg Depth (days)	Assumed IA (mm)	Runoff (Rain - IA) (mm)	INF Design Storm (mm)	Event Based Maximum Design INF Depth (mm)	Event Based Design INF Depth (mm)	Annual Incremental Design INF Depth (mm)	Annual Cumulative Design INF Depth (mm)	Annual Incremental Total Rain Depth (mm)	Annual Percent of Total Rain (%)	Annual Cumulative Total Rain Depth (mm)	Annual Cumulative Percent of Total Depth (%)
0.2	115.21													
0.5	94.22	0.2 - 0.5	20.99	5.00	0.00	15.00	10.00	0.00	0.00	**0.00**		0.000	0.0	0.0%
1.5	69.06	1	25.16	5.00	0.00	15.00	10.00	0.00	0.00	**0.00**	25.16	0.035	25.2	3.5%
2.5	57.36	2	11.70	5.00	0.00	15.00	10.00	0.00	0.00	**0.00**	23.40	0.033	48.6	6.8%
3.5	49.65	3	7.71	5.00	0.00	15.00	10.00	0.00	0.00	**0.00**	23.12	0.033	71.7	10.1%
4.5	43.89	4	5.76	5.00	0.00	15.00	10.00	0.00	0.00	**0.00**	23.03	0.032	94.7	13.3%
5.5	39.29	5	4.60	5.00	0.00	15.00	10.00	0.00	0.00	**0.00**	22.98	0.032	117.7	16.6%
6.5	35.47	6	3.83	5.00	1.00	15.00	10.00	1.00	3.83	**3.83**	22.96	0.032	140.7	19.8%
7.5	32.19	7	3.28	5.00	2.00	15.00	10.00	2.00	6.56	**10.38**	22.95	0.032	163.6	23.0%
8.5	29.32	8	2.87	5.00	3.00	15.00	10.00	3.00	8.60	**18.98**	22.94	0.032	186.5	26.3%
9.5	26.78	9	2.55	5.00	4.00	15.00	10.00	4.00	10.19	**29.17**	22.93	0.032	209.5	29.5%
10.5	24.48	10	2.29	5.00	5.00	15.00	10.00	5.00	11.46	**40.64**	22.93	0.032	232.4	32.7%
11.5	22.40	11	2.08	5.00	6.00	15.00	10.00	6.00	12.50	**53.14**	22.92	0.032	255.3	36.0%
12.5	20.49	12	1.91	5.00	7.00	15.00	10.00	7.00	13.37	**66.51**	22.92	0.032	278.2	39.2%
13.5	18.73	13	1.76	5.00	8.00	15.00	10.00	8.00	14.10	**80.61**	22.92	0.032	301.2	42.4%
14.5	17.09	14	1.64	5.00	9.00	15.00	10.00	9.00	14.73	**95.34**	22.92	0.032	324.1	45.6%
15.5	15.56	15	1.53	5.00	10.00	15.00	10.00	10.00	15.28	**110.62**	22.91	0.032	347.0	48.9%
16.5	14.13	16	1.43	5.00	11.00	15.00	10.00	10.00	14.32	**124.94**	22.91	0.032	369.9	52.1%
17.5	12.78	17	1.35	5.00	12.00	15.00	10.00	10.00	13.48	**138.42**	22.91	0.032	392.8	55.3%
18.5	11.51	18	1.27	5.00	13.00	15.00	10.00	10.00	12.73	**151.15**	22.91	0.032	415.7	58.6%
19.5	10.30	19	1.21	5.00	14.00	15.00	10.00	10.00	12.06	**163.21**	22.91	0.032	438.6	61.8%
20.5	9.16	20	1.15	5.00	15.00	15.00	10.00	10.00	11.46	**174.66**	22.91	0.032	461.5	65.0%
21.5	8.07	21	1.09	5.00	16.00	15.00	10.00	10.00	10.91	**185.57**	22.91	0.032	484.5	68.2%
22.5	7.03	22	1.04	5.00	17.00	15.00	10.00	10.00	10.41	**195.98**	22.91	0.032	507.4	71.5%
23.5	6.03	23	1.00	5.00	18.00	15.00	10.00	10.00	9.96	**205.94**	22.91	0.032	530.3	74.7%
24.5	5.07	24	0.95	5.00	19.00	15.00	10.00	10.00	9.55	**215.49**	22.91	0.032	553.2	77.9%
25.5	4.16	25	0.92	5.00	20.00	15.00	10.00	10.00	9.16	**224.65**	22.91	0.032	576.1	81.2%
26.5	3.28	26	0.88	5.00	21.00	15.00	10.00	10.00	8.81	**233.47**	22.91	0.032	599.0	84.4%
27.5	2.43	27	0.85	5.00	22.00	15.00	10.00	10.00	8.48	**241.95**	22.91	0.032	621.9	87.6%
28.5	1.61	28	0.82	5.00	23.00	15.00	10.00	10.00	8.18	**250.13**	22.91	0.032	644.8	90.8%
29	1.21	≥ 29	1.21	5.00	24.00	15.00	10.00	10.00	12.13	**262.26**	65.09	0.092	709.9	100.0%

Scoped Hydrogeological Evaluation

1303 Belle Aire Beach Road

Town of Innisfil, Ontario

Prepared for:
Cortel Group

Prepared by:
Azimuth Environmental
Consulting, Inc.

Revised December 2018

AEC 17-067

mbgs. Two well records indicated a water level of less than 1 m, indicating the potential for shallow conditions, however these records are more than 100 m from the Site.

Table 1: MOE Water Well Database Summary

Well No.	Distance from the Site (m)	Direction from the Site	Elevation (m)	Date Drilled	Well Type	Well Depth (m)	Water Level (m)	Primary Use
7105183	30	North east	240	2007-11-19	Overburden	6.1	-	Monitoring
5725642	110	North west	248	1989-09-26	Overburden	22.6	0.91	Domestic
5719842	155	South east	229	1984-10-20	Overburden	11.6	1.52	Domestic
7120579	170	South east	-	-	Overburden	16.8	3.66	Domestic
5707352	190	South east	230	1970-06-30	Overburden	8.2	0.61	Domestic
5719169	195	South east	229	1984-02-27	Overburden	6.1	1.22	Domestic
5730698	195	South east	-	1994-04-24	Overburden	11.0	2.13	Domestic
5719497	220	South east	229	1984-09-17	Overburden	11.3	1.83	Domestic
5706363	205	South east	229	1969-06-04	Overburden	12.2	8.53	Domestic

During the Site visit on December 5th 2017, monitoring wells were noted on the adjacent properties to the north (1346 Belle Aire Beach Road) and south west (1357 Belle Aire Beach Road). Based on the nature of the area, these wells were likely installed prior to site development. No records were found for these wells.

Information obtained from the South Simcoe Groundwater Study (Golder, 2004) suggests that the surficial material is composed of a confining material with thin aquifer units found around 200 masl - 180 masl. Shallow ground water flow will likely flow toward Lake Simcoe to the east. Excerpts from the Golder (2004) report are included in Appendix D.

The Oak Ridges Moraine Groundwater Program (ORMGP, 2017) includes a water table layer which was created by contouring the static water levels from all wells where the well screen is less than 20 m deep. This layer is meant to represent an average water table since the values used in its creation were collected from all seasons over time. ORMGP (2017) suggests that the actual water table at any given time of the year may be up to 2-3m lower or higher than the values indicated on the water table layer. According to ORMGP (2017) the water table at the Site is found between 228 – 234 masl, which represents 6 – 14 mbgs. Maps from the ORMGP (2017) are included in Appendix E.

3.0 WATER BALANCE

In order to determine the potential changes to the natural ground water recharge conditions, a pre- and post-development water balance assessment has been completed using the Thornthwaite and Mather method (1957). This method evaluates evapotranspiration based on precipitation and temperature. Residual soil saturation is a function of topography and soil type. Monthly data are tabulated from daily average

temperature and precipitation, and the water budget is a continuous calculation over the period of record. To clarify, the method and the approach used by many individuals in examining infiltration resets annual conditions (moisture deficit, snow storage, etc) over the winter months because of the general lack of infiltration during the frost period. However, we maintain those records and carry them forward from month to month during the entire period of record.

Values were determined on a monthly basis, compiled from daily Environment Canada meteorological data station located in Barrie, Ontario between 1970 and 2016 (Station ID 6110557). The calculations are based on the average conditions during this period; the average precipitation was 908 mm, rainfall was 655 mm, evapotranspiration was 484 mm and the surplus was 424 mm.

The water balance was completed on a Site scale, and on a catchment scale according to the Post-Development Drainage Plan (Valdor, 2018). The Site has been classified as the North Catchment (Catchments 203, 204, & 205), and the South Catchment (Catchments 206 & 207).

3.1 Land Use

3.1.1 Pre-Development

Using aerial images the pre-development Site area was classified according to land use/vegetation type. Land within the pre-development area is considered agricultural land (Table 2).

Table 2: Pre Development Area Classification

Land Use	North Catchment (m^2)	South Catchment (m^2)	Total (m^2)
Agricultural	21,500	31,500	53,000
TOTAL	**21,500**	**31,500**	**53,000**

3.1.2 Post-Development

Land within the post-development Site was classified based on the Post-Development Drainage Plan dated November 2018. Land is classified as rooftop, driveway, roadway, sidewalk, and landscaped. The total impervious land area is approximately 23,200 m^2 and represents 44% of the total 53,000 m^2 area (Table 3).

The post-development drainage plan will include low impact development (LID) strategies to promote infiltration from impervious surfaces. The current water balance will be updated to include LID infiltration when design information is available.

Table 3: Post-Development Area Classifications (Valdor, 2018)

Land Use	North Catchment (203, 204 & 205) (m^2)	South Catchment (206 & 207) (m^2)	Total (m^2)
Rooftop	5,060	7,030	12,090
Roadway	3,230	3,590	6,820
Sidewalk	670	900	1,570
Landscaped	12,630	17,170	29,800
Driveway	1,210	1,510	2,720
TOTAL IMPERVIOUS	**10,170**	**13,030**	**23,200**
TOTAL	**22,800**	**30,200**	**53,000**

It should be noted that the base of infiltration LIDs are required to be more than 1m above the high water level (TRCA & CVC, 2010). The water depth and soil type should therefore be confirmed at the Site during detailed design to ensure LID performance.

3.2 Infiltration

Infiltration is generated one of two ways: (1) directly from rainfall impact on pervious surfaces; and (2) indirectly when runoff from impervious surfaces is diverted into adjacent naturalized areas.

Infiltration factors for the Site were estimated based on the underlying soil, local topography, and ground cover as per Table 2 of the Ministry of Environment and Energy (MOEE) Hydrogeological Technical Information Requirements for Land Development Applications (1995).

The soil variable factor was determined by taking into account information obtained from the Site visit and the background information sources. This information suggests that the surficial material is composed of sandy silt.

The infiltration factors utilized to determine the direct infiltration in the water balance assessment are summarized in Table 4 below.

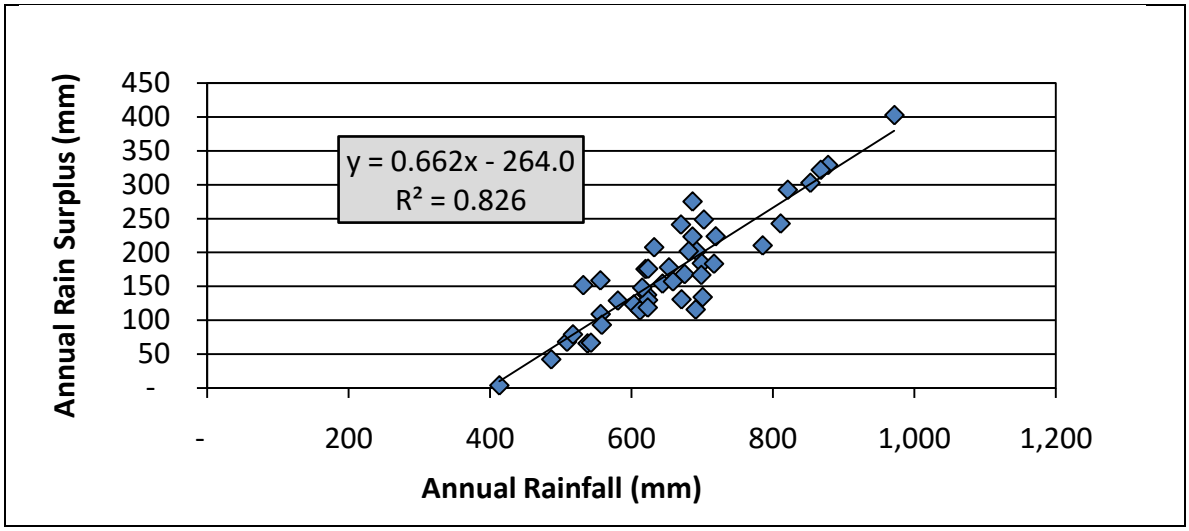
Table 4: Summary of Pervious Land Infiltration Factor

Land Use	Infiltration Factor	Assumption
Agricultural	0.65	Flat/rolling land, silt/sand soil, cultivated land
Landscaped	0.60	Flat/rolling land, silt/sand soil, lawn

To calculate the indirect infiltration numerically, the runoff from hard surfaces that has been directed to natural areas is treated as a supplement to precipitation. A series of

sensitivity analyses was completed to evaluate water surplus as a function of annual and monthly precipitation (data provided by Barrie, Ontario Station ID 6110557). Surplus is directly proportional to both rainfall and total precipitation, and within a narrow statistical range. Comparison based on rain surplus and total rainfall is most conservative compared to total surplus or total precipitation since it negates the influence of snow and the potential for infiltration through the winter. As shown below in Chart 1, rain surplus increases at a rate of approximately 66% of total rain increase.

Chart 1: Barrie Ontario Climate Station Rainfall Comparison



This methodology identifies a single value for infiltration / runoff partitioning and this is incorporated here. Again, this is conservative since it assumes the same proportion of surplus is required to overcome soil moisture deficit, however, it is already met. Based on Chart 1, it is assumed that discharging pavement or rooftop runoff to grassed areas will capture 66% of the potential infiltration loss.

3.2.1 Pre-Development

Pre-development infiltration was determined by multiplying the annual average surplus amount (424 mm), the area of each land use (Table 2), and the infiltration factor for each land use (Table 4). The pre-development annual infiltration is therefore 14,605 m^3 which represents 5,925 m^3 from the North Catchment and 8,680 m^3 from the South Catchment.

3.2.2 Post-Development

Post-development infiltration (without mitigation) was determined by multiplying the annual average surplus amount (424 mm), the area of each land use (Table 3), and the infiltration factor for each land use (Table 4). Impervious areas are assigned an infiltration coefficient of 0. The post-development annual direct infiltration is therefore

7,585 m^3, which represents 3,215 m^3 from the North Catchment and 4,370 m^3 from the South Catchment. There is therefore a Site wide reduction of approximately 7,020 m^3 from pre- to post-development without mitigation.

Additional infiltration can also be gained through conventional rooftop downspouts from the rooftop of the residential units. Table 3 indicates that there is approximately 5,060 m^2 of roof area in the north catchment, and 7,030 m^2 of roof area in the south catchment. The indirect infiltration from rooftop downspouts is therefore found by multiplying the rooftop area by the rainfall (655 mm), by 0.8 to account for a 20% evaporation factor, and by the infiltration coefficient of the receiving land use (landscaped, 0.60).

The total indirect infiltration from directing all residential rooftop area to the ground via downspouts is therefore 3,800 m^3, which represents 1,590 m^3 from the North Catchment, and 2,210 m^3 from the South Catchment. This brings the post-development infiltration to 11,385 m^3 and the pre- to post-development reduction to 3,220 m^3.

Alternatively, if only half of the rooftop area is directed to downspouts, then it would represent 795 m^3/year from the North Catchment, and 1,105 m^3/year from the South Catchment. The total post-development infiltration would then be 9,485 m^3/year, and the pre-to post-development reduction would be 5,120 m^3/year.

As noted in Section 3.1.2, LIDs will be incorporated into the post-development plan to capture additional infiltration.

3.3 Water Balance Summary

Using the climate model data and calculations mentioned above, the following pre and post-development infiltration values have been summarized (Table 5).

Post-development ground water infiltration at the Site is assumed to decrease by approximately 48% at the Site scale when no mitigation measures are employed. This can be broken down into 46% at the North Catchment, and 50% at the South Catchment. This reduction is based on the creation of impervious surfaces associated with driveways, sidewalks, and roads. The 48% reduction equates to approximately 133 mm/year.

Table 5: Water Balance Summary

Parameter	Pre-Development			Post-Development No Mitigation			Post-Development With Mitigation (all rooftop to grass)		
	Total Site	North Catchment	South Catchment	Total Site	North Catchment	South Catchment	Total Site	North Catchment	South Catchment
Area (m^2)	53,000	21,500	31,500	53,000	22,800	30,200	53,000	22,800	30,200
Precipitation (m^3/year)	48,125	19,520	28,600	48,125	20,700	27,420	48,125	20,700	27,420
Evapotranspiration (m^3/year)	25,650	10,405	15,245	25,650	11,035	14,615	25,650	11,035	14,615
Runoff (m^3/year)	7,870	3,190	4,675	14,890	6,450	8,435	11,090	4,860	6,225
Annual Direct Infiltration (m^3/yr)	14,605	5,925	8,680	7,585	3,215	4,370	7,585	3,215	4,370
Annual Indirect Infiltration (m^3/year)	0	0	0	0	0	0	3,800	1,590	2,210
Total Infiltration (m^3/year)	14,605	5,925	8,680	7,585	3,215	4,370	11,385	4,805	6,580
Infiltration Change	**NA**	**NA**	**NA**	**-7,020 m^3 -48.1% -133mm/yr**	**-2,710 m^3 -46.0% -126mm/yr**	**-4,310 m^3 -50% -137mm/yr**	**-3,220 m^3 -22.0% -61mm/yr**	**-1,120m^3 -18.9% -52mm/yr**	**-2,100 m^3 -24.2% -67mm/yr**

Additional infiltration is utilized when the rooftop runoff is directed to landscaped areas. Rooftop runoff accounts for an additional 3,800 m^3 of infiltration per year on a site scale, which brings the post-development infiltration volume to 11,385 m^3 for a pre- to post-development deficit of 3,220 m^3 or 22% of the pre-development volume. This equates to about 61mm over the entire Site.

It should be noted that the water balance will be updated to account for LID strategies, when design information is available. The LIDs should be placed in both the North Catchment and the South Catchment to ensure adequate infiltration is accounted for in both drainage areas.

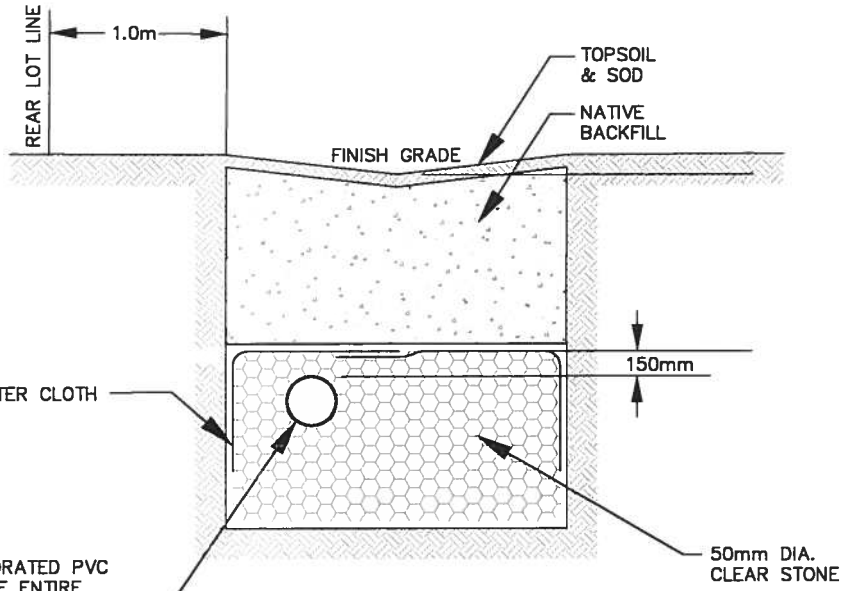
4.0 SUMMARY AND CONCLUSIONS

Azimuth was retained to conduct a Hydrogeological Evaluation for the proposed residential development located at 1303 Belle Aire Beach Road within the Town of Innisfil, Ontario The Site is approximately 5.3 ha in size and is located on the south side of Belle Aire Beach Road (5th Line), immediately west of the Go Rail corridor, and approximately 725 m east of 20th Sideroad The Site is currently composed of undeveloped agricultural land. The purpose of this assessment was to characterize the existing hydrogeological conditions at the Site and the potential for the proposed development to impact the existing environmental conditions.

The surficial material at the Site reportedly consists of Newmarket Till, which is composed of a sandy silt to silt matrix material. A Site visit was completed to determine the shallow soil type through the advancement of hand augers. In general, the soil consisted of topsoil overlying sandy silt. One location (AG-2) encountered sandy clay beneath the topsoil, while a second location (AG-3) encountered sand and gravel at a depth of 0.30 m beneath the sandy silt. Ground water was not observed within any of the locations, and the soil appeared moist. The Site is found at an elevation between 234 – 244 masl and slopes gently to the south east. There is no storm water infrastructure currently at the Site. Runoff at the Site is therefore expected to follow the local topographic grade. A PSW is located on the east side of the railway. The railway is expected to act as a barrier to surface water runoff contributing directly to the PSW to the east.

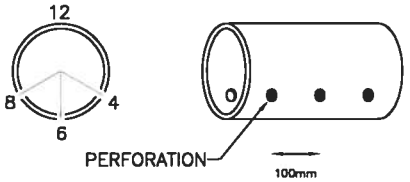
A water balance was completed to determine the potential changes to the natural ground water recharge conditions. The water balance was completed on a Site scale, and on a catchment scale. The Site has been classified as the North Catchment (Catchments 203,

204, & 205), and the South Catchment (Catchments 206 & 207). The pre-development annual infiltration volume was calculated to be 14,605 m^3 which represents 5,925 m^3 from the North Catchment and 8,680 m^3 from the South Catchment. The post-development annual direct infiltration is 7,585 m^3, which represents 3,215 m^3 from the North Catchment and 4,370 m^3 from the South Catchment. There is therefore a Site wide reduction of approximately 7,020 m^3 from pre- to post-development without mitigation. Additional infiltration can also be gained through conventional rooftop downspouts from the rooftop of the residential units. The total indirect infiltration from directing all residential rooftop area to the ground via downspouts is 3,800 m^3, which represents 1,590 m^3 from the North Catchment, and 2,210 m^3 from the South Catchment. This brings the post-development infiltration to 11,385 m^3 and the pre- to post-development reduction to 3,220 m^3. The post-development drainage plan will include LID strategies to promote infiltration from impervious surfaces. The current water balance will be updated to include LID infiltration when design information is available. The LIDs should be placed in both the North Catchment and the South Catchment to ensure adequate infiltration is accounted for in both drainage areas.



TRENCH SECTION

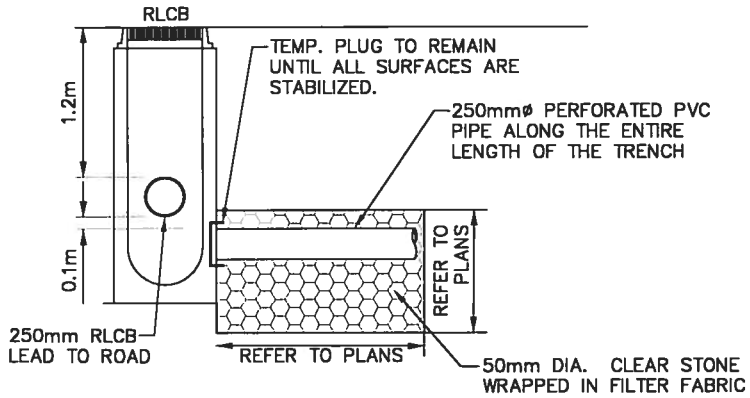
N.T.S.



250mm PERFORATED PVC PIPE (SDR-35).
25mm PERFORATIONS AT APPROXIMATELY 4,
6, AND 8 O'CLOCK POSITIONS WHEN LAID.

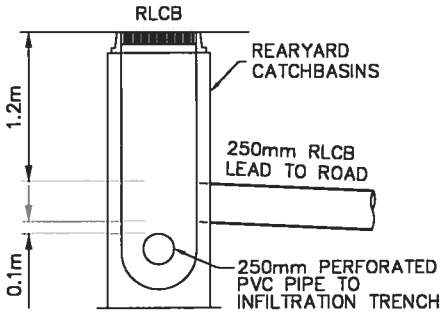
PERFORATED PIPE DETAIL

N.T.S.



TRENCH PROFILE

N.T.S.



RLCB DETAIL

N.T.S.

BELLE AIRE BEACH SUBDIVISION

1303 BELLE AIRE BEACH ROAD
TOWN OF INNISFIL

INFILTRATION TRENCH DETAIL

VALDOR ENGINEERING INC.
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www.valdor-engineering.com

SCALE	N.T.S.	CKD. BY	D.G.	DWG.	FIGURE G-1
DATE	NOVEMBER 2017	DRAWN BY		PROJECT	15149

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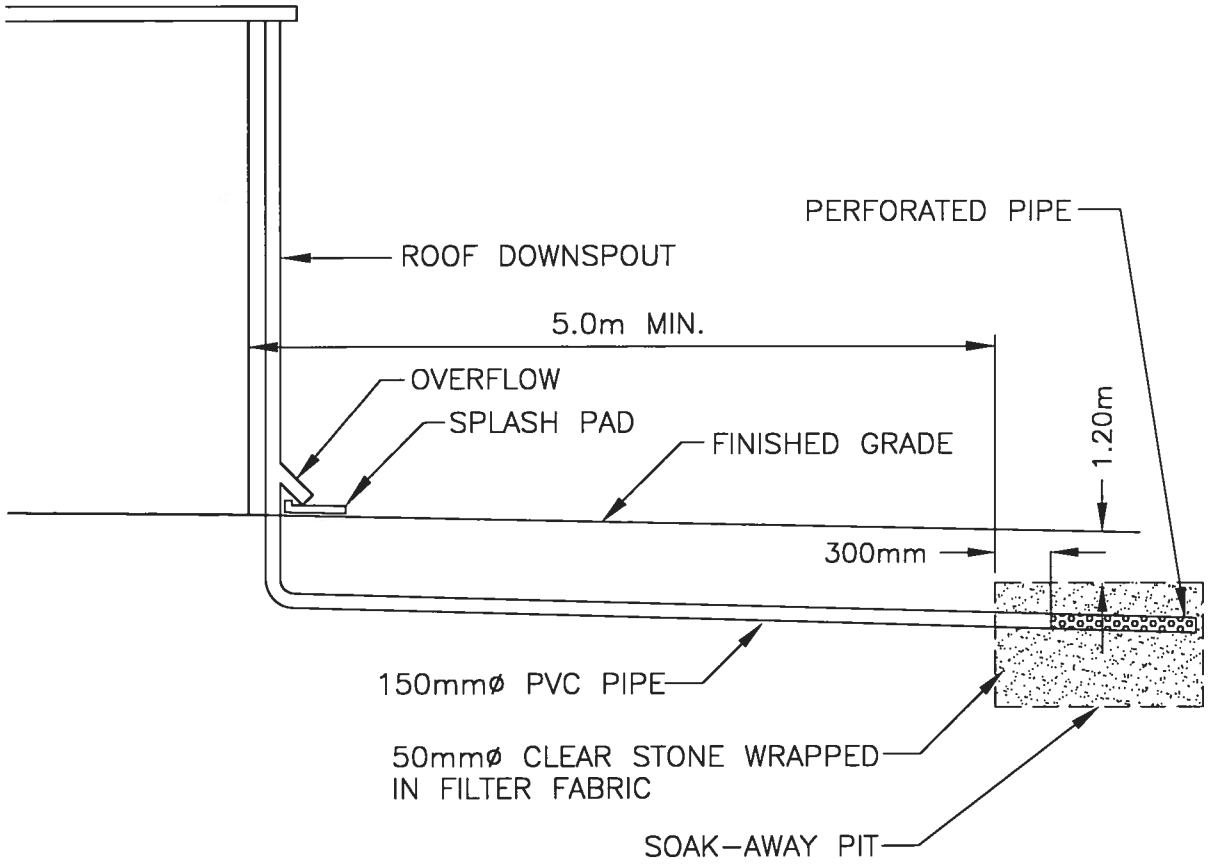

ROOF DRAINAGE SOAK AWAY PIT DETAIL

N.T.S.

BELLE AIRE BEACH SUBDIVISION

1303 BELLE AIRE BEACH ROAD
TOWN OF INNISFIL

SOAK AWAY PIT DETAIL

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SCALE N.T.S.	CKD. BY D.G.	DWG.	FIGURE G-2
DATE NOVEMBER 2017	DRAWN BY	PROJECT	15149

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APPENDIX “H”

Stormwater Management - Phosphorus Loading Calculations

VALDOR ENGINEERING INC.
File: 15149
Date: January 2019

Table H.1: Phosphorus Loading Calculations

A [1]NON-POINT SOURCE P LOADING

LAND USE	[1]LOADING RATE (kg/yr/ha)	PRE-DEVELOPMENT AREA (ha)	PRE-DEVELOPMENT LOAD (kg/yr)	POST-DEVELOPMENT (UNMITIGATED) AREA (ha)	POST-DEVELOPMENT (UNMITIGATED) LOAD (kg/yr)	P LOAD NET CHANGE (kg/yr)
Cropland	0.19	5.14	0.98	0.00	0.00	-0.98
High Intensity Development (Residential)	1.32	0.00	0.00	4.44	5.86	5.86
Low Intensity Development (Manicured Open Space)	0.13	0.00	0.00	0.70	0.09	0.09
TOTAL		5.14	**0.98**	5.14	**5.95**	**4.98**

B [2]P LOAD REDUCTION TARGET

Post-Development (Unmitigated) P Load (kg/yr):	5.95
Target P Load Reduction Rate Required (%):	80%
Target Post-Development P Load Reduction Required (kg/yr):	**4.76**

C [3]MITIGATION BMPs

Assumed underground storage P removal rate (%):	25%
Assumed infiltration trench P removal rate (%):	60%
Assumed wet detention pond P removal rate (%):	63%
[4]Assumed Up-Flo Filter P removal rate (%):	72%

Treatment Trains:

Underground storage & Up-Flo Filter P removal rate (%):	79%
Infiltration, underground storage & Up-Flo filter P removal rate (%):	92%
Infiltration Trench & wet detention pond P removal rate (%):	85%

LAND USE AND MITIGATION BMP	LOADING RATE (Kg/Yr/Ha)	POST-DEVELOPMENT (UNMITIGATED) AREA (Ha)	POST-DEVELOPMENT (UNMITIGATED) LOAD (Kg/Year)	P REMOVAL RATE (%)	P REMOVAL TOTAL (Kg/Year)	POST-DEVELOPMENT (MITIGATED) (Kg/Year)
High Intensity Residential BMP: Underground Storage & Up-Flo Filter	1.32	1.12	1.48	79%	1.17	0.31
High Intensity Residential BMP: Infiltration Trench, Underground Storage & Up-Flo Filter	1.32	0.74	0.98	92%	0.89	0.08
Low Intensity Development BMP: Underground Storage & Up-Flo Filter	0.13	0.13	0.02	79%	0.01	0.00
High Intensity Residential BMP: Wet Detention Pond	1.32	1.41	1.86	63%	1.17	0.69
High Intensity Residential BMP: Infiltration trench & Wet Detention Pond	1.32	1.17	1.54	85%	1.32	0.23
Low Intensity Development BMP: Wet Detention Pond	0.13	0.21	0.03	63%	0.02	0.01
Low Intensity Development BMP: None	0.13	0.36	0.05	0%	0.00	0.05
TOTAL		**5.14**	**5.95**		**4.58**	**1.37**

C [5]P LOAD REDUCTION ACHIEVED

Post-Development (Unmitigated) P Load (kg/yr):	5.95
Post-Development (Mitigated) P Load (kg/yr):	1.37
Total P Load Reduction Rate (%):	**77.0%**

Notes:
1) Only non-point sources were considered in this analysis, as wastewater from this area does not contribute to the Lake Simcoe watershed.
2) As per section *2.3.2 Phosphorus* of the *LSRCA Technical Guidelines for Stormwater Management Submission* (LSRCA, June 24, 2016), 80% removal of the total annual phosphorus loading from the post-development area is required.
3) Phosphorus loading rate values were determined from the average loading rates by land use for the East Holland River as per the *Phosphorus Budget Tool in Support of Sustainable Development for the Lake Simcoe Watershed* by Hutchinson Environmental Sciences Ltd. (Prepared for Ontario Ministry of the Environment), March 30, 2012.
4) The Up-Flo Filter has a P removal efficiency of 72%, as documented *Technical Bulletin - Up-Flo Filter - Field Evaluation of Phosphorus Removal* (Hydro International Plc., 2006), included in **Appendix H**.
5) The achieved phosphorus loading reduction rate (77.0%) is slightly less than the target rate (80.0%). However, the proposed BMPs represent a best-efforts approach to reduce phosphorus loading to the greatest extent possible.

LEGEND

LAND USE BOUNDARY

PROJECT

BELLE AIRE SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE

PRE-DEVELOPMENT PHOSPHORUS LOADING LAND USE

VALDOR ENGINEERING INC.
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PREPARED BY	CKD. BY
O.B.	D.G.
SCALE	DATE
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PROJECT	
15149	FIGURE H.1

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BELLE AIRE BEACH ROAD - 5TH LINE

(KNOWN AS) 5TH LINE

5.0m ROAD WIDENING

3.75m TRAIL

BLOCK 5 (5.0m ROAD WIDENING)

BLOCK 4 (3.75m TRAIL)

BLOCK 1 (RESIDENTIAL)

BLOCK 3 (PARK)

BLOCK 6

BARDEAU STREET EXTENSION

GO TRANSIT / METROLINX CORRIDOR

0.13ha LOW INTENSITY DEVELOPMENT
(MANICURED OPEN SPACE)

1.86ha HIGH INTENSITY DEVELOPMENT
(RESIDENTIAL)

0.36ha LOW INTENSITY DEVELOPMENT
(MANICURED OPEN SPACE)

0.21ha LOW INTENSITY DEVELOPMENT
(MANICURED OPEN SPACE)

2.58ha HIGH INTENSITY DEVELOPMENT
(RESIDENTIAL)

LEGEND

LAND USE BOUNDARY

OVERLAND FLOW

PROJECT

BELLE AIRE SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE

POST-DEVELOPMENT PHOSPHORUS LOADING LAND USE (WITHOUT MITIGATION)

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O.B.	D.G.
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PROJECT	
15149	FIGURE H.2

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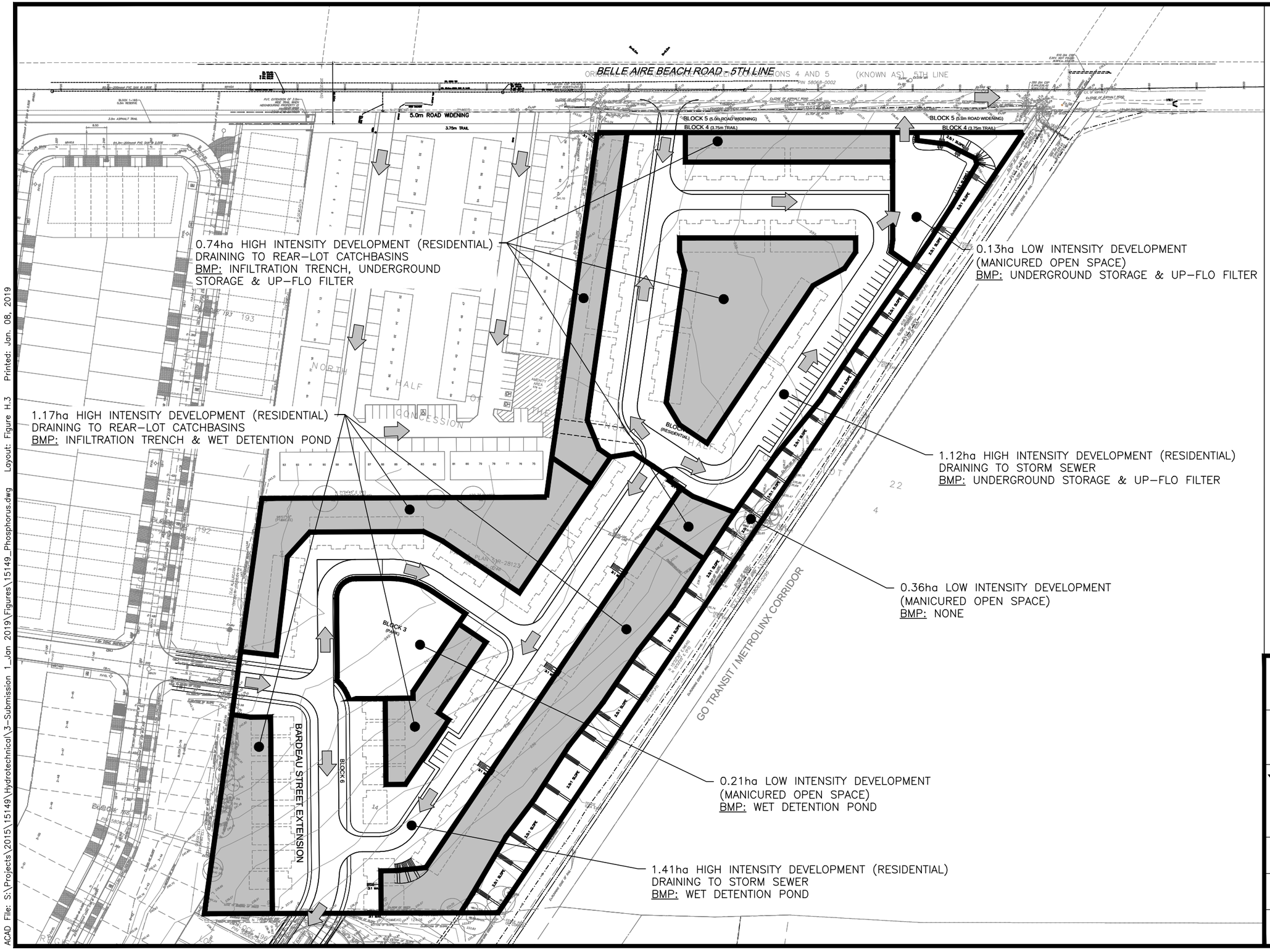

PROJECT

BELLE AIRE SUBDIVISION
1303 BELLE AIRE BEACH ROAD

TITLE

POST-DEVELOPMENT PHOSPHORUS LOADING LAND USE (WITH MITIGATION)

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15149	FIGURE H.3

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Ontario

MINISTRY OF THE ENVIRONMENT

Database Version: V 2.0 Release Update
Update Date: 30-Mar-12

Project DEVELOPMENT Summary

DEVELOPMENT: 1303 Belle Aire Beach Road
Subwatershed: Innisfil Creeks

Total Pre-Development Area (ha):	**5.14**	Total Pre-Development Phosphorus Load (kg/yr):	**0.98**

Pre-Development Land Use	Area (ha)	P coeff. (kg/ha)	P Load (kg/yr)
Cropland	5.14	0.19	0.98

DEVELOPMENT: 1303 Belle Aire Beach Road
Subwatershed: Innisfil Creeks

POST-DEVELOPMENT LOAD

Post-Development Land Use	Area (ha)	P coeff. (kg/ha)	Best Management Practice applied with P Removal Efficiency		P Load (kg/yr)
High Intensity - Residential	0.74	1.32	Treatment Train Approach	92%	0.08
Infiltration trench, underground storage & Up-Flo Filter treatment train draining north to Belle Aire Beach Road. Refer to Table H.1 for details.					
High Intensity - Residential	1.41	1.32	Wet Detention Ponds	63%	0.69
For area draining south to existing SWM Pond.					
High Intensity - Residential	1.12	1.32	Underground Storage	**79%**	0.31
Underground storage and Up-Flo Filter treatment train (for area draining north to Belle Aire Beach Road). It's not possible to enter this as "Other" or "Treatment Train Approach". Refer to Table H.1 for details.					
NOTE: BMP efficiency has been adjusted from the reference provided value by 54% (from 25% to 79%)					
High Intensity - Residential	1.17	1.32	Other	85%	0.23
Infiltration trench & wet detention pond treatment train (for area draining south to existing SWM Pond).					
Low Intensity Development	0.36	0.13	NONE	0%	0.05
Uncontrolled area draining to rail corridor.					
Low Intensity Development	0.21	0.13	Wet Detention Ponds	63%	0.01
For area draining south to existing SWM Pond.					
Low Intensity Development	0.13	0.13	Treatment Train Approach	79%	0.00
Underground storage and Up-Flo Filter treatment train draining north to Belle Aire Beach Road. Refer to Table H.1 for details.					

Post-Development Area Altered:	**5.14**
Total Pre-Development Area:	**5.14**
Unaffected Area:	**0**

	P Load (kg/yr)
Pre-Development:	**0.98**
Post-Development:	**5.95**
Change (Pre - Post):	**-4.98**
509% Net Increase in Load	
Post-Development (with BMPs):	**1.37**
Change (Pre - Post):	**-0.39**
40.22% Net Increase in Load	

DEVELOPMENT: 1303 Belle Aire Beach Road
Subwatershed: Innisfil Creeks

CONSTRUCTION PHASE LOAD

SUMMARY WITH IMPLEMENTATION OF BMPs	P Load (kg/yr)
Pre-Development:	**0.98**
Construction Phase Amortized Over 8 Years :	to be determined
Post-Development:	**1.37**
Post-Development + Amortized Construction:	**to be determined**
Pre-Development Load - Post-Development Load:	**-0.39**
Conclusion:	**40% Increase in Load**
Pre-Development Load - (Post-Development + Amortized Construction Load):	**to be determined**
Conclusion:	**to be determined**

Based on a comparison of Pre-Development and Post-Development loads, and in consideration of Construction Phase loads, the Ministry would encourage the Municipality to:

Not approve development as site specific appropriate

Table 1. Description of Berger (2010) Land Uses in the Lake Simcoe Watershed

Berger (2010) Land Use	Included LSRCA Land Use(s)	Land Use Description
Hay / Pasture	Non-intensive Agriculture	Hay and pasture fields, including the related agricultural buildings such as barns, silos and the farm residence. Fields are dominated with herbaceous vegetation and grasses with an understory of similar material in a state of decay. Weedy hay and/or pasture covers more than 50% of the area.
Crop Land	Intensive Agriculture	Cultivated row crops, including the related agricultural buildings (e.g., barns, silos and the farm residence), producing crops in varying degrees (e.g., corn and wheat) and includes specialty agriculture (i.e., orchards, market gardens, Christmas tree plantations and nurseries).
Sod Farm / Golf Course	Sod Farm	Sod farms.
	Golf Course	Golf courses, including lane ways, but not the isolated woodlots within, unless the area of the woodlots is < 0.5 ha.
Low Intensity Development	Estate Residential	A home including the manicured area around the home and driveway, within a natural heritage feature. The natural heritage feature is not included in the Estate Residential land use classification.
	Manicured Open Space	Cleared areas with a low density of trees, including lawns and landscaping. Land use is dominated by gardens, parkland and lawns, e.g., cemeteries, urban parks, ski hills and residential/industrial open space with a minimum size of 2 ha.
	Rail	Rail lines and the associated cleared adjacent areas.
	Rural Development	Properties not directly associated with an agricultural operation and that contain residential, commercial or other buildings, as well as a manicured open space, within a natural heritage or agricultural feature (e.g., estate residential or service station). On developed portions, these properties are under intensive use. Based on canopy cover, these areas will often appear as Cultural Savannah or Cultural Woodland in aerial photographs or satellite imagery. However, the presence of buildings and manicured lands identify the properties as Rural Development.
High Intensity Development[1] (Commercial /Industrial)	Commercial	Impervious properties that contain a building and an adjacent parking lot (e.g., shopping and strip malls, power centres, scrap yards). Excludes green land areas such as parks or river valleys.
	Industrial	Impervious properties that are not commercial and include industrial operations e.g., factories, manufacturing facilities, processing facilities, bulk fuel storage. Excludes green land areas such as parks or river valleys.
	Institutional	Schools, hospitals and other institutional structures. May include large storm water management ponds. Excludes green land areas such as parks or river valleys.
High Intensity Development[1] (Residential)	Urban	Urban related land uses including continuous ribbon development. Interpreted from aerial photographs or satellite imagery by many roof tops and/or groupings of 5 or more residential properties with a combined area of ≥ 2 ha. Residential properties include single and semi-detached dwellings, apartment buildings and associated out-buildings, driveways and parking lots. Excludes green land areas such as parks or river valleys.
Quarry	Active Aggregate	Areas that are currently being excavated or have recently been excavated. Identified by pits, extraction machinery, unvegetated landscape and/or piles of extracted materials. Active aggregate areas may contain open water.
	Inactive Aggregate	Former aggregate sites that have been recently revegetated; vegetation is established and growing. Depending on their characteristics, in aerial photographs or satellite imagery, these properties may appear to be comparable to an abandoned field or forming wetland.
Road	Road	Unpaved roads, including the shoulder. Does not include driveways.

Berger (2010) Land Use	Included Ecological Land Classifications (ELC(s))	Land Use Description
Transitional	Open Alvar	Cover varies from patchy shrub and tree cover to continuous meadow. Tree cover is ≤ 25%; shrub cover is ≤ 25%. Typically restricted to bare rock and patchy, shallow substrates.
	Cultural Meadow	Tree cover is ≤ 25% and shrub cover is ≤ 25%. The plant community is a result of, or maintained by, anthropogenic disturbances or culture.
	Cultural Thicket	Tree cover is ≤ 25% and shrub cover is > 25%. The plant community is a result of, or maintained by, anthropogenic disturbances or culture.
	Open Tallgrass Prairie	The ground layer of plants is dominated by prairie graminoids (grasses and grass-like plants, including sedges) such as Big and Little Bluestem, as well as Indian Grass. Tree cover is ≤ 25% and shrub cover is ≤ 25%. Soils are well drained with prolonged summer drought and frequent disturbance by fire.
Forest[2]	Cultural Plantation, Coniferous	Tree cover is > 60% of the area, with coniferous trees > 75% of the canopy area. The plant community is a result of, or maintained by, anthropogenic disturbances or culture.
	Cultural Woodland	Tree cover is between 35% and 60% of the area. There is often a large proportion of non-native plant species, and the plant community is a result of, or maintained by, anthropogenic disturbances or culture.
	Coniferous Forest	Tree cover is > 60% of the area, with coniferous trees > 75% of the canopy area.
	Cultural Plantation, Deciduous	Tree cover is greater than 60% of the area, with deciduous trees greater than 75% of the canopy area. The plant community is a result of, or maintained by, anthropogenic disturbances or culture.
	Deciduous Forest	Tree cover is > 60% of the area, with deciduous trees > 75% of the canopy area.
	Cultural Plantation	Tree cover > 60% of the area, with coniferous trees > 25% of the canopy area and deciduous trees > 25% of the canopy area. The plant community is a result of, or maintained by, anthropogenic disturbances or culture.
	Mixed Forest	Tree cover is > 60% of the area, with coniferous trees > 25% of the canopy area and deciduous trees > 25% of the canopy area.
Wetland[2]	Shrub Bog	Continuous *Sphagnum* spp. moss cover. Trees > 2 m tall cover ≤ 10% of the area and shrubs cover > 25% of the area. Land is rarely flooded but always saturated with water. Organic substrate > 40 cm deep consisting of *Sphagnum* peat.
	Treed Bog	Continuous *Sphagnum* spp. moss cover. Trees > 2 m tall cover 10% to 25% of the area. Land is rarely flooded but always saturated with water. Organic substrate > 40 cm deep consisting of *Sphagnum* peat.
	Open Fen	Sedges, grasses and low shrubs (< 2 m high) dominate; trees > 2 m high cover ≤ 10% of the area and shrubs cover ≤ 25% of the area. Land is rarely flooded but always saturated with water. Organic substrate > 40 cm deep consisting of moss or sedged peat.
	Shrub Fen	Sedges, grasses and low shrubs (< 2 m high) dominate; trees > 2 m high cover ≤ 10% of the area and shrubs cover > 25% of the area. Land is rarely flooded but always saturated with water. Organic substrate > 40 cm deep consisting of moss or sedged peat.
	Treed Fen	Sedges, grasses and low shrubs (< 2 m high) dominate; trees > 2 m high cover 10% to 25% of the area. Land is rarely flooded but always saturated with water with organic substrate and > 40 cm deep moss or sedged peat.

Berger (2010) Land Use	Included Ecological Land Classifications (ELC(s))	Land Use Description
	Meadow Marsh	Dominated by emergent hydrophytic aquatic plants (grow wholly or partially in water); tree and shrub cover ≤25%. Variable flooding regimes and water depth 2m.
	Shallow Marsh	Emergent hydrophytic aquatic plant cover ≥ 25%, tree and shrub cover ≤ 25% of the area. Water up to 2 m deep; standing or flowing water for much or all of the growing season.
Wetland[3]	Floating-Leaved Shallow Aquatic	Floating leaved aquatic vegetation covers > 25% of the area; no tree or shrub cover. Water up to 2 m deep; standing water is always present.
	Mixed Shallow Aquatic	A mixture of submerged and floating leaved aquatic vegetation covers > 25% of the area; no tree or shrub cover. Water up to 2 m deep; standing water is always present.
	Submerged Shallow Aquatic	Submerged aquatic vegetation covers > 25% of the area; no tree or shrub cover. Water up to 2 m deep; standing water is always present.
	Coniferous Swamp	Tree cover is > 25% of the area with trees > 5 m tall, and coniferous trees > 75% of the canopy area. Water depth is < 2 m with variable flooding regimes; standing water or spring (vernal) pooling covers > 20% of the ground.
	Deciduous Swamp	Tree cover is > 25% of the area with trees > 5 m tall, and deciduous trees > 75% of the canopy area. Water depth is < 2 m with variable flooding regimes; standing water or spring (vernal) pooling covers > 20% of the ground.
	Mixed Swamp	Tree cover is > 25% of the area with trees > 5 m tall; coniferous trees > 25% of the canopy area and deciduous trees > 25% of the canopy area. Water depth is < 2 m with variable flooding regimes; standing water or spring (vernal) pooling covers > 20% of the ground.
	Thicket Swamp	Tree or shrub cover > 25%, dominated by hydrophytic shrub and tree species (grow wholly or partially in water); tree cover ≤ 25%, hydrophytic shrub cover > 25%. Water depth is < 2 m with variable flooding regimes; standing water or spring (vernal) pooling covers > 20% of the ground.
Open Water[4]		Lakes, rivers and ponds including stormwater management ponds.

Notes: [1]High Intensity Development areas were further separated for the Tool into commercial/industrial and residential classes because the percentage of impervious area is typically much higher in commercial/industrial areas than in residential areas resulting in a greater amount of storm water runoff, [2]includes CANWET classes of Coniferous Woodland, Deciduous Woodland and Mixed Woodland, [3]includes CANWET classes of Emergent Wetland and Woody Wetland. [4]Not included in the Berger (2010) land classes but added for the purposes of the Tool recognizing that some development areas may have open water areas that should be included in calculations of phosphorus export.

Table 2. Land-Use Specific Phosphorus Export Coefficients (kg/ha/yr) for Lake Simcoe Subwatersheds

Subwatershed	Phosphorus Export (kg/ha/yr)											
				High Intensity Development								
	Cropland	Hay-Pasture	Sod Farm/Golf Course	Commercial /Industrial	Residential	Low Intensity Development	Quarry	Unpaved Road	Forest	Transition	Wetland	Open Water
Monitored Subwatersheds												
Beaver River	0.22	0.04	0.01	1.82	1.32	0.19	0.06	0.83	0.02	0.04	0.02	0.26
Black River	0.23	0.08	0.02	1.82	1.32	0.17	0.15	0.83	0.05	0.06	0.04	0.26
East Holland River	0.36	0.12	0.24	1.82	1.32	0.13	0.08	0.83	0.10	0.16	0.10	0.26
Hawkestone Creek	0.19	0.10	0.06	1.82	1.32	0.09	0.10	0.83	0.03	0.04	0.03	0.26
Lovers Creek	0.16	0.07	0.17	1.82	1.32	0.07	0.06	0.83	0.06	0.06	0.05	0.26
Pefferlaw/Uxbridge Brook	0.11	0.06	0.02	1.82	1.32	0.13	0.04	0.83	0.03	0.04	0.04	0.26
Whites Creek	0.23	0.10	0.42	1.82	1.32	0.15	0.08	0.83	0.10	0.11	0.09	0.26
Unmonitored Subwatersheds												
Barrie Creeks	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
GeorginaCreeks	0.36	0.12	0.24	1.82	1.32	0.13	0.08	0.83	0.10	0.16	0.10	0.26
Hewitts Creek	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
Innisfil Creeks	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
Maskinonge River	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
Oro Creeks North	0.36	0.12	0.24	1.82	1.32	0.13	0.08	0.83	0.10	0.16	0.10	0.26
Oro Creeks South	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
Ramara Creeks	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
Talbot/Upper Talbot River	0.19	0.07	0.12	1.82	1.32	0.13	0.08	0.83	0.05	0.06	0.05	0.26
West Holland River	0.36	0.12	0.24	1.82	1.32	0.13	0.08	0.83	0.10	0.16	0.10	0.26

Table 3. Phosphorus Removal Efficiencies for Major Classes of BMPs Using the Decision Tree (Figure 5).

BMP Class	Reference IDs[1]	Reported Phosphorus Removal Efficiency (%)		Relevant to Ontario?	Range <40%?	Are Non-Ontario values acceptable?	Possible design criteria?	Median % Removal Efficiency
		Min	Max					
Post-development BMPs								
Bioretention Systems	8-10, 12,13, 34-38, 40	-1552	80	no	no	no	No	none
Constructed Wetlands	104, 106, 109	72	87	yes	yes			77
Dry Detention Ponds	104, 109	0	20	no	yes	yes		10
Dry Swales	24, 26-32	-216	94	no	no	no	possible	none
Enhanced Grass/Water Quality Swales	21, 104	34	55	no	yes	no	No	none
Flow Balancing Systems	106	77		no	?	yes	Min data	77
Green Roofs	2	-248		no	no	no	No	none
Hydrodynamic Devices	109	-8		no	?	yes		none
Perforated Pipe Infiltration/Exfiltration Systems	7, 4	81	93	yes	yes			87
Sand or Media Filters	104, 109	30	59	no	yes	yes		45
Soakaways - Infiltration Trenches	6, 104	50	70	no	yes	yes		60
Sorbtive Media Interceptors	111	78	80	no	yes	yes		79
Underground Storage	106	25		no	?	yes	Min data	25
Vegetated Filter Strips/Stream Buffers	6, 42, 104	60	70	no	yes	yes	Yes	65
Wet Detention Ponds	104-106, 109	42	85	yes	yes			63

Notes: [1]References associated with IDs are provided in Appendix 7.

Module 4 – Examines the potential for erosion and sediment loss during the construction phase on the basis of the Universal Soil Loss Equation and provides guidance to the user on appropriate BMPs that can be implemented during this phase to minimize sediment loss and resultant phosphorus export. The module calculates loads for the entire construction phase, but pro-rates this one-time load to annual loads to account for the eight-year hydraulic residence time in Lake Simcoe. The quantification of expected soil and phosphorus loss from a construction site is an uncertain process, even under ideal conditions. Determining expected loss reductions from the use of various on-site BMPs adds to the uncertainty. Even with

TECHNICAL BULLETIN // **UP-FLO™ FILTER**

FIELD EVALUATION OF PHOSPHORUS REMOVAL

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FIELD EVALUATION OF PHOSPHORUS REMOVAL

INTRODUCTION

Historically, the main pollutant of concern in stormwater runoff has been total suspended solids (TSS). However, there has been an increasing awareness of the environmental degradation caused by the array of secondary constituents found in stormwater runoff, such as nutrients, metals and organics. The issue of how to control secondary constituents has become a focus within the field of stormwater management. A study by leading stormwater researchers (Morquecho, et al., 2005[1]) showed a strong association between the removal of very fine Total Suspended Solids (TSS) with the removal of a broad range of secondary constituents. These findings were recently confirmed in an Up-Flo™ Filter study conducted by Dr. Robert Pitt's research team at the University of Alabama. The study concluded that the Up Flo™ Filter removed over 80% of TSS including the very fine material. It was also shown that the Up-Flo™ Filter removed 72% of Total Phosphorus by virtue of the association of phosphorus with very fine particle sizes in conformance with the earlier study by Morquecho, *et al.*

ASSOCIATION OF STORMWATER POLLUTANTS WITH DIFFERENT SIZE PARTICULATES

The study by Morquecho et al. (2005) assessed particulate matter found in stormwater runoff for its concentrations of various secondary constituents and found a strong correlation between particulate particle size and secondary constituent concentrations. The very fine particulate fractions were found to have the highest concentrations of particulate and particle-bound phosphorus. The report concluded that a reduction of fine particulate matter will lead to a reduction of Total Phosphorus. Specifically, the study showed that 71% of Phosphate and 68% of Total Phosphorus would be removed if all particles greater than 20 µm in diameter were removed. When considering the removal of all particulates down to 5 µm, removals of 78% of Phosphate and 82% of Total Phosphorus were observed.

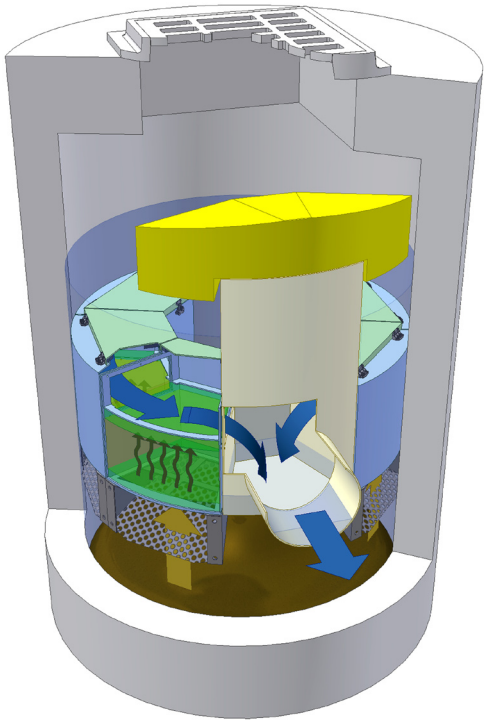

Figure 1: Up-Flo™ Filter Stormwater Treatment System

FIELD EVALUTATION OF THE UP-FLO™ FILTER

An Up-Flo™ Filter unit with CPZ Mix™ Media was installed in a catch basin at the Tuscaloosa City Hall parking lot in Tuscaloosa, Alabama in February 2005. The unit was monitored for Total Suspended Solids (TSS) removal efficiency over a 10-month period from March – November 2005. Sampling at the test site was conducted using two ISCO 6712 automatic samplers, one located in the inlet chamber of the Up-Flo™ Filter and the other located in the outlet pipe of the treatment unit. Two ISCO 4250 area-velocity meters were used to calculate flow rate in the inlet chamber and in the effluent pipe. The rainfall intensity and amount was measured using a standard tipping bucket rain gauge. YSI 6600 water quality sondes were used to measure the real time water quality data (temperature, dissolved oxygen, pH, ORP,

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turbidity, conductivity, and water depth) of the influent and the effluent flows at 1-minute intervals during storm flows and at 5-minute intervals during inter-event periods.

A total of 31 rain events were sampled. The samples were divided using a Dekaport/USGS cone splitter and analyzed for Total Suspended Solids concentration using EPA Method 160.3 (SM 2540 D) and particle size distribution using a Coulter Counter/Multi Sizer III. The average influent TSS concentration for all samples taken by the ISCO 6712 automatic sampler was 64.7 mg/L, with a mean particle size of 30 µm. The average effluent TSS concentration for all samples taken by the automatic sampler was 19 mg/L with a mean particle size of 25 µm.

At the conclusion of the monitoring period, all the material captured in the sump was removed and analyzed. Contrary to the average particle size of particulate matter observed in the influent samples taken by the automatic sampler, the sump material contained a large amount of coarser particles. A particle size distribution analysis conducted on the sump material confirmed that the bulk of the material in the sump was coarse (in the 250 – 2000 µm range), as the finer materials were captured and stored within the filtration media. A summary of the particle size analysis of the sump material is shown in **Table 1**.

Particle Size Range (µm)	Particulate in Range	
	(kg)	(% Mass)
< 75	1.1	2.0
75 – 150	1.6	3.0
150 – 250	3.6	6.7
250 – 425	11.5	21.4
425 – 850	17.1	31.8
850 – 2000	10.5	19.6
2000 – 4750	4.8	8.9
>4750	3.5	6.5
Sum	53.7	100

Table 1: Particle size analysis of material captured in the Up-Flo™ Filter sump over the duration of the monitoring period

Figure 2 compares the TSS gradation of the sump material with the TSS gradations observed in the influent samples taken by the automatic samplers. As it is shown, the influent sampler data did not reflect the amount of coarse material captured in the sump.

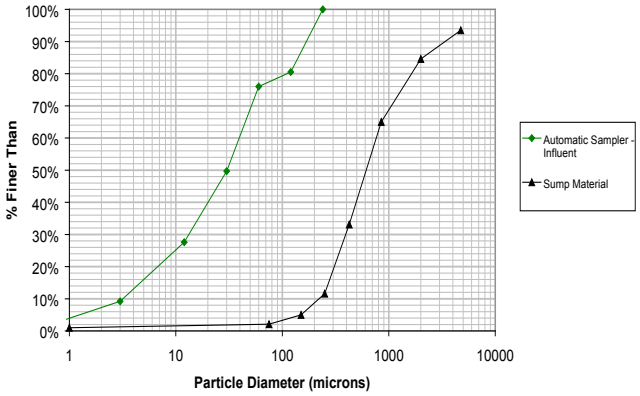

Figure 2: Average particle size distributions of all influent and effluent samples taken with the ISCO 6712 automatic samplers as compared to the particle size distribution of material captured within the sump

The total runoff volume treated by the Up-Flo™ Filter for the 10-month monitoring period was 1,570,000 liters (55,500 ft^3). The average influent and effluent TSS concentrations for all samples were determined to be 64.7 mg/L and 19.2 mg/L, respectively. To determine the total mass of material for the 0.45 – 3 µm, 3-12 µm, 12-30 µm, 30-60 µm, 60-120 µm and 120-240 µm particle size ranges, the average TSS concentrations in the range for the ISCO 6712 influent samples were used. For example, the total mass of material in the influent for the 0.45 - 3 µm range was determined using the following equation:

$$m_{\text{influent: 0.45 - 3 µm}} = 5.9 \text{ mg/L} \times 1.57\text{E}6 \text{ L} \times 1\text{kg}/1\text{E}6 \text{ mg}$$

$$= 9.3 \text{ kg}_{\text{0.45 - 3 µm material}}$$

$$m_{\text{influent: 0.45 - 3 µm}} = 9.3 \text{ kg}_{\text{0.45 - 3 µm material}}$$

Table 2 summarizes the mass of particulate material in the influent and effluent based on the samples collected by the automatic samplers.

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Particle Size Range (µm)	Influent		Effluent	
	Avg Concentration of Automatic Sampler Samples (mg/L)	Total Mass in Range over Duration of Monitoring Period (kg)	Avg Concentration of Automatic Sampler Samples (mg/L)	Total Mass in Range over Duration Monitoring Period (kg)
0.45 – 3.0	5.9	9.3	1.8	2.8
3.0 – 12.0	11.9	18.7	4.1	6.4
12.0 – 30	14.3	22.4	4.9	7.7
30 – 60	17.0	26.7	4.3	6.8
60 – 120	2.9	4.6	1.1	1.8
120 – 240	12.6	19.7	2.7	4.3
> 240	0.0	0.0	0.0	0.0
Sum	**64.7**	**101.5**	**19.2**	**29.9**

Table 2:Total mass of particulate material in influent based on average TSS concentrations from automatic samplers for <240-micron particle size ranges

A composite gradation of all influent particulate material is shown in **Table 3**. Table 3 combines the 0 – 240 µm particle size ranges from Table 2 and the 250 – 4750 µm particle size ranges from Table 1. The influent automatic samplers picked up no material greater than 240 µm, yet there was a great deal of material greater than 250 µm in diameter captured within the sump. Thus, in estimating the total influent mass of coarser (>250 µm) particles for

Particle Size Range (µm)	Total Particulate Mass during Monitoring Period (kg)		% Reduction
	Influent	Effluent	
0.45 – 3.0	9.3	2.8	70
3.0 – 12.0	18.7	6.4	66
12.0 – 30	22.4	7.7	66
30 – 60	26.7	6.8	74
60 – 120	4.6	1.8	61
120 – 250	19.7	4.3	78
250 – 425	11.5	--*	100
425 – 850	17.1	--*	100
850 – 2000	10.5	--*	100
2000 – 4750	4.8	--*	100
>4750	3.5	--*	100
Sum	**149.1†**	**29.9**	**80**

Table 3: Mass balance calculation for net suspended solids removed during the monitoring period as reported by the University of Alabama research team

Based on the measured particle size distribution of particulate material in the effluent samplers shown in Figure 3, it is assumed that all material >250 µm is removed by the Up-Flo™ Filter system.

†Of the 149.1 kg total material removed by the Up-Flo™ Filter, Table 1 shows that 53.7 kg of coarse particulate material was removed by the sump. The remainder of the material was the fine fraction, which was removed by filtration within the filter media.

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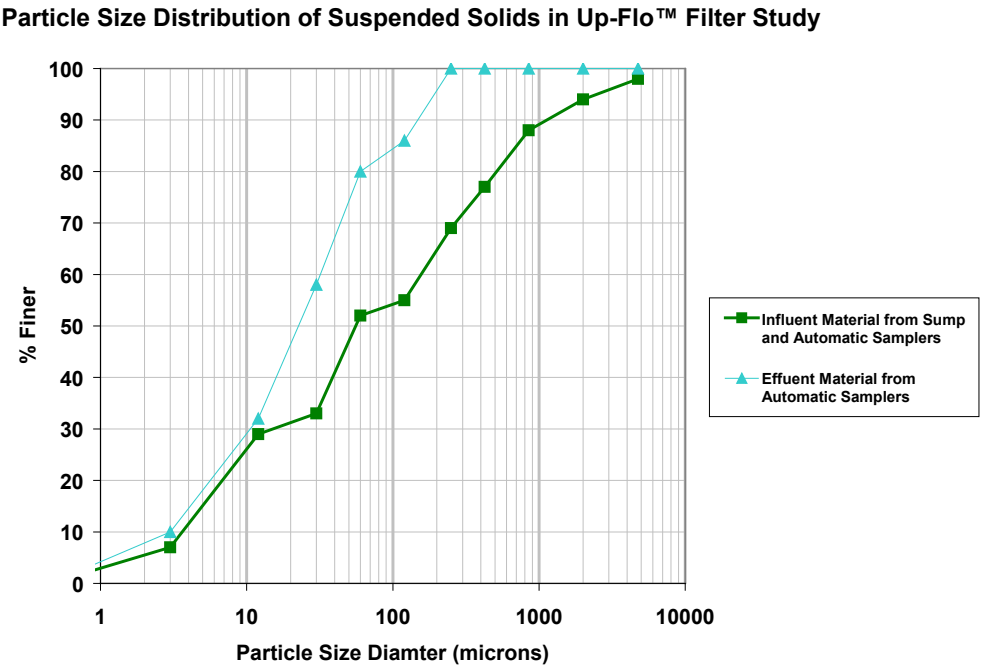

Figure 3: Particle size distributions of influent material considering all samples taken with ISCO 6712 automatic samplers and material captured in the sump

the monitoring period, only the mass of material from the sump collection was considered. The total mass of material for the 250 - 425 µm, 425 – 850 µm, 850 – 2000 µm, 2000 – 4750 µm and >4750 µm particle size ranges was taken directly from Table 1, above.

Based on the observed effluent particle size characterization shown in **Figure 3**, it is implicit that all particles greater than 250 µm in diameter are captured by the Up-Flo™ Filter. The particle size gradation for the composite influent material from Table 3 is shown graphically in Figure 3.

ANALYSIS FOR PHOSPHORUS CAPTURED BY THE UP-FLO™ FILTER

The sediment gradations from the sump analysis were then analyzed for their concentrations of phosphorus using EPA Method 365.2 (SM 4500-P B, 5 and P.E.). The sediment analysis indicated a strong correlation between the removal of very fine particulates and phosphorus removal. As shown in **Table 4**, the highest concentration of phosphorus is associated with the <75 µm particle size range.

Particle Size Range (µm)	Concentration of P (mg/kg)
< 75	3580
75 – 150	1620
150 – 250	511
250 – 425	315
425 – 850	496
850 – 2000	854
2000 – 4750	1400
>4750	1700

Table 4: Measured phosphorus concentrations associated with different gradations of particulate matter collected from the Up-Flo™ Filter sump as reported by the University of Alabama

TOTAL PHOSPHORUS REMOVAL WITH THE UP-FLO™ FILTER

The total mass of phosphorus in the influent and effluent was calculated by applying the phosphorus concentrations for each particle size range shown in Table 4 to the influent and effluent mass of total suspended solids for the influent and effluent given in Table 3 (refer to the example equation on the following page).

$$P_{influent\ 0.45 - 3\ \mu m} = 3580\ mg_P/kg_{Particulate\ Mass\text{-}Influent} \times 9.3\ kg_{Particulate\ Mass\text{-}Influent} \times 1\ gm_P/1000\ mg_P = 33.4\ gm$$

$$P_{Effluent\ 0.45 - 3\ \mu m} = 3580\ mg_P/kg_{Particulate\ Mass\text{-}Enfluent} \times 2.8\ kg_{Particulate\ Mass\text{-}Influent} \times 1\ gm_P/1000\ mg_P = 10.0\ gm$$

$$\%\ Reduction_{P\ 0.45 - 3\ \mu m} = [(33.4\ gm_{P\ influent\ 0.45 - 3\ \mu m} - 10.0\ gm_{P\ Effluent\ 0.45 - 3\ \mu m}) / 33.4\ gm_{P\ Influent\ 0.45 - 3\ \mu m}] \times 100 = 70\%$$

Based on the associations of phosphorus with the specified particle size gradations, the removal of Total Phosphorus for the 10-month monitoring period was determined to be 72%. The phosphorus removal evaluation by mass balance is shown in Table 5.

CONCLUSIONS

The results from Up-Flo™ Filter field study confirm earlier findings that certain secondary constituents, such as Total Phosphorus, can be reduced by reducing the overall concentration of particulate matter. Field monitoring results show that the Up-Flo™ Filter removed 80% of fine Total Suspended Solids from stormwater runoff over a 10-month monitoring program. Analysis of the sediment captured in the sump at the conclusion of the monitoring period showed that phosphorus is strongly associated with particulate in the <75 µm particle size range. The conservative mass balance evaluation shows with a high degree of confidence that the Up-Flo™ Filter removes 72% of Total Phosphorus from stormwater runoff. A full copy of the University of Alabama Field Verification Report for the Up-Flo™ Filter is available upon request.

Particle Size Range (µm)	P (mg/kg)	Influent		Effluent		P Captured in Sump (gm)	% Reduction
		Suspended Solids (kg)	$P_{influent}$ (gm)	Suspended Solids (kg)	$P_{effluent}$ (gm)		
0.45 – 3.0	3580	9.3	33.4	2.8	10.0	23.4	70
3.0 – 12.0	3580	18.7	66.9	6.4	22.9	44.0	66
12.0 – 30	3580	22.4	80.2	7.7	27.6	52.7	66
30 – 60	3580	26.7	95.6	6.8	24.3	71.1	74
60 – 120	1620	4.6	7.5	1.8	2.9	4.6	61
120 – 250	511	19.7	10.1	4.3	2.2	7.9	78
250 – 425	315	11.5	3.6	--	--	3.6	100
425 – 850	496	17.1	8.5	--	--	8.5	100
850 – 2000	854	10.5	9.0	--	--	9.0	100
2000 – 4750	1400	4.8	6.7	--	--	6.7	100
>4750	1700	3.5	6.0	--	--	6.0	100
Sum	**--**	**149.1**	**328.1**	**29.9**	**90.3**	**237.6**	**72**

Table 5: Mass balance calculation for net Phosphorus removed during the monitoring period as reported by the University of Alabama

1. Morquecho, R., R. Pitt, S. Clark. Pollutant Associations with Particulates in Stormwater. World Water & Environmental Resources Contress, ASCE/EWRI. Anchorage, Alaska. May 15 – 19, 2005. January 2005.

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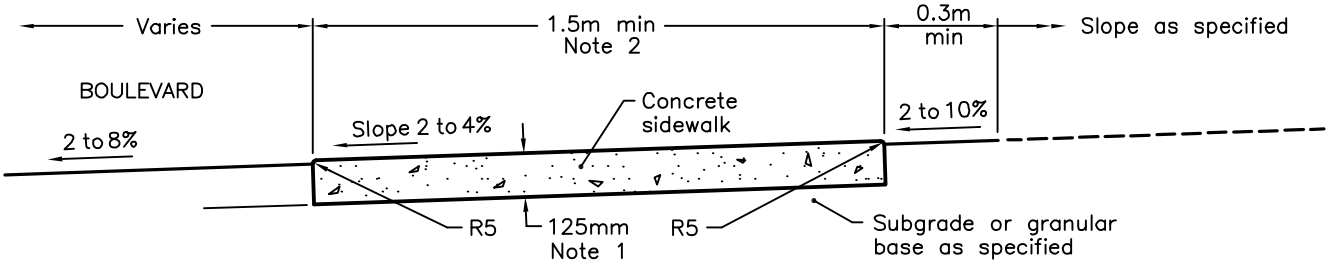
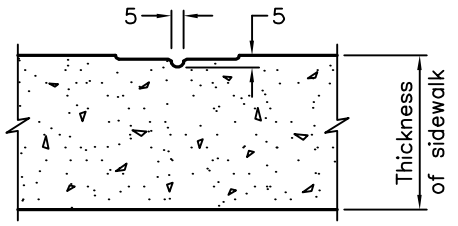
APPENDIX "I"

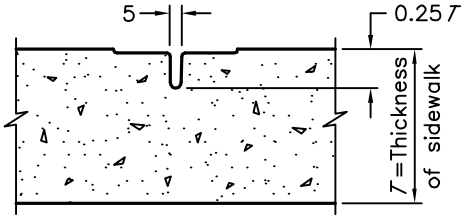
Road & Sidewalk Details



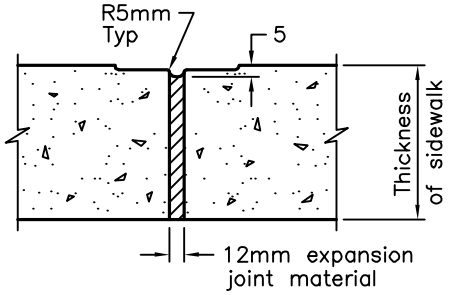
TYPICAL SECTION



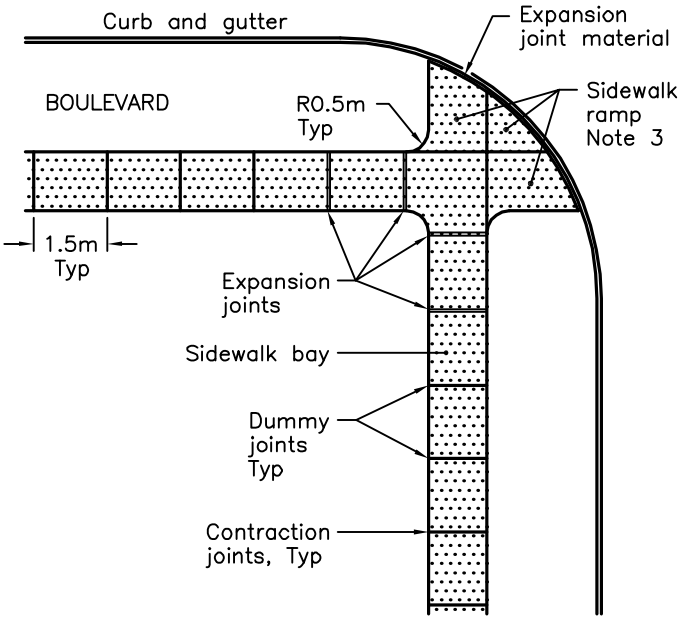
DUMMY JOINT (OPTIONAL)



CONTRACTION JOINT



EXPANSION JOINT



JOINT LAYOUT

NOTES:

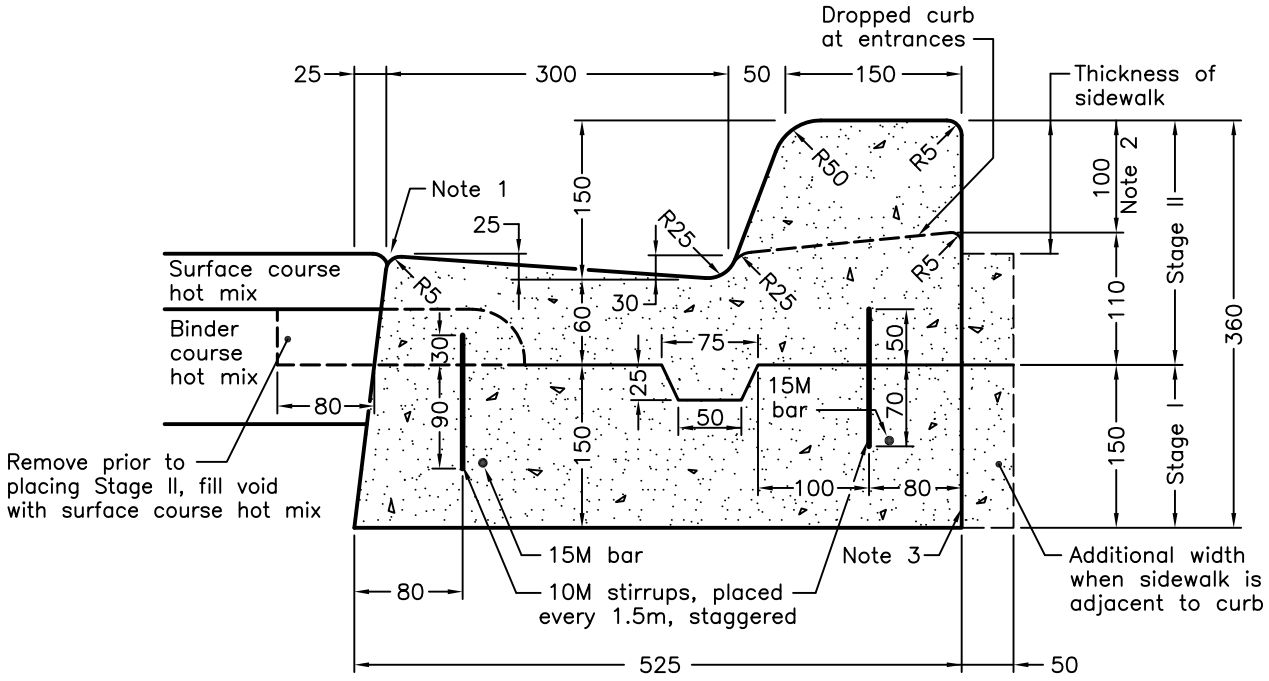
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.

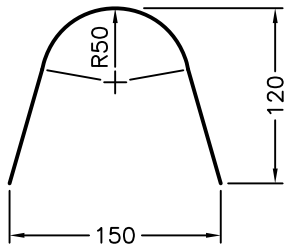
2 Sidewalk width shall be wider when specified.

3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.032, 310.033 and 310.039.

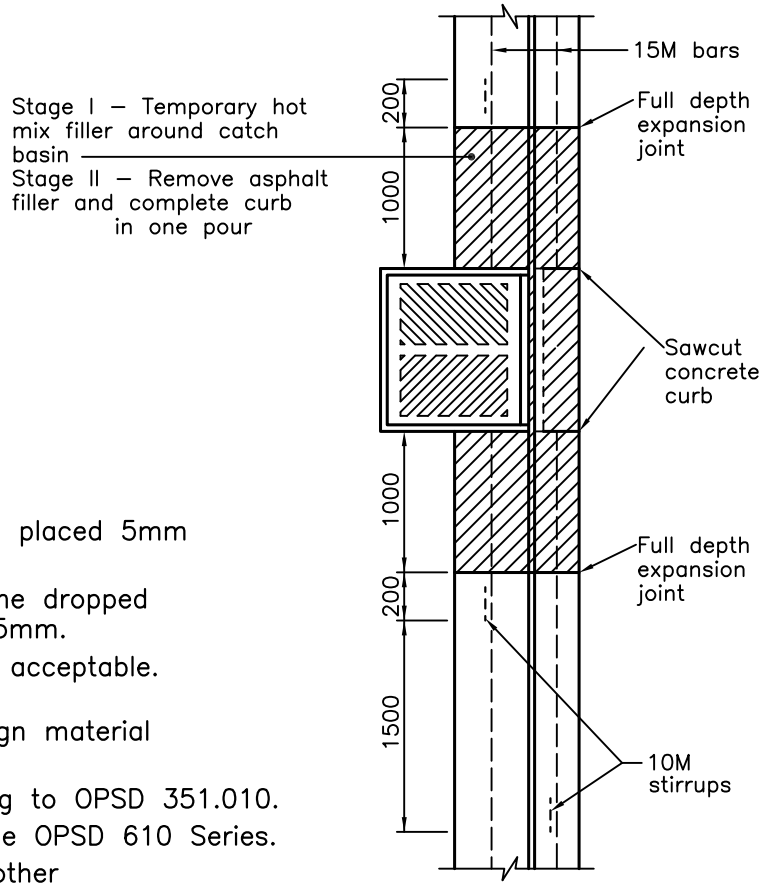
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
CONCRETE SIDEWALK			
	OPSD 310.010		





STIRRUP DETAIL



DETAIL AT CATCH BASIN

NOTES:

1 Flexible and composite pavement shall be placed 5mm above the adjacent edge of gutter.

2 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.

3 For slipforming procedure a 5% batter is acceptable.

A Stage I surface shall be cleaned of foreign material prior to placement of Stage II material.

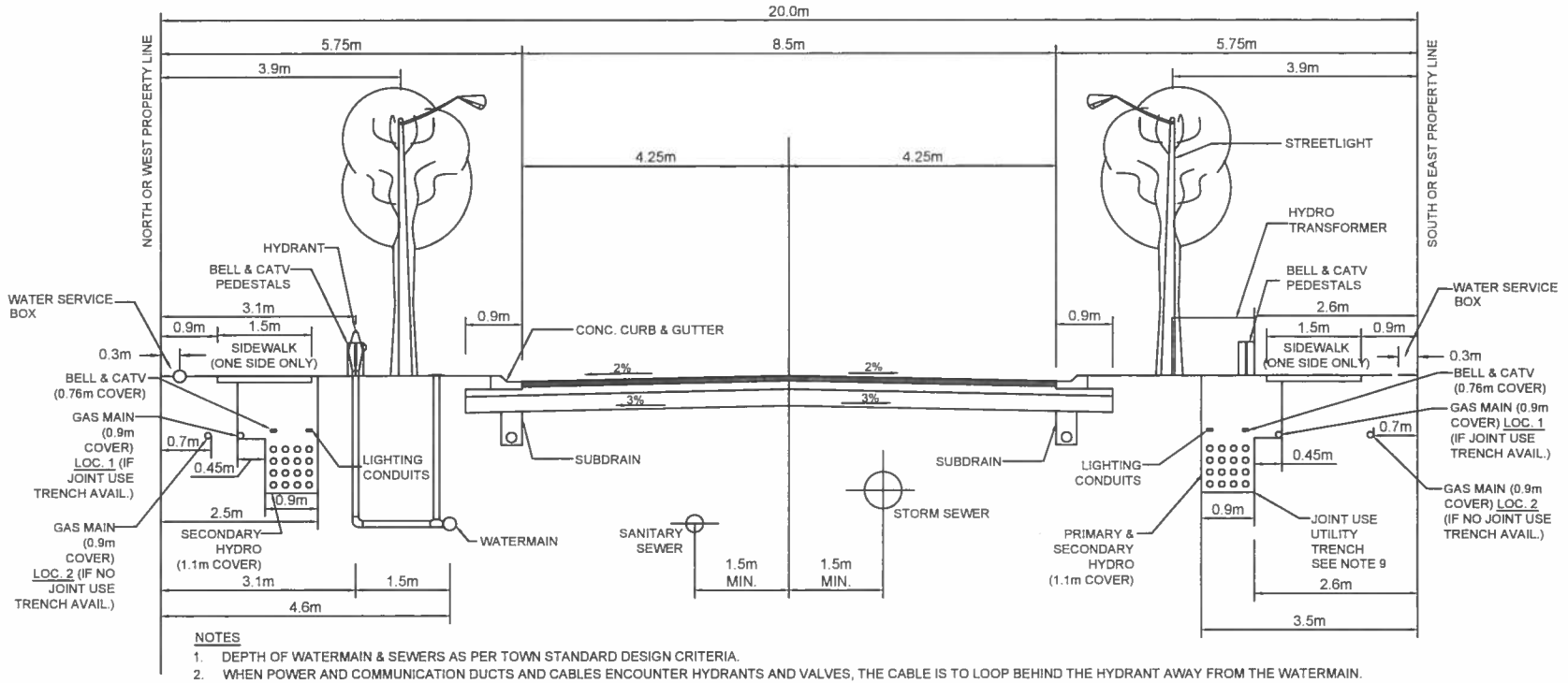
B Treatment at entrances shall be according to OPSD 351.010.

C Outlet treatment shall be according to the OPSD 610 Series.

D The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail, when it shall be according to the OPSD 900 Series.

E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev	2
CONCRETE BARRIER CURB WITH STANDARD GUTTER TWO STAGE CONSTRUCTION			
			OPSD – 600.070



NOTES

1. DEPTH OF WATERMAIN & SEWERS AS PER TOWN STANDARD DESIGN CRITERIA.
2. WHEN POWER AND COMMUNICATION DUCTS AND CABLES ENCOUNTER HYDRANTS AND VALVES, THE CABLE IS TO LOOP BEHIND THE HYDRANT AWAY FROM THE WATERMAIN.
3. PAVEMENT STRUCTURE TO BE INSTALLED IN ACCORDANCE WITH SECTION 2.2 PAVEMENT DESIGN. THE FOLLOWING IS A MINIMUM PAVEMENT STRUCTURE AND MAY BE GREATER IN ACCORDANCE WITH GEOTECHNICAL REPORT:
   - 40mm SURFACE COURSE ASPHALT.
   - 60mm BASE COURSE ASPHALT.
   - 150mm GRANULAR "A".
   - 400mm GRANULAR "B". *

   * TOWN DOES PERMIT THE USE OF TYPE I AND TYPE II MEETING OPSS.MUNI 1010.
4. THE BOULEVARDS REQUIRE A MINIMUM OF 300mm OF TOPSOIL & NURSERY SOD.
5. TREES TO BE PLACED IN LOCATIONS APPROVED BY THE TOWN.
6. LOCALIZED GRADING AROUND TRANSFORMER TO MAINTAIN A LEVEL TRANSFORMER PLATFORM
7. TELECOMMUNICATIONS PEDESTALS ARE TO BE LOCATED ON THE NON-OPENING SIDE OF A TRANSFORMER OR SWITCH GEAR.
8. ALL SIDEWALK IS TO BE CONSTRUCTED ON A PROPERLY COMPACTED FOUNDATION OF A MINIMUM OF150mm OF GRANULAR 'A'.
9. DESIGNER TO CONTACT TOWN BEFORE INITIATING DESIGN OF UTILITIES TO CONFIRM USE OF I.T. DUCTS WITHIN THE JOINT USE UTILITY TRENCH.

Innisfil

URBAN LOCAL ROAD
20.0m ROAD ALLOWANCE
8.5m PAVEMENT WIDTH

NO.	REVISIONS	APR'D	DATE
2.	REVISED NOTES	TOI	APRIL 2018
1.	REVISED NOTES AND WATER SERVICES	TOI	APRIL 2015

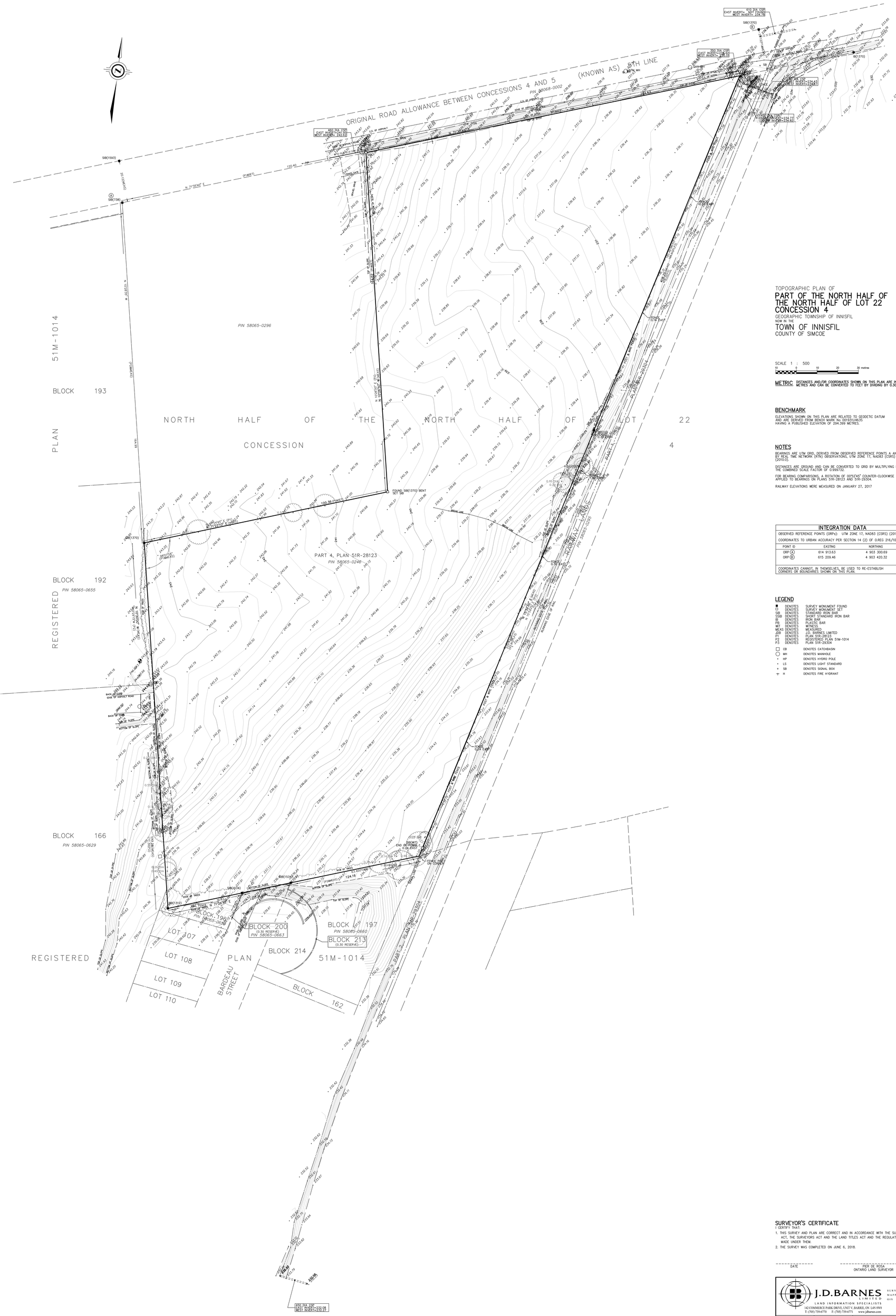
DRAWN: A&A | APR'D:
SCALE: N.T.S. | DATE: JUNE 2011

METRIC
ALL DIMENSIONS IN mm
UNLESS OTHERWISE NOTED

TOISD
201

APPENDIX "J"

Topographic Survey



TOPOGRAPHIC PLAN OF

PART OF THE NORTH HALF OF THE NORTH HALF OF LOT 22 CONCESSION 4

GEOGRAPHIC TOWNSHIP OF INNISFIL
NOW IN THE

TOWN OF INNISFIL

COUNTY OF SIMCOE

SCALE 1 : 500

10 0 10 20 30 metres

METRIC DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

BENCHMARK

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM BENCH MARK No 00193104635 HAVING A PUBLISHED ELEVATION OF 294.389 METRES.

NOTES

BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).

DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999732.

FOR BEARING COMPARISONS, A ROTATION OF 00°52'45" COUNTER-CLOCKWISE WAS APPLIED TO BEARINGS ON PLANS 51R-28123 AND 51R-29304.

RAILWAY ELEVATIONS WERE MEASURED ON JANUARY 27, 2017

INTEGRATION DATA

OBSERVED REFERENCE POINTS (ORPs): UTM ZONE 17, NAD83 (CSRS) (2010.0).

COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.REG 216/10.

POINT ID	EASTING	NORTHING
ORP Ⓐ	614 913.63	4 903 300.69
ORP Ⓑ	615 209.46	4 903 420.32

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

LEGEND

■	DENOTES	SURVEY MONUMENT FOUND
□	DENOTES	SURVEY MONUMENT SET
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
PB	DENOTES	PLASTIC BAR
WIT	DENOTES	WITNESS
MEAS	DENOTES	MEASURED
JDB	DENOTES	J.D. BARNES LIMITED
P1	DENOTES	PLAN 51R-28123
P2	DENOTES	REGISTERED PLAN 51M-1014
P3	DENOTES	PLAN 51R-29304
□	CB	DENOTES CATCHBASIN
○	MH	DENOTES MANHOLE
•	HP	DENOTES HYDRO POLE
•	LS	DENOTES LIGHT STANDARD
•	SB	DENOTES SIGNAL BOX
+	H	DENOTES FIRE HYDRANT

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON JUNE 6, 2018.

DATE

PIER DE ROSA
ONTARIO LAND SURVEYOR

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
142 COMMERCE PARK DRIVE, UNIT V, BARRIE, ON L4N 8W8
T: (705) 739-4779 F: (705) 739-4771 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
MIKE WALDOCK	PDR	15-11-474-00

FILE: G:\15-11-474\GIS\DRAWINGS\15-11-474-points.dgn DATED: 06/07/2018

PLOTTED: 6/7/2018