Stormwater Management Report

Nickerson Woods

D'Arcy Street, Parts of Blocks A & B Plan 27 Parts 5-8 Plan 39R-8760 Cobourg, ON

D.M. Wills Project Number 10-10122



D.M. Wills Associates Limited Partners in Engineering Peterborough

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Prepared for: Leblanc Enterprises



Summary of Revisions

Revision No.	Revision Title	Date of Release	Summary of Revisions
1	Stormwater Management Report	July 2019	1 st Submission to Town of Cobourg
2	Stormwater Management Report	January 2020	2 nd Submission to Town of Cobourg
3	Stormwater Management Report	June 2020	3 rd Submission to Town of Cobourg

This report has been formatted considering the requirements of the Accessibility for Ontarians with Disabilities Act.



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1.0 Purpose

D.M. Wills Associates Limited (Wills) has been retained by Leblanc Enterprises to prepare a detailed Stormwater Management Report for the development of D'Arcy Street, Parts of Blocks A & B Plan 27 Parts 5-8 Plan 39R-8760 in the Town of Cobourg.

The purpose of this report is to evaluate the existing drainage characteristics of the site and to advance an integrated plan for stormwater management that will permit the development to proceed with no adverse impacts to the receiving drainage system. This report has been prepared to address the requirements of the Town of Cobourg as well as Ganaraska Conservation (GRCA).

2.0 Site Description

The location of the site is shown on **Figure 1** and is legally described as, Parts 5, 6, 7 & 8 Plan 39R-8760, Part of Blocks A & B, Registered Plan 27, Town of Cobourg, County of Northumberland. The surrounding properties include residential lands to the east and south, forested lands to the west and north.

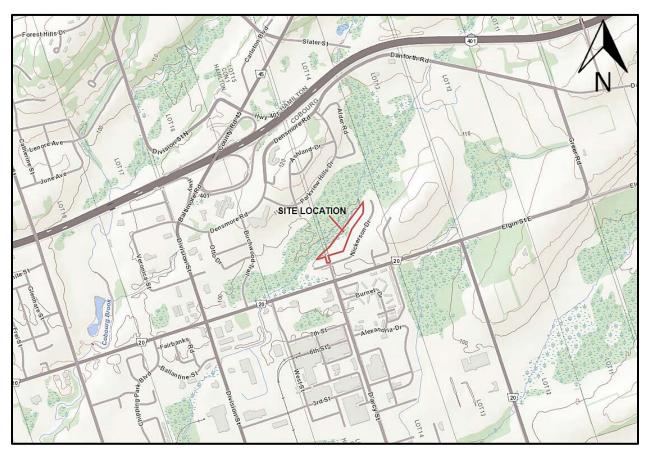
The existing site is comprised of grass and wooded areas and gradually slopes east to west. During storm events, runoff will drain as sheet flow and ultimately outlet into Midtown Creek. The proposed development is to include the construction of a new Plan of Condominium which will comprise of impervious areas such as building, paved roadway and paved parking areas. This development will also include impervious areas such as parkland, manicured grass and landscaping features.

The original topographic survey of the site was completed by IBW Surveyors in 2013 and supplementary data was collected by Wills in 2018 and 2019. This data was used to determine elevations and locations of existing site features, determine on-site drainage patterns and establish the proposed grades.

A Subsurface Investigation Report was prepared by Geo-logic on May 25, 2015. The report presents the findings of groundwater observations and sols conditions within three (3) test pits across the site. A copy of the Subsurface Investigation Report can be found in **Appendix F**.







3.0 Methodology

The present hierarchy of watershed planning in Ontario can be described by the following in descending order: Watershed Plans, Sub-watershed Plans and Individual Stormwater Management Plans. The subject site is located within the Midtown Creek Sub-Watershed boundary that has established the Flood Control Criteria to be used for developments within sub-watershed. Furthermore, a preliminary stormwater management report was prepared by Greenland Engineering in November 2017 to support the Draft Plan of Condominium phase of this development. As such, this stormwater management report has been prepared considering the design criteria and recommendations established in these previous studies.

3.1 Site Specific Stormwater Design Criteria

Based on the requirements of the Town of Cobourg, Ganaraska Conservation, the Midtown Creek Flood Control Criteria and the Greenland Engineering Preliminary Stormwater Management Report, the following design criteria have been established for the site:



- Provide stormwater quantity controls to reduce the post-development peak flow rates directed to Midtown Creek to 50% of the pre-development peak flow rate, during a 2-year storm event.
- Provide stormwater quantity controls to reduce the post-development peak flow rates directed to Midtown Creek to 70% of the pre-development peak flow rates, during the 5 to 100-year storm events.
- Provide stormwater quality controls to achieve Ministry of the Environment "Enhanced" (Level 1) protection.
- Provide Low Impact Development features to maintain pre-development runoff volumes on an average annual basis.
- Ensure adequate conveyance of external drainage directed onto the property.

3.2 Catchment Characterization

The existing condition of the site has been analyzed as one (1) internal catchment and four (4) external catchments that drain onto the subject property. The predevelopment catchment boundaries are shown on **Figure 2** and described in detail below.

- Catchment **EX-100** represents the internal boundary of the site and is comprised of wooded and grassed areas. The catchment slopes from east to west draining as sheet flow to Midtown Creek (**OUT-1**).
- Catchments **EXT-201**, **EXT-202**, **EXT-203** and **EXT-204** represent the external catchments that drain onto the site. Each catchment includes rear yard drainage from the adjacent subdivision and is comprised of impervious and grassed areas. Runoff is conveyed as sheet flow onto the site and eventually discharges to Midtown Creek (**OUT-1**).

The proposed condition has been analyzed as five (5) internal catchments and four (4) external catchments as shown on **Figure 3** and are described in detail below:

- Catchment PR-101 represents the southwestern portion of the development and is comprised of buildings, roadway and landscaped areas. Runoff will be directed through an internal sewer to a stormwater facility along the northwestern site boundary (Chamber System 2) and outlet to Midtown Creek (OUT-1).
- Catchment PR-102 represents the southeastern portion of the development and is comprised of buildings, roadway and landscaped areas. Runoff will be directed to an underground storage facility (Chamber System 1) located in the park block. Outflows from Chamber System 1 will then drain through an internal sewer to Chamber System 2 before discharging to Midtown Creek (OUT-1).
- Catchment **PR-103** represents the rear yards along the northwest property boundary and is comprised of buildings and landscaped areas. Runoff is conveyed by a rear yard swale to Chamber System 2, before discharging to Midtown Creek (**OUT-2**).



- Catchment **PR-104** represents the southwest corner of the development as well as the portion of the rear yards along the northwest property boundary that will drain uncontrolled. The catchment is comprised of buildings and landscaped areas and will drain as sheet flow to Midtown Creek (**OUT-1**)
- Catchment **PR-300** represents a small portion of roadway that will direct runoff south to an existing storm sewer on D'Arcy Street (**OUT-2**).
- Catchment **EXT-201** will be unchanged from the existing condition. Runoff will be conveyed as sheet flow to catchment PR-101.
- Catchment **EXT-202** will be unchanged from the existing condition. Runoff will be conveyed as sheet flow to catchment PR-102.
- Catchment **EXT-203** will be unchanged from the existing condition. Runoff will be conveyed as sheet flow to catchment PR-103.
- Catchment **EXT-204** will be unchanged from the existing condition. Runoff will be conveyed as sheet flow to catchment PR-104.

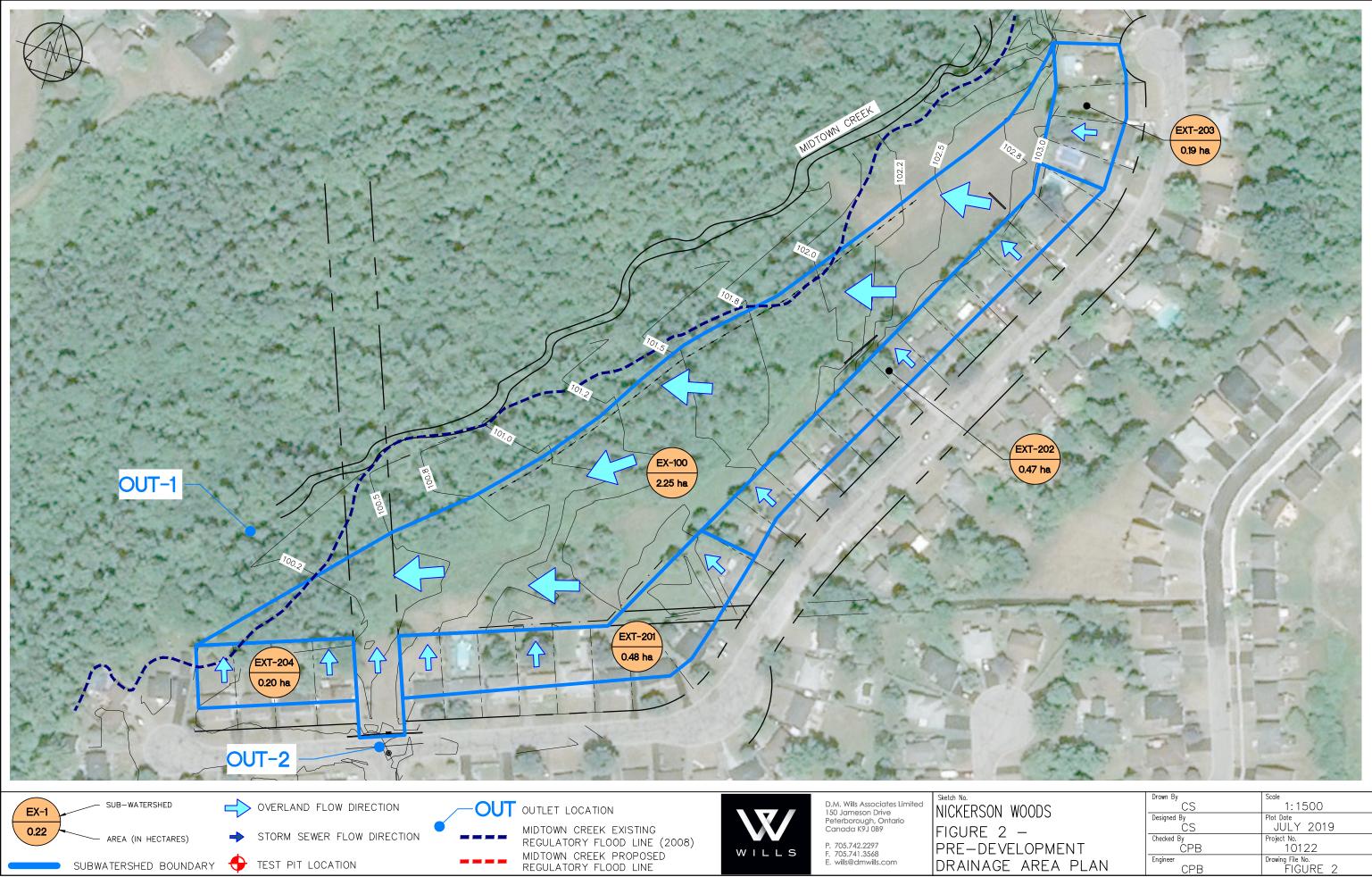
The existing and proposed runoff characteristics were analyzed using individual subcatchments. Hydrologic parameters such as soil infiltration properties, land use and runoff response were determined based on literature review. Topographic mapping and AutoCAD Civil 3D software were used to establish sub-watershed areas, land use and slope. On-site soils were assessed as Tecumseth Sandy Loam with a Hydrologic Soil Group of AB. The hydrologic parameters for each catchment have been summarized in **Figure 3** and documented in **Appendix A**.

Catchment ID	Command Line ¹	Area (ha)	Impervious %	CN*2	la ³	Tp⁴ (hrs)
EX-100	NasHyd	2.26	0	46.4	6.7	0.64
PR-101	StandHyd	0.70	40	47.8	5.0	-
PR-102	StandHyd	0.71	27	47.8	5.0	-
PR-103	StandHyd	0.44	30	47.8	5.0	-
PR-104	StandHyd	0.34	29	47.8	5.0	-
EXT-201	StandHyd	0.47	30	47.8	5.0	-
EXT-202	StandHyd	0.47	30	47.8	5.0	-
EXT-203	StandHyd	0.19	30	47.8	5.0	-
EXT-204	StandHyd	0.20	30	47.8	5.0	-

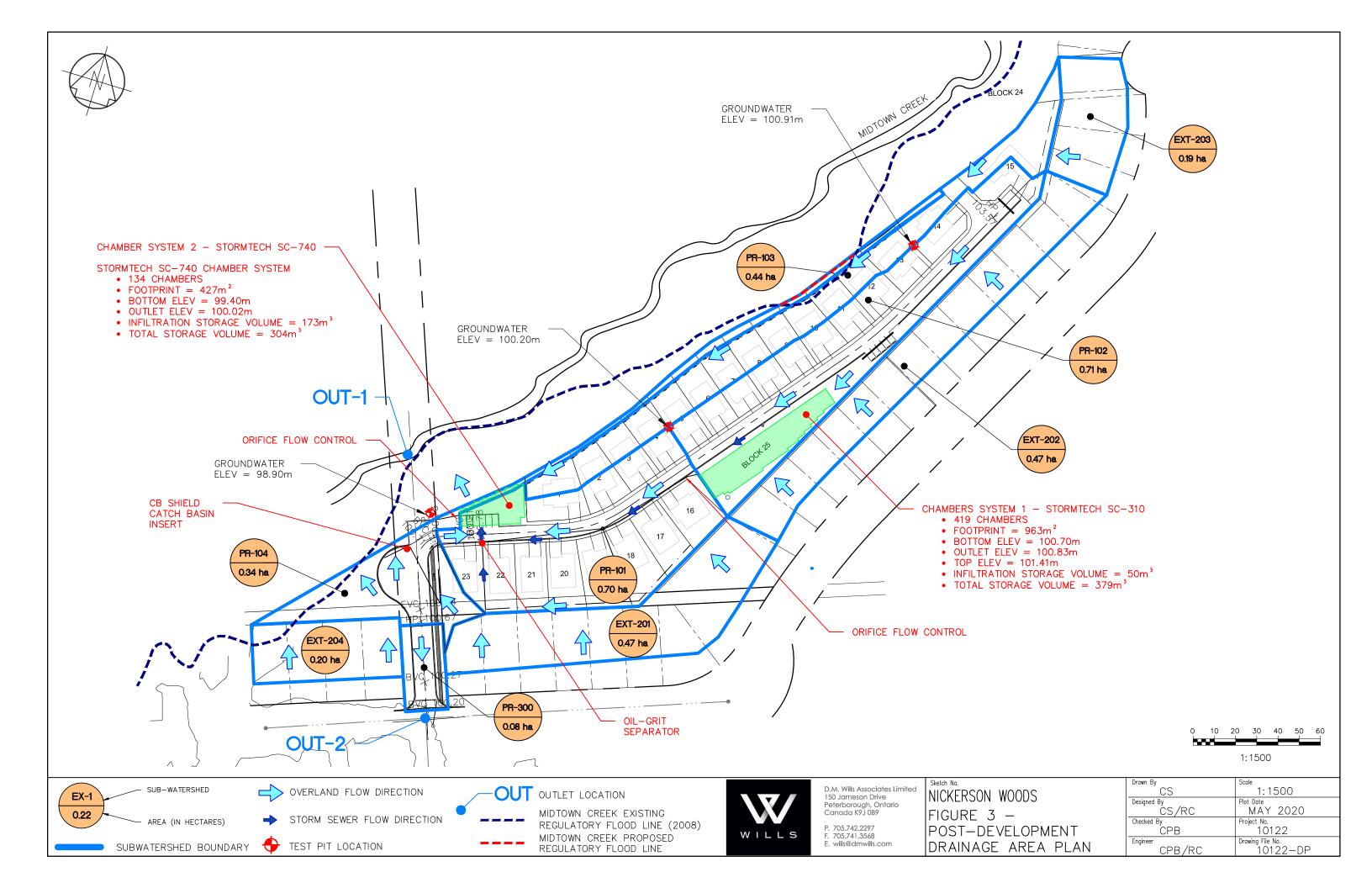
 Table 1 – Existing and Proposed Hydrologic Parameters

Notes: 1. Command Line refers to the unit hydrograph used in the VO3 hydrologic model for the respective catchment area.

- 2. CN* refers to the modified CN number adjusted to Antecedent Moisture Conditions II. Excludes Impervious Area for Standhyd.
- 3. la refers to Initial Abstraction. Excludes Impervious Area for Standhyd.
- 4. Tp refers to Time of Peak.



	Drawn By	Scale
OODS	CS	1:1500
0005	Designed By	Plot Date
_	CS	JULY 2019
	Checked By	Project No.
_OPMENT	<u>CPB</u>	10122
	Engineer	Drawing File No.
AREA PLAN	CPB	FIGURE 2





4.0 Stormwater Management

4.1 Stormwater Quantity Control

The development of the existing site will result in increased peak flow rates and runoff volumes of stormwater leaving the site. In order to ensure that the receiving drainage system will not be adversely affected, stormwater management facilities are typically required to reduce post-development peak flows to existing (or lower) levels.

4.1.1 Existing Flow Analysis

The existing condition peak flow rates were calculated using the Visual Otthymo Version 3.0 (VO3) hydrologic model. Ganaraska Conservation requires that a range of storm events and distributions be considered in the analysis. As such, peak flow rates were calculated for the 2, 5, 10, 25, 50 and 100-year design storms for each of the 4-hour Chicago, 6-hour SCS, 12-hour SCS and 24-hour SCS distributions. It is noted that a ShiftHyd was used to account for the travel time required for the external catchments to drain through the internal site and reach the outlet. The model schematic and detailed results have been included in **Appendix B**, peak flow rates are summarized in **Table 2** below.

Data	Peak Flow (m ³ /s)							
Return Period	4 Hour Chicago		6 Hour SCS		12 Hour SCS		24 Hour SCS	
renou	INT ¹	EX ²	INT ¹	EX ²	INT ¹	EX ²	INT ¹	EX ²
2-Year	0.006	0.064	0.005	0.041	0.004	0.035	0.003	0.029
5-Year	0.012	0.087	0.010	0.066	0.009	0.058	0.008	0.047
10-Year	0.016	0.104	0.014	0.081	0.013	0.071	0.011	0.060
25-Year	0.032	0.161	0.028	0.142	0.026	0.119	0.022	0.099
50-Year	0.043	0.181	0.042	0.191	0.038	0.169	0.033	0.143
100-Year	0.056	0.209	0.056	0.245	0.052	0.219	0.045	0.186

Table 2 – Existing Peak Flow Summary

Notes: 1. INT refers to the existing condition peak flow rates for the internal boundary of the site (VO3 NHYD = 1100).

2. EX refers to total existing condition peak flow rates directed to Midtown Creek including the external catchments (VO3 NHYD = 1001).

A review of **Table 2** shows that the existing peak flow rates are similar for each storm distribution, with the highest 100-year peak flow rate provided by the 6-hour SCS Storm. It is also noted that the existing site generates only a small portion of the runoff directed to Midtown Creek. Preliminary analyses determined that the 6-hour SCS Storm also produced the largest storage volume requirements, and has been used to establish the target flow rates for the development.



4.1.2 Target Flow Rates

In accordance with the Midtown Creek Flood Control Criteria, the proposed development is required to control the runoff generated by the site to 50% of the predevelopment peak flow rate for the 2-year storm and 70% of the pre-development peak flow rate for the 5 to 100-year storms. Quantity controls are not required for external catchments that drain onto the property as they are beyond the development limits and will be unchanged from the existing condition.

Ideally, external catchments would be directed around the development to keep external runoff separate from the proposed stormwater design. However, as the external catchments border the entire southeastern boundary of the site this was not deemed a feasible option for the proposed development. As such, special considerations were required to establish target flow rates for the development.

Target flow rates were determined using the VO3 model for a 6-hour SCS storm. A DivertHyd command was used to split existing flows generated by the site in accordance with the Midtown Creek Flood Control Criteria. The resulting hydrograph was then added to the external hydrograph to calculate the peak flows that would be directed to Midtown Creek if the existing site was controlled to the Midtown Creek Flood Control Criteria. The calculated target flow rates are summarized in **Table 3** and the detailed model results have been included in **Appendix B**.

Data	Peak Flow Rates (m ³ /s)					
Return Period	OUT-1					
renou	INT ¹	EXT ²	EX ³	TGT ⁴		
2-Year	0.005	0.036	0.041	0.038		
5-Year	0.010	0.056	0.066	0.063		
10-Year	0.014	0.067	0.081	0.077		
25-Year	0.028	0.113	0.142	0.134		
50-Year	0.042	0.150	0.191	0.178		
100-Year	0.056	0.188	0.245	0.228		

Table 3 – Target Flow Rate Summary (6-hour SCS)

- Notes: 1. INT refers to the existing condition peak flow rates for the internal boundary of the site (VO3 NHYD = 1100).
 - 2. EXT refers to the existing condition peak flow rates for the external drainage directed onto the site (VO3 NHYD = 20).
 - 3. EX refers to total existing condition peak flow rates directed to Midtown Creek including the external catchments (VO3 NHYD = 1001).
 - 4. TGT refers to the target flow rates for the proposed development and external catchments in accordance with the Midtown Creek Flood Control Criteria (VO3 NHYD = 1000).



4.1.3 Proposed Quantity Controls

Quantity controls will be required to ensure that proposed flows will not exceed the target flow rates. Based on the site constraints, storage volume requirements and outlet location, it was not possible to provide quantity controls within a single stormwater facility. As such, two (2) stormwater management facilities are proposed within the development with controlled flows from the upstream facility directed to the downstream facility. Details of each facility are discussed in the following sections.

4.1.3.1 Chamber System 1

Chamber System 1 is centrally located within the site and controls runoff from catchments PR-102 and EXT-202. The facility consists of underground storage provided by Stormtech SC-310 chambers. Flows controlled by an orifice plate located in the downstream structure and the outlet is raised above the base of the chambers to promote infiltration during frequent storm events. The stage-storage-discharge relationship for the facility is shown in **Table 4** and detailed calculations are provided in **Appendix C**.

Elev. (m)	Storage Depth (m)	Peak Flows (m³/s)	Storage Volume (m ³)	Remarks
100.70	0.00	0.0000	0	Bottom of Underground Storage
100.83	0.13	0.0000	50	75 mm Orifice Plate
100.88	0.18	0.0013	80	2 Year (74 m³)
100.92	0.22	0.0027	111	5 Year (104 m³)
100.94	0.24	0.0032	127	10 Year (123 m ³)
101.03	0.33	0.0047	192	25 Year (191 m ³)
101.12	0.42	0.0059	252	50 Year (249 m ³)
101.24	0.54	0.0072	313	100 Year (311 m³)
101.41	0.71	0.009	379	Top of Underground Storage

 Table 4 - Chamber System 1 Storage Summary

Notes: 1. Storage volumes used for each return period are based on VO3 model results for the 6-hour SCS Storm Distribution.

4.1.3.2 Chamber System 2

Chamber System 2 is located within the southwestern corner of the site and controls runoff from catchments PR-101, PR-103, EXT-201, EXT-203 and outflows from Chamber System 1. The facility consists of underground storage provided by Stormtech SC-740 chambers. Flows are controlled by an orifice plate located in the downstream structure and the outlet is raised above the base of the chambers to promote infiltration during frequent storm events. The stage-storage-discharge relationship for the facility is shown in and detailed calculations are provided in **Appendix C**.

Elev. (m)	Storage Depth (m)	Peak Flows (m ³ /s)	Storage Volume (m ³)	Remarks
99.40	0.00	0.000	0	Bottom of Underground Storage
100.02	0.62	0.000	173	2 Year (170 m³), 390 mm Orifice Plate
100.09	0.69	0.007	195	5 Year (194 m ³)
100.12	0.72	0.014	204	10 Year (204 m ³)
100.24	0.84	0.061	239	25 Year (239 m³)
100.38	0.98	0.130	272	50 Year (271 m ³)
100.57	1.17	0.189	304	100 Year (303 m³), Top of Underground Storage

Table 5 – Chamber System 2	2 Storage Summary
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Notes: 1. Storage volumes used for each return period are based on VO3 model results for the 6-hour SCS Storm Distribution

4.1.4 Proposed Peak Flow Rates

The proposed peak flow rates, accounting for the controls provided in the stormwater facilities, are summarized in **Table 6** and detailed model output is provide in **Appendix B**.

Table 6 – Proposed Peak Flow Summary (6-hour SCS)

Peak Flow Rates (m ³ /s)						
EX ¹	TGT ²	PR ³				
0.041	0.038	0.013				
0.066	0.063	0.022				
0.081	0.077	0.027				
0.142	0.134	0.078				
0.191	0.178	0.160				
0.245	0.228	0.228				

- Notes: 1. EX refers to total existing condition peak flow rates directed to Midtown Creek including the external catchments (VO3 NHYD = 1001).
 - 2. TGT refers to the target flow rates for the proposed development and external catchments in accordance with the Midtown Creek Flood Control Criteria (VO3 NHYD = 1000).
 - 3. PR refers to total proposed condition peak flow rates directed to Midtown Creek including the external catchments (VO3 NHYD = 2000).



A review of **Table 6** demonstrates that the proposed peak flow rates will not exceed the target flow rates for all storm events. As such, the Midtown Creek Flood Control Criteria have been achieved.

The proposed peak flow rates have also been calculated for each storm distribution. The results are summarized in **Table 7** and detailed model output is provided in **Appendix B**.

Determ	Peak Flow (m ³ /s)												
Return Period	A Hour Chic		6 Hou	ır SCS	12 Ho	ur SCS	24 Hour SCS						
T Child	OUT-1	OUT-2	OUT-1	OUT-2	2 OUT-1 OUT-		OUT-1	OUT-2					
2-Year	0.028	0.011	0.022	0.007	0.020	0.006	0.017	0.005					
5-Year	0.058	0.014	0.059	0.009	0.052	0.008	0.043	0.007					
10-Year	0.077	0.016	0.077	0.011	0.070	0.009	0.059	0.008					
25-Year	0.126	0.021	0.132	0.015	0.119	0.013	0.103	0.011					
50-Year	0.148	0.021	0.168	0.019	0.154	0.016	0.135	0.014					
100-Year	0.172	0.023	0.207	0.022	0.188	0.019	0.165	0.016					

Table 7 – Proposed Peak Flow Summary	1
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Notes: 1. OUT-1 refers to total proposed condition peak flow rates directed to Midtown Creek including the external catchments (VO3 NHYD = 2000).

2. OUT-2 refers to total proposed condition peak flow rates directed to the D'Arcy Street Storm Sewer (VO3 NHYD = 2300).

4.2 Stormwater Quality Control

The proposed development may cause additional pollutants to be conveyed off-site; as such, water quality controls have been provided. The selection and sizing of the water quality measures have been based on the procedures set out in the *Stormwater Management Planning and Design Manual* (MOE, March 2003) for Enhanced (Level 1) protection. This level of protection requires 80% total suspended solids (TSS) removal and treatment of 90% of the annual runoff volume.

The goal of stormwater management is to preserve the natural hydrologic cycle and mitigation measures should be assessed in the following order:

- Stormwater lot level controls.
- Stormwater conveyance controls.
- End-of-pipe stormwater management facilities.

Stormwater lot level controls represent measures that are implemented on an individual lot basis such as soak away pits, flatter grading and reduction of the impervious footprint. For the proposed development, lot level controls such as reduced grading will be used to supplement the proposed SWM strategy; however, these are not intended to become the primary means for stormwater quality control.



Stormwater conveyance controls represent the conveyance systems used to transport stormwater runoff from the lots to the receiving waters such as pervious pipes, catchbasin treatment and grassed swales. The proposed SWM strategy will include some conveyance controls to pretreat runoff; however, they are not meant to be the primary means of water quality treatment for the development.

End-of-pipe stormwater management facilities represent the common urban stormwater management measures used to service numerous lots or whole subdivisions. These facilities include Wet Ponds, Wetlands, Dry Ponds, Infiltration Basins, Infiltration Trenches, Filter Strips, Sand Filters and Oil-Grit Separators. End-of-pipe SWM facilities will be considered for this development.

Based on the development area, site configuration and maintenance requirements, the proposed water quality controls will include pretreatment in the form of grassed swales and an oil-grit separator and primary treatment provided by infiltration layers included in each chamber system.

For infiltration facilities, a minimum separation of 1.0 m is recommended from the bottom of feature to the seasonally high groundwater level. The Soils Investigation Report estimated the groundwater elevations of 100.20 m within the vicinity of Chamber System 1 and 98.90 m within the vicinity of Chamber System 2 and infiltration rates from 50 to 75 mm/hr. As the groundwater level is very shallow across the site, best practices have been used to provide as much groundwater separation as possible, while still achieving the quantity control requirements. A minimum separation of 0.50 m has been provided, which is consistent with the preliminary stormwater management report.

4.2.1 Chamber System 1

The outlet elevation from Chamber System 1 has been raised to promote infiltration of runoff during frequent storm events. According to Table 3.2 of the *Stormwater Management Planning and Design Manual* an infiltration storage volume of 25 m³/ha is required (at an impervious level of 35%) to achieve Enhanced (Level 1) treatment. Based on the contributing area, a total infiltration storage volume of 29.5 m³ is required. As shown in **Table 4**, 50 m³ of runoff is required to activate the outlet; therefore, the water quality requirements are achieved. Supporting calculations are provided in **Appendix D**.

Pretreatment of runoff prior to entering Chamber System 1 will be provided by a grassed swale located within catchment PR-102. The grassed swale will provide some sediment removal to reduce the risk of clogging within the underground chamber system and reduce the overall maintenance requirements. Supporting calculations are provided in **Appendix D**.

4.2.2 Chamber System 2

The outlet elevation from Chamber System 2 has been raised to promote infiltration of runoff during frequent storm events. According to Table 3.2 of the *Stormwater*



Management Planning and Design Manual an infiltration storage volume of 25 m³/ha is required (at an impervious level of 35%) to achieve Enhanced (Level 1) treatment. Based on the contributing area, a total infiltration storage volume of 45 m³ is required. As shown in **Table 5**, 176 m³ of runoff is required to activate the outlet; therefore, the water quality requirements are achieved. Supporting calculations are provided in **Appendix D**.

Pretreatment of runoff prior to entering Chamber System 2 will be provided by an oil-grit separator located within catchment PR-101 and a grassed swale in catchment PR-103. The oil-grit separator will treat flows entering Chamber System 2 from the storm sewer system, while the grassed swale will treat flows from the rear yards along the northwest property boundary. PCSWMM for Stormceptor recommends the Stormceptor EF-4 oil-grit separator and will achieve 75% TSS removal and treat >90% of the annual runoff volume. The oil-grit separator and grassed swale will provide some sediment removal to reduce the risk of clogging within the underground chamber system and reduce the overall maintenance requirements. Supporting calculations are provided in **Appendix D**.

4.2.3 Uncontrolled Catchment Areas

Catchments **PR-104** and **EXT-204** will drain as sheet flow towards Midtown Creek. These catchments cannot be directed to either Chamber System due to grading constraints. The majority of these catchments consists of rooftop and landscaped areas, which are considered clean sources of runoff. Roadway runoff will be directed to catch basin near the western property boundary. The catch basin will be equipped with a 600 mm sump as well as a CB Shield catch basin insert, which is anticipated to provide 57% TSS removal based on the contributing area. CB Shield design details are included in **Appendix D**.

Catchment **PR-300** includes a small portion of roadway that is directed to the D'Arcy Street storm sewer. Based on the small catchment area and constrained outlet location, no quantity controls are proposed for this catchment.

5.0 Water Balance Analysis

A water balance analysis has been completed to ensure that the average annual runoff volume directed to Midtown Creek will not be increased as a result of the proposed development.

The water balance analysis has been completed in accordance with the method described in the Conservation Authority Guidelines for Hydrogeological Assessments (June 2013). Water budget calculations were completed using the Thornthwaite Equation using Canadian Climate Normals from the Cobourg Sewage Treatment Plant from 1981 to 2010. The study area was divided into catchments to determine infiltration factors and the impact of the proposed infiltration features. For existing conditions, the study area was divided into internal and external catchments. For proposed



conditions, the study area was divided based on drainage directed Chamber System 1, Chamber System 2 and the Uncontrolled areas.

In order to account for the infiltration provided within each chamber system, a daily water balance analysis was completed. The daily water balance analysis assumes all runoff generated within a particular day is directed to the infiltration storage layer associated with each chamber system. If there is storage available in the infiltration layer, the volume is deducted from the runoff volume and added to the infiltration volume for each catchment. Precipitation and temperature data were used from the Cobourg Sewage Treatment Plant from 1981 to 2006 (26 years). This date range was selected because it contains the most recent data available for the gauge station and did not have a significant quantity of missing data.

A summary of the infiltration volume results is shown in **Table 8** with detailed water balance calculations provided in **Appendix E**

Infiltration	Contributing	Contributing	Infiltration	Runoff Volume (m ³ /year)				
Catchment ID	Drainage Catchments	Contributing Area (ha)	Storage Volume (m ³)	No Mitigation	Infiltration Features	With Mitigation		
Internal	EX-100	2.26	-	2495	-	-		
External	EXT-201, EXT-202, EXT-203, EXT-204	1.34	-	4123	-	-		
Total Existing		3.60	-	6617				

Table 8 – Annual Water Balance Summary

Chamber 1	PR-102, EXT-202,	1.18	50	3374	2061	1313
Chamber 2	PR-101, PR-103, EXT-201, EXT-203	1.80	173	5837	4660	1177
Uncontrolled	PR-104, PR-300, EXT-204	0.62	-	1990	-	1990
Total Proposed		3.60	101	11201	6721	4480

Notes: 1. No infiltration has been calculated for LID features during months with a negative average temperature.

A review of **Table 8** shows that without mitigation, the off-site average annual runoff volume will increase as a result of the proposed development. However, when accounting for additional infiltration provided by the stormwater facilities the proposed off-site runoff volume will be less than existing conditions.



6.0 Hydraulic Elements

Internal Storm Sewer System

A storm sewer design sheet has been completed to ensure that the internal sewer network is sufficiently sized for a 5-year storm event, in accordance with the standard guidelines, peak flow rates were calculated using the rational method without flow controls. The storm sewer design sheet is included in **Appendix F**.

Overland Conveyance Swales and Ditches

Two rear yard swales are proposed in catchment areas **PR-103** and **PR-102** to convey runoff to Chamber 2. These swales have been sufficiently sized to convey the 100-year peak flow rate; however, they have a very shallow slope due to the graining constraints. As such, both swales include underdrains and the PR-103 slope includes a gravel trench. Swale sizing calculations are included in **Appendix F.**

Culvert Crossings

A 300 mm CSP crossing is proposed in the catchment area **PR-102** to convey the runoff from the roadside ditch to the Chamber System 1, underneath the proposed permeable parking lot. The hydraulic performance of the culvert was analyzed using HY-8 and the results confirm that the culvert can convey up to 50-year storm event without overtopping, which is an appropriate level of service for the development. Culvert sizing calculations are included in **Appendix F**.

Emergency Spill Ditch

An emergency spill ditch is proposed at the location west of CB10, connecting CB10 to CB9. The design intent was to provide a defined spillway for the runoff of generated in catchment areas **PR-101** and **EXT-201**, under the conditions when the CB10 is clogged or surge charged during extreme events. This ditch is 0.3 m deep and runs at two (2) percent longitudinal slope for 21 m with sufficient capacity to handle the 100-year storm event. Ditch sizing calculations are included in **Appendix F.**

Emergency Spillway Weir

The Concrete walkway adjacent to CB9 will act as the emergency spillway weir for the diverted runoff from the CB10 via the emergency spill ditch. The concrete walkway adjacent to CB9 will act as the emergency spillway weir for the diverted runoff from CB10 via the emergency spill ditch. The weir has been sized to convey the 100-year flow and the maximum ponding depth will not exceed 0.30 m. Flows from the weir will be conveyed to CBMH18. Weir sizing calculations are included in **Appendix F.**"

This will ultimately pool at the roadway CBMH18 and bypass towards the outlet ditch. Weir sizing calculations are included in **Appendix F.**



7.0 Operation and Maintenance Considerations

The stormwater management facilities will require periodic maintenance to function properly. The following maintenance program is recommended:

- During construction, sediment should be kept away from the underground chambers in both facilities. They should not be used as temporary sediment control during construction. A final inspection, post construction, should be conducted prior to putting it into service.
- Inspect the facility every month for the first year to identify whether any trash or debris has accumulated on the surface.
- Grass clippings and leaves should be prevented from entering the underground chambers. During the Fall it is advised that leaves are removed from the surface to prevent clogging.
- Each facility has been designed such that ponded water should not be retained for longer than 24 hours. If this is the case, it is likely that the outlet structure or connecting pipe are clogged and may require maintenance.

Furthermore, the oil-grit separator unit will require periodic maintenance to function properly. The following maintenance program is recommended:

- Units should be inspected post construction, prior to being put into service.
- Inspect each unit every three (3) months for the first year to determine the oil and sediment accumulation rates.
- Cleaning is required annually or once the sediment depth reaches 15% of the storage capacity.
- Inspect the units immediately after an oil, fuel or chemical spill.
- A licensed waste management company should remove oil and sediment and dispose of it according to current regulations.
- At the time of maintenance, inspect the internal storm sewer system and remove accumulated sediment to ensure proper maintenance of the entire drainage system.

A standalone Operation and Maintenance Manual has been provided with details on the operation, inspection and maintenance requirements of the development, including the stormwater management features. Additional maintenance requirements and recommendations may also be provided by the Manufacturer at the time of purchase/installation.

8.0 Regulatory Flood Impacts

A small portion of the Midtown Creek Regulatory Flood Line encroaches into the proposed development as shown on **Figure 3**. The proposed site grading will result in approximately 30 m³ of fill to be placed within the regulated area. This volume of fill is not significant and will not impact existing flood elevations within the creek.



9.0 Erosion and Sediment Control

When soils are exposed during construction, there is a potential for transport of relatively large amounts of sediment off-site to downstream areas. A standalone Erosion and Sediment Control Plan detailing the operation, inspection and maintenance requirements of the erosion control measures to be implemented during construction of the development is required. A brief overview of the erosion and sediment control features is provided below.

In order to minimize the impacts associated with sediment transfer, the following measures will be completed in the order listed:

- Install silt barrier along the property limits as shown on Detailed Design Drawings and maintain as required.
- Install a mud mat at the proposed construction entrances.
- Remove temporary erosion and sediment control devices/measures and clean out once vegetation is established.

When feasible, topsoil stripping should be limited to areas where development is to proceed in the near future. Topsoil stockpiles on sloped areas should be stabilized by hydro seeding. Where development is to be delayed, areas stripped of topsoil should also be hydro-seeded to minimize sediment runoff.

Regular inspection and maintenance of the silt fence will ensure continued protection to the downstream areas for the duration of the construction period. Additional information on the proposed erosion and sediment control measures are listed below:

Silt Fencing

Heavy duty silt fencing will be as per OPSD 219.130 (modified). The proposed silt fence shall be inspected after every rainfall to identify failed sections. Any failures shall be repaired immediately. When sediment accumulates to half the height of the geotextile, it is to be removed and disposed of in a controlled area. A supply of extra silt fence is to be kept on site to provide for quick repairs or the installation of additional fence, if required.

Mud Mat

The location of the proposed mud mat at the construction entrances is shown on the detailed design drawings. The mud mat is to be 400 mm thick and consist of 200 mm angular stone. The mud mat is to be underlain with geotextile or a graded aggregate filter.

The granular material will require periodic replacement as it becomes contaminated by vehicle traffic. Sediment shall be cleaned from public roads at the end of each day by shoveling or sweeping and disposed of properly in a controlled sediment disposal area.



10.0 Conclusion

The proposed development is located at D'Arcy Street in the Town of Cobourg. This development will alter the existing runoff characteristics of the site and adjacent properties; therefore, stormwater quantity and quality control measures have been provided to ensure that the receiving drainage system will not be adversely affected.

Water quantity control will be provided by two (2) underground storage chambers. They have been design to meet the Midtown Creek Flood Control Criteria and will reduce proposed peak flow rates to the target flow rates for the 2 to 100-year storm events.

Water quality treatment will be provided by an infiltration layer located within each chamber system. The infiltration layer is sufficiently sized to meet Ministry of Environment Level 1 (Enhanced) water quality treatment. Site soil characteristics have been considered to ensure drawdown within an acceptable period and emergency overflow considerations have been provided in event of clogging.

A water balance analysis has been completed demonstrating that the proposed development, with the proposed infiltration features, will not increase runoff volumes to Midtown Creek, on an average annual basis.

Erosion and sediment control measures have been prepared to ensure that off-site transport of sediment is minimized through temporary measures. These include the installation of silt barriers and a mud mat.

The proper installation and ongoing maintenance of the erosion and sediment control measures outlined in this report will ensure that the development can proceed without adversely affecting downstream drainage conditions. The maintenance of the proposed measures will be carried out by the property owner.

Respectfully submitted,



Chris Proctor-Bennett, P.Eng. Water Resources Engineer

CPB/CS/RC/mh/kr



Raja Subramaniam Raja Chockalingam, P.Eng. Water Resources Engineer



Statement of Limitations

This report has been prepared by D.M. Wills Associates Limited on behalf of Leblanc Enterprise to address the requirements of the Town of Cobourg and Ganaraska Conservation.

The conclusions and recommendations in this report are based on available background documentation and discussions with applicable agencies at the time of preparation.

The report is intended to demonstrate the means whereby stormwater runoff originating from the site will be managed with respect to both quantity and quality control. The report is applicable only to the project described in the text, constructed substantially in accordance with the plans and details accompanying this report.

Any use which a third party makes of this report other than a stormwater management report for the proposed development is the responsibility of such third parties. D.M. Wills Associates Limited accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or action taken based on using this report for purposes other than a stormwater management report for the Nickerson Woods, Cobourg development.

D.M. Wills Associates Limited is not responsible for any changes made to the stormwater management measures which are not in accordance with the design drawings. Any person(s) relying on the "as-constructed" stormwater measures should confirm that the field conditions are in accordance with the design drawings.

Appendix A

Rainfall Data and Hydrology Parameters



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	La	ind Use			Rainfa	ll Data	
				Gaugir	C ng Station = ((DF Coefficients 4 Guidelines)
Agriculture	0.00	ha	12	hr, 100 \	r Rainfall =	89.6	mm
Range	0.00	ha					
Grass	1.51	ha					
Woods	0.75	ha		Dra	ainage Area	2.26	ha
Wetland	0.00	ha		Impe	rvious Area	0.00	ha
Gravel	0.00	ha		Percent	Impervious	0.0%	
Impervious	0.00	ha					
SUM	2.26						
					Pervious		
Hydrologic Soil Group ¹	AB			Length	275	m	
Soil Type	Tecumseth		U	IS Elev	103.0	m	
Son Type	Sandy Loam		D	S Elev	100.5	m	
с	0.07			Slope	0.9	%	
CN (Nashyd)	48.0				Flat		

	Group				Land Use				Weigh	Weighted Value	
Parameter 5	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd		
Runoff Coefficient ² , C	AB	0.22	0.12	0.07	0.07	0.05	0.67	0.90	0.07	n.a.	
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	48.0	48.0	
Initial Abstraction ⁵ , n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	6.7	6.7	

Time of	Concentra	tion ⁶		Composite Param	eters	
Pervious Length	275	m				
Slope	0.9	%		Drainage Area	2.26	ha
Airport	57.7	min.	51 + 0.201 61	Runoff Coefficient	(0.07
Bransby - Williams	14.7	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	48.0	4
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	46.4	4
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	6.7	6
Time to Peak	38.7	min.				
Time to Peak	0.64	hr.				

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Lolands Method

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	Land Use					ll Data	
				Gaugir	C ng Station = (0		DF Coefficients 4 Guidelines)
Agriculture	0.00	ha		12 hr, 100 Y	'r Rainfall =	89.6	mm
Range	0.00	ha					
Grass	0.33	ha					
Woods	0.00	ha		Dra	ainage Area	0.47	ha
Wetland	0.00	ha		Impe	rvious Area	0.14	ha
Gravel	0.00	ha		Percent	Impervious	30.0%	
Impervious	0.14	ha					
SUM	0.47						
					Pervious		
Hydrologic Soil Group ¹	AB			Length	25	m	
Soil Type	Tecumseth			US Elev	101.2	m	
Con Type	Sandy Loam			DS Elev	100.3	m	
с	0.35			Slope	3.6	%	
CN (Nashyd)	64.4				Rolling		

	Group			Weigh	Weighted Value					
Parameter 5	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd	
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.35	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	64.4	50.0
Initial Abstraction⁵, n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of	Concentra	tion ⁶		Composite Param	eters
Pervious Length	25	m			
Slope	3.6	%		Drainage Area	0.47
Airport	8.0	min.	51 1 0 201 01	Runoff Coefficient	C
Bransby - Williams	1.2	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	64.4
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	64.2
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.1
Time to Peak	6.7	min.			
Time to Peak	0.11	hr.			

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	Land Use					Rainfa	ill Data		
					Clariington IDF Coefficients Gauging Station = (GRCA 2014 Guidelines)				
Agriculture	0.00	ha			12 hr, 100 Y	'r Rainfall =	89.6	mm	
Range	0.00	ha							
Grass	0.33	ha							
Woods	0.00	ha			Dra	ainage Area	0.47	ha	
Wetland	0.00	ha			Impe	rvious Area	0.14	ha	
Gravel	0.00	ha			Percent	Impervious	30.0%		
Impervious	0.14	ha							
SUM	0.47								
						Pervious			
Hydrologic Soil Group ¹	AB				Length	25	m		
Soil Type	Tecumseth				US Elev	101.2	m		
Con Type	Sandy Loam				DS Elev	100.3	m		
с	0.35				Slope	3.6	%		
CN (Nashyd)	64.4					Rolling			

	Group			Weigh	Weighted Value					
Parameter 5	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd	
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.35	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	64.4	50.0
Initial Abstraction⁵, n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of	Concentra	ition ⁶		Composite Parame	eters
Pervious Length	25	m			
Slope	3.6	%		Drainage Area	0.47
Airport	8.0	min.	51 1 0 201 01	Runoff Coefficient	(
Bransby - Williams	1.2	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	64.4
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	64.2
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.1
Time to Peak	6.7	min.		_	
Time to Peak	0.11	hr.			

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	La	nd Use		Rainfa	II Data	
			Gaugir	C ng Station = ((DF Coefficients 4 Guidelines)
Agriculture	0.00	ha	12 hr, 100 Y	'r Rainfall =	89.6	mm
Range	0.00	ha				
Grass	0.13	ha				
Woods	0.00	ha	Dra	ainage Area	0.19	ha
Wetland	0.00	ha	Impe	rvious Area	0.06	ha
Gravel	0.00	ha	Percent	Impervious	30.0%	
Impervious	0.06	ha				
SUM	0.19					
				Pervious		
Hydrologic Soil Group ¹	AB		Length	25	m	
Soil Type	Tecumseth		US Elev	101.2	m	
Con Type	Sandy Loam		DS Elev	100.3	m	
с	0.35		Slope	3.6	%	
CN (Nashyd)	64.4			Rolling		

	Group				Weighted Value					
Parameter	Soil Gr	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.35	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	64.4	50.0
Initial Abstraction⁵, n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of	Concentra	tion ⁶		Composite Parame	eters
Pervious Length	25	m			
Slope	3.6	%		Drainage Area	0.19
Airport	8.0	min.	51 + 0.201 (0)	Runoff Coefficient	C
Bransby - Williams	1.3	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	64.4
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	64.2
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.1
Time to Peak	6.7	min.			
Time to Peak	0.11	hr.			

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Lolands Method

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	La	nd Use			Rainfa	ill Data	
				Gaugir	C ng Station = (DF Coefficients 4 Guidelines)
Agriculture	0.00	ha		12 hr, 100 ነ	r Rainfall =	89.6	mm
Range	0.00	ha					
Grass	0.14	ha					
Woods	0.00	ha		Dra	ainage Area	0.20	ha
Wetland	0.00	ha		Impe	rvious Area	0.06	ha
Gravel	0.00	ha		Percent	Impervious	30.0%	
Impervious	0.06	ha					
SUM	0.20						
					Pervious		
Hydrologic Soil Group ¹	AB			Length	25	m	
Soil Type	Tecumseth			US Elev	101.2	m	
Con Type	Sandy Loam			DS Elev	100.3	m	
с	0.35			Slope	3.6	%	
CN (Nashyd)	64.4				Rolling		

	Group				Weighted Value					
Parameter	Soil Gr	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.35	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	64.4	50.0
Initial Abstraction⁵, n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of	Concentra	tion ⁶		Composite Parame	eters
Pervious Length	25	m			
Slope	3.6	%		Drainage Area	0.20
Airport	8.0	min.	51 1 0 201 01	Runoff Coefficient	(
Bransby - Williams	1.3	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	64.4
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	64.2
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.1
Time to Peak	6.7	min.			
Time to Peak	0.11	hr.			

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Lolands Method

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	La	nd Use			Rain	fall Data	
				Gaugi		Clariington ID (GRCA 2014	PF Coefficients Guidelines)
Agriculture	0.00	ha		12 hr, 100	Yr Rainfall =	89.6	mm
Range	0.00	ha					
Grass	0.42	ha					
Woods	0.00	ha		Di	rainage Area	0.70	ha
Wetland	0.00	ha		Impe	ervious Area	0.28	ha
Gravel	0.00	ha		Percent	t Impervious	40.0%	
Impervious	0.28	ha					
SUM	0.70						
					Pervious	Impervious	
Hydrologic Soil Group ¹	AB			Length	10	130	m
Soil Type	Tecumseth			US Elev	100.5	101.8	m
Son Type	Sandy Loam			DS Elev	100.3	100.5	m
с	0.43			Slope	2.0	1.0	%
CN (Nashyd)	69.2				Rolling	Flat	

	Group				Weighted Value					
Parameter	Soil Gr	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.43	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	69.2	50.0
Initial Abstraction⁵, n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	3.8	5.0

Time of	Concentra	ition ⁶		Composite Param	eters	
Total Length	140	m				
Average Slope	1.1	%		Drainage Area	0.70	na
Airport	25.3	min.		Runoff Coefficient	(.43
Bransby - Williams	8.2	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes SCS Curve No.			
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	69.6	4
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	3.8	(
Time to Peak	6.7	min.				
Time to Peak	0.11	hr.				

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Lolands Method

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19

Sheet 1 of 1

	La	nd Use		Rain	fall Data	
			Gaug	ing Station =	Clariington ID (GRCA 2014	PF Coefficients Guidelines)
Agriculture	0.00	ha	12 hr, 100	Yr Rainfall =	89.6	mm
Range	0.00	ha				
Grass	0.52	ha				
Woods	0.00	ha	D	rainage Area	0.71	ha
Wetland	0.00	ha	Imp	ervious Area	0.19	ha
Gravel	0.00	ha	Percen	t Impervious	27.0%	
Impervious	0.19	ha				
SUM	0.71					
				Pervious	Impervious	
Hydrologic Soil Group ¹	AB		Length	10	200	m
Soil Type	Tecumseth		US Elev	102.0	103.0	m
Son Type	Sandy Loam		DS Elev	101.8	101.8	m
С	0.33		Slope	2.0	0.6	%
CN (Nashyd)	63.0			Rolling	Flat	

	Group				Weighted Value					
Parameter	Soil Gr	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.33	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	63.0	50.0
Initial Abstraction ⁵ , n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.2	5.0

Time of	Concentra	ition ⁶		Composite Param	eters	
Total Length	210	m				
Average Slope	0.7	%		Drainage Area	0.71	na
Airport	41.7	min.	51 1 0 201 61	Runoff Coefficient	C	.33
Bransby - Williams	13.4	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	63.0	
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	62.6	
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.2	
Time to Peak	28.0	min.				
Time to Peak	0.47	hr.				

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	La	nd Use		Rain	fall Data	
			Gaug	ing Station =	Clariington ID (GRCA 2014	PF Coefficients Guidelines)
Agriculture	0.00	ha	12 hr, 100	Yr Rainfall =	89.6	mm
Range	0.00	ha				
Grass	0.31	ha				
Woods	0.00	ha	D	rainage Area	0.44	ha
Wetland	0.00	ha	Imp	ervious Area	0.13	ha
Gravel	0.00	ha	Percen	t Impervious	30.0%	
Impervious	0.13	ha				
SUM	0.44					
				Pervious	Impervious	
Hydrologic Soil Group ¹	AB		Length	10	10	m
Soil Type	Tecumseth		US Elev	102.0	102.2	m
Con Type	Sandy Loam		DS Elev	101.8	102.0	m
С	0.35		Slope	2.0	2.0	%
CN (Nashyd)	64.4			Rolling	Rolling	

	Group			Weighted Value						
Soil	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd	
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.35	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	64.4	50.0
Initial Abstraction ⁵ , n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of	Concentra	ition ⁶		Composite Param	eters	
Total Length	20	m				
Average Slope	2.0	%		Drainage Area	0.44	ha
Airport	8.7	min.	51 1 0 201 01	Runoff Coefficient	().35
Bransby - Williams	1.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	64.4	Ę
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	64.2	4
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.1	
Time to Peak	6.7	min.				
Time to Peak	0.11	hr.				

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Lolands Method

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	La	nd Use		Rain	fall Data	
			Gaug	ing Station =	Clariington ID (GRCA 2014	PF Coefficients Guidelines)
Agriculture	0.00	ha	12 hr, 100	Yr Rainfall =	89.6	mm
Range	0.00	ha				
Grass	0.24	ha				
Woods	0.00	ha	D	rainage Area	0.34	ha
Wetland	0.00	ha	Imp	ervious Area	0.10	ha
Gravel	0.00	ha	Percen	t Impervious	29.4%	
Impervious	0.10	ha				
SUM	0.34					
				Pervious	Impervious	
Hydrologic Soil Group ¹	AB		Length	10	30	m
Soil Type	Tecumseth		US Elev	100.5	101.2	m
Son Type	Sandy Loam		DS Elev	100.3	100.6	m
С	0.35		Slope	2.0	2.0	%
CN (Nashyd)	64.1			Rolling	Rolling	

	Group			Weighted Value						
Soil	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd	
Runoff Coefficient ² , C	AB	0.26	0.19	0.12	0.10	0.05	0.67	0.90	0.35	n.a.
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	64.1	50.0
Initial Abstraction⁵, n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.1	5.0

Time of	Concentra	ition ⁶		Composite Param	eters	
Impervious Length	30	m				
Slope	2.0	%		Drainage Area	0.34	na
Airport	10.7	min.		Runoff Coefficient	(.35
Bransby - Williams	1.7	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes	SCS Curve No.	64.1	5
			Hilly: >6% Slopes	Modified Curve No. ⁴ , CN*	63.9	4
Applicable Minimum ⁷	10.0	min.		Initial Abstraction.	4.1	ŧ
Time to Peak	7.2	min.				
Time to Peak	0.12	hr.				

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005 6. Based on the results of the Lolands Method

6. Based on the results of the Uplands Method



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 5-Mar-19 Sheet 1 of 1

	Li	and Use		Rainfall Data					
			Gaugi	ng Station =	Clariington ID (GRCA 2014	PF Coefficients Guidelines)			
Agriculture	0.00	ha	12 hr, 100	Yr Rainfall =	89.6	mm			
Range	0.00	ha							
Grass	0.03	ha							
Woods	0.00	ha	Di	ainage Area	0.08	ha			
Wetland	0.00	ha	Impe	ervious Area	0.05	ha			
Gravel	0.00	ha	Percent	Impervious	62.5%				
Impervious	0.05	ha							
SUM	0.08								
				Pervious	Impervious				
Hydrologic Soil Group ¹	AB		Length	5	40	m			
Soil Type	Tecumseth		US Elev	100.0	100.6	m			
Soli Type	Sandy Loam		DS Elev	99.9	100.2	m			
С	0.59		Slope	2.0	1.0	%			
CN (Nashyd)	80.0			Flat	Flat				

	Group		Land Use								
Soil	Agriculture	Range	Grass	Woods	Wetland	Gravel	Imperv.	Incl. Imperv. Nashyd	Not Incl. Imperv. Standhyd		
Runoff Coefficient ² , C	AB	0.22	0.12	0.07	0.07	0.05	0.67	0.90	0.59	n.a.	
SCS Curve No. ³ , CN	AB	70	51	50	44	50	81	98	80.0	50.0	
Initial Abstraction ⁵ , n	nm	6.0	8.0	5.0	10.0	10.0	2.5	2.0	3.1	5.0	

Time of	Concentra	ition ⁶	
Impervious Length	40	m	
Slope	1.0	%	
Airport	10.6	min.	
Bransby - Williams	2.9	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes
			Hilly: >6% Slopes
Applicable Minimum ⁷	10.0	min.	
Time to Peak	6.7	min.	
Time to Peak	0.11	hr.	

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997,

Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984. 3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and

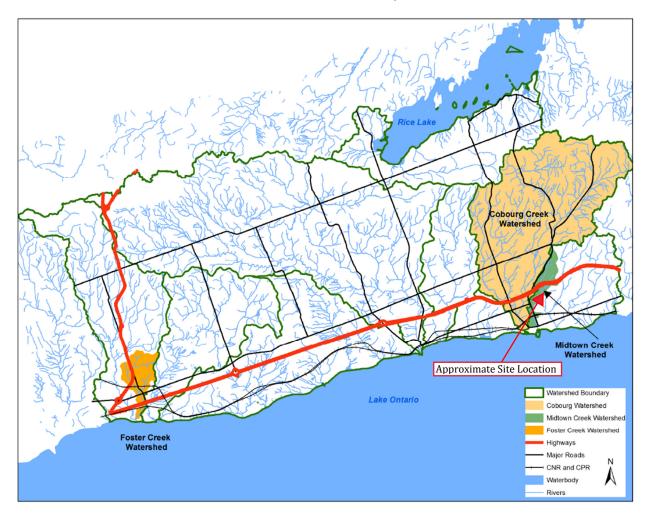
Table 2-2a, TR-55, page 2-5.

4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II

5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005

6. Based on the results of the Uplands Method

Watershed Boundary



Clarington Intensity Formulas

IDF Equation	I =a/(b+Td)		Td Time I Intensity				Conservative a i = (td + b)^c
Return Period Parameters	2 year	5 year	10 year	25 year	50 year	100 year	100year
а	1778	2464	2819	3886	4750	5588	1770
b	13	16	16	18	24	28	4 0.82

Rainfall Intensity Formulas (beyond Clarington)

Yarnell Equation

	I=a/(b+Td)	I Intensity in mm/Hr							
Return Period Parameters	2 year	5 year	10 year	25 year	50 year	100 year			
a b	1778 13	2464 16	2819 16	3886 18	4750 24	5588 28			

6 hour		12 hour			24 hour			
Time end'	F _{inc} (%)	F _{cum} (%)	Time end'	F _{inc} (%)	F _{cum} (%)	Time end'	F _{inc} (%)	F _{cum} (%)
g, hour			g, hour			g, hour		
0	0	0	0	0	0	0	0	0
0.5	2 3 5 6	2 5 8	2 3	5 3 2 2 3 4	5	2	2.2	2.2
1	3	5	3	3	8	4	2.6	4.8
1.5	3		3.5	2	10	6	3.2	8.0
2	5	13	4	2	12	7	-	-
2.5		19	4.5	3	15	8	4.0	12.0
2.75	15	34	5	4	19	8.5	-	-
3	39	73	5.5	6	25	9	2.7	14.7
3.5	11	84	5.75	12	37	9.5	1.6	16.3
4	5	89	6	33	70	9.75	-	-
4.5	4	93	6.5	9	79	10	1.8	18.1
5	3	96	7	4	83	10.5	2.3	20.4
6	4	100	7.5	3 3 7	86	11	3.1	23.5
			8	3	89	11.5	4.8	28.3
			10	1	96	11.75	10.4	38.7
			12	4	100	12	27.6	66.3
						12.5	7.2	73.5
						13	3.7	77.2
						13.5	0.7	77.9
						14	4.1	82.0
						16	6.0	88.0 05.2
						20	7.2	95.2
						24	4.8	100

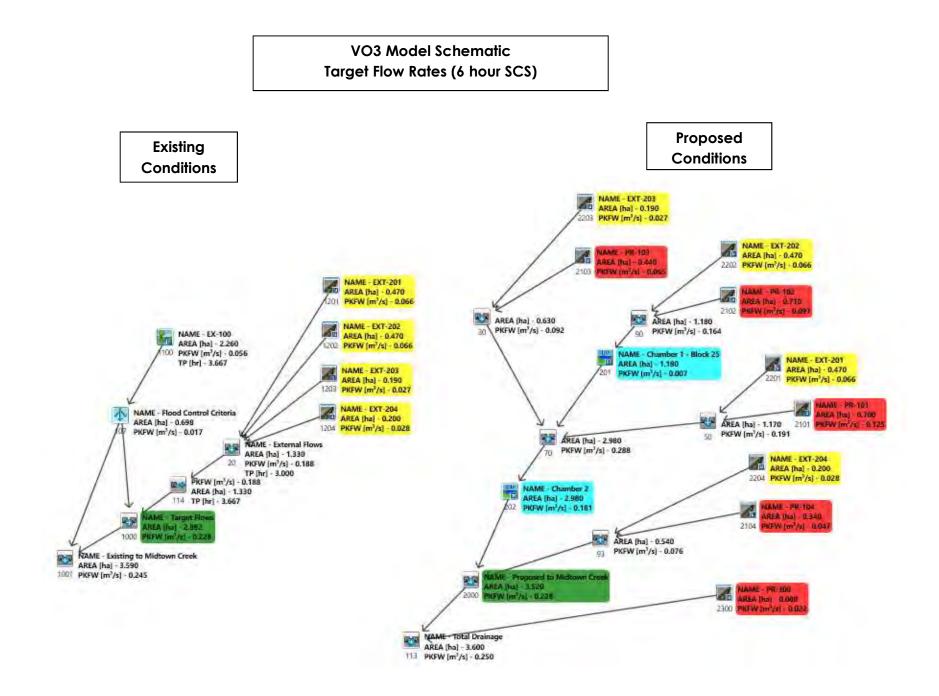
Design Chart 1.05: SCS Type II Distribution

Source: Ministry of Natural Resources - MNR (1986)

Appendix B

Hydrologic Modelling

Detailed Output - 6 hour SCS Storm Existing and Proposed Condition



DIVERTHYD Input Parameters Midtown Creek Flood Control Criteria

Down Stream:		Q1	Q2	Q3	Q4	Q5	
Diversions:		1000 - Target	- 1001 - Existin	~			
Flow Table:		QID 1 [m ³ /s]	QID 2 [m ³ /s]	QID 3 [m ^s /s]	QID 4 [m ³ /s]	QID 5 [m²/s]	Total
	1	0	0	0	0	0	0
	2	0.0025	0.0025	0	0	0	0.0050
	3	0.007	0,003	0	0	0	0.010
	4	0.010	0,004	0	0	0	0,014
	5	0.020	0.008	0	0	0	0.028
	6	0.029	0,013	0	0	0	0,042
	7	0.039	0.017	0	0	0	0.056
	8	0.07	0,03	0	0	0	0.10
	9		1	1	1		19.4

1/79 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. V SSSSS U U A L V I --- TRANSFORMED HYETOGRAPH ----V V Ι SS U U AA L V V I SS U U AAAAA L TIME RAIN | TIME RAIN |' TIME RAIN | TIME BAIN SS U U A A L V V I hrs mm/hr | hrs mm/hr |' hrs mm/hr | hrs mm/hr VV SSSSS UUUUU A A LLLLL 0.083 1.10 1.583 2.90 | 3.083 6.30 | 4.58 1.70 I 0.167 1.10 | 1.667 2.90 | 3.167 6.30 | 4.67 1.70 000 TTTTT TTTTT H H Y Y M M 000 TΜ 0.250 1.10 | 1.750 2,90 | 3,250 6.30 | 4.75 O O T T H H YY MM MM O O O O T T H H Y M M O O 0.333 1.10 | 1.833 2.90 | 3.333 6.30 | 4.83 1.70 0.417 1.10 | 1.917 2.90 | 3.417 6.30 | 4.92 1.70 000 т н н Y M M 000 0.500 1.10 | 2.000 2.90 | 3.500 6.30 | 5.00 1.70 Developed and Distributed by Civica Infrastructure 0.583 1.70 | 2.083 3.40 | 3.583 2.90 5.08 1.10 Copyright 2007 - 2013 Civica Infrastructure 0.667 1.70 | 2.167 3.40 | 3.667 2.90 | 5.17 1.10 All rights reserved. 0.750 1.70 | 2.250 3.40 | 3.750 2.90 | 5 25 1.10 0.833 1.70 | 2.333 3.40 | 3.833 2.90 1 5.33 1.10 0.917 1.70 | 2.417 3.40 | 3.917 2.90 | 5.42 1.10 ***** DETAILED OUTPUT ***** 1.70 | 2.500 1.000 3.40 | 4.000 2.90 | 5.50 1.10 1.083 1.70 | 2.583 17.20 | 4.083 2.30 | 5.58 1.10 1.167 1.70 | 2.667 17.20 | 4.167 2.30 5.67 1.10 Input filename: C:\Program Files (x86)\VO Suite 3.0\VO2\voin.dat 1.250 1.70 | 2.750 17.20 | 4.250 2.30 | 5.75 1.10 1.333 1.70 | 2.833 44.60 | 4.333 2.30 | 5.83 1.10 1.417 1.70 | 2.917 44.60 | 4.417 2.30 | 5.92 1.10 Output filename: C:\Users\cproctorbennett\AppData\Local\Temp\750011ff-e3b9-41bb-9e57-167e83c22650\Scenario. 1,500 1.70 | 3,000 44,60 | 4,500 2.30 | 6.00 1.10 out Unit Hyd Qpeak (cms)= 0.135 Summary filename: C:\Users\cproctorbennett\AppData\Local\Temp\750011ff-e3b9-41bb-9e57-167e83c22650\Scenario. PEAK FLOW (cms)= 0.005 (i) sum TIME TO PEAK (hrs) = 3.750 RUNOFF VOLUME (mm) = 1.514TOTAL RAINFALL (mm) = 28.550DATE: 05-11-2020 TIME: 08:17:12 RUNOFF COEFFICIENT = 0.053 USER: (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. | DIVERT HYD (0107)| COMMENTS: | IN= 1 # OUT= 5 | Outflow / Inflow Relationships ************************ ** SIMULATION NUMBER: 1 ** 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 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 0.01 READ STORM Filename: C:\Users\cproctorbennett\AppD 0.01 0.00 0.00 0.00 0.00 0.01 ata\Local\Temp\ 0.02 0.01 0.00 0.00 0.00 0.03 750011ff-e3b9-41bb-9e57-167e83c22650\9a624bb6 0.03 0.01 0.00 0.00 0.00 0.04 | Ptotal= 28.55 mm | Comments: 2-Year, 6 hour SCS Type II Storm Distrib 0.04 0.02 0.00 0.00 0.00 0.06 0.07 0.03 0.00 0.00 0.00 0.10 TIME RAIN | TIME RAIN | ' TIME RAIN | TIME RAIN hrs mm/hr | hrs mm/hr | AREA mm/hr | hrs mm/hr OPEAK TPEAK R.V. hrs 0.25 1.10 | 1.75 2.90 | 3.25 6.30 | 4.75 1.70 (ha) (cms) (hrs) (mm) 0.50 1.10 | 2.00 2,90 1 3.50 6.30 | 5.00 1.70 TOTAL HYD. (ID= 1): 2.26 0.00 3.75 1.51 0.75 1.70 | 2.25 3.40 | 3.75 2.90 | 5.25 1.10 _____ ____ ____ _____ ____ 1.00 1.70 | 2.50 3.40 | 4.00 2.90 | 5.50 ID= 2 (2) 1.51 1.10 1.13 0.00 3.75 1.25 1.70 | 2.75 17.20 | 4.25 2.30 | 5.75 2) 0.00 1.10 ID= 3 (1.13 3.75 1.51 1.50 1.70 | 3.00 44.60 | 4.50 2.30 | 6.00 ID= 4 (2) 0.00 0.00 0.00 0.00 1.10 ID= 5 (2) 0.00 0.00 0.00 0.00 0.00 ID= 6 (2) 0.00 0.00 0.00 _____ | CALIB | CALIB - I NASHYD (1100) | Area (ha)= 2.26 Curve Number (CN)= 46.4 | STANDHYD (1203) | Area (ha)= 0.19 (mm) = 6.70 |ID= 1 DT= 5.0 min | Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00 |ID= 1 DT= 5.0 min | Ia # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.64 IMPERVIOUS PERVIOUS (1) 2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 hour SCS (Target).txt 2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 hour SCS (Target).txt

Surface Area (ha) = 0.06 0.13		IMPERVIOUS PERVIOUS (i)
Dep. Storage (mm) = 1.00 5.00		Surface Area (ha)= 0.14 0.33
Average Slope (%)= 1.00 3.60		Dep. Storage (mm) = 1.00 5.00
Length (m) = 35.59 25.00		Average Slope (%)= 1.00 3.60
Mannings n = 0.013 0.250		Length (m) = 55.98 25.00
		Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 44.60 3.42		
over (min) 5.00 20.00		Max.Eff.Inten.(mm/hr)= 44.60 3.42
Storage Coeff. (min)= 1.90 (ii) 19.11 (ii)		over (min) 5.00 20.00
Unit Hyd. Tpeak (min) = 5.00 20.00		Storage Coeff. (min)= 2.49 (ii) 19.70 (ii)
Unit Hyd. peak (cms)= 0.32 0.06		Unit Hyd. Tpeak (min)= 5.00 20.00
	TOTALS	Unit Hyd. peak (cms)= 0.29 0.06
PEAK FLOW (cms) = 0.00 0.00 TIME TO PEAK (hrs) = 3.00 3.25	0.005 (iii) 3.00	*TOTALS* PEAK FLOW (cms)= 0.01 0.00 0.013 (iii)
RUNOFF VOLUME (mm) = 27.55 2.19	7.20	TIME TO PEAK (hrs) = 3.00 3.25 3.00
TOTAL RAINFALL (mm) = 28.55 28.55	28.55	RUNOFF VOLUME (mm) = 27.55 2.19 7.24
RUNOFF COEFFICIENT = 0.96 0.08	0.25	TOTAL RAINFALL (mm) = 28.55 28.55 28.55
		RUNDFF COEFFICIENT = 0.96 0.08 0.25
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!		
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%		***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
YOU SHOULD CONSIDER SPLITTING THE AREA.		***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
		YOU SHOULD CONSIDER SPLITTING THE AREA.
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		
CN* = 47.8 Ia = Dep. Storage (Above)		(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL		$CN^* = 47.8$ Ia = Dep. Storage (Above)
THAN THE STORAGE COEFFICIENT.		(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.		THAN THE STORAGE COEFFICIENT.
		(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB		
STANDHYD (1202) Area (ha)= 0.47		CALIB
ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	STANDHYD (1204) Area (ha)= 0.20
		ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
IMPERVIOUS PERVIOUS (1)		
Surface Area (ha) = 0.14 0.33		IMPERVIOUS PERVIOUS (1)
Dep. Storage (mm) = 1.00 5.00		Surface Area (ha)= 0.06 0.14
Average Slope (%) = 1.00 3.60		Dep. Storage (mm)= 1.00 5.00
Length (m) = 55.98 25.00		Average Slope $(8) = 1.00$ 3.60
Mannings n = 0.013 0.250		Length (m)= 36.51 25.00 Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr) = 44.60 3.42		Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 44.60 3.42 over (min) 5.00 20.00		Max.Eff.Inten.(mm/hr) = 44.60 3.42
Storage Coeff. (min)= 2.49 (ii) 19.70 (ii)		$r_{\rm ever}(min) = 5.00 = 20.00$
Unit Hyd. Tpeak (min) = 5.00 20.00		Storage Coeff. (min)= 1.93 (ii) 19.14 (ii)
Unit Hyd. peak (cms)= 0.29 0.06		Unit Hyd. Tpeak (min) = 5.00 20.00
	TOTALS	Unit Hyd. peak (cms)= 0.31 0.06
PEAK FLOW (cms) = 0.01 0.00	0.013 (iii)	*TOTALS*
TIME TO PEAK (hrs) = 3.00 3.25	3.00	PEAK FLOW (cms)= 0.00 0.00 0.005 (iii)
RUNOFF VOLUME (mm) = 27.55 2.19	7.24	TIME TO PEAK (hrs)= 3.00 3.25 3.00
TOTAL RAINFALL (mm) = 28.55 28.55	28.55	RUNOFF VOLUME (mm) = 27.55 2.19 7.20
RUNOFF COEFFICIENT = 0.96 0.08	0.25	TOTAL RAINFALL (mm) = 28.55 28.55 28.55
+++++ MADNING, CHARGE CORDE TO OWNITED HURY TAYS CORD.		RUNOFF COEFFICIENT = 0.96 0.08 0.25
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%		***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
YOU SHOULD CONSIDER SPLITTING THE AREA.		***** WARNING: STORAGE COEFF. IS SWALLER THAN THE STEP! ***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
IOU SHOOLD CONSIDER SPELILING THE AREA.		YOU SHOULD CONSIDER SPLITTING BELITTING
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		
$CN^* = 47.8$ Ia = Dep. Storage (Above)		(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL		$CN^* = 47.8$ Ia = Dep. Storage (Above)
THAN THE STORAGE COEFFICIENT.		(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.		THAN THE STORAGE COEFFICIENT.
		(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB		
STANDHYD (1201) Area (ha)= 0.47 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%	1= 20.00	ADD HYD (0020)
	, 20.00	1 + 2 = 3 AREA QPEAK TPEAK R.V.
2020-06-09 11:32:59 AM	10122 VO3 Detailed Output - 6 hour SCS (Target).txt	2020-06-09 11:32:59 AM 10122 VO3 Detailed Output - 6 hour SCS (Target).txt

+ ID2= 2 (1202): 0.	a) (cms) 47 0.013 47 0.013	3.00 3.00	(mm) 7.24 7.24		
ID = 3 (0020): 0.				STANDHYD (2101) Area (ha)= 0.70 ID= 1 DT= 5.0 min Total Imp(%)= 40.00 Dir. Conn.(%)	= 30.00
NOTE: PEAK FLOWS DO NOT I	NCLUDE BASEFL	OWS IF ANY	·Υ.	IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.28 0.42	
				Length (m) = 68.31 10.00	
DHYD (0020) 3 + 2 = 1 AR	ea opeak	TPEAK	B . V .	Mannings n = 0.013 0.250	
(h	a) (cms)	(hrs)	(mm)	Max.Eff.Inten.(mm/hr) = 44.60 4.47	
ID1= 3 (0020): 0. + ID2= 2 (1203): 0.				over (min) 5.00 15.00 Storage Coeff. (min)= 2.81 (ii) 13.45 (ii)	
ID = 1 (0020): 1.				Unit Hyd. Tpeak (min) = 5.00 15.00	
10 - 1 (0020): 1.	15 0.051	5.00	1.23		*TOTALS*
NOTE: PEAK FLOWS DO NOT I	NCLUDE BASEFL	OWS IF ANY	ſY.	PEAK FLOW (cms)= 0.03 0.00 TIME TO PEAK (hrs)= 3.00 3.17	0.028 (iii) 3.00
					9.82
				TOTAL RAINFALL (mm.)= 28.55 28.55	28.55
D HYD (0020)				RUNOFF COEFFICIENT = 0.96 0.08	0.34
+ 2 = 3 AR	EA QPEAK	TPEAK	R.V.	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	
				(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	
ID1= 1 (0020): 1. + ID2= 2 (1204): 0.				$CN^+ = 47.8$ Ia = Dep. Storage (Above) (ii) THE SERV (DR) CONSULTER OR DEVICE	
ID = 3 (0020): 1.				(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.	
NOTE: PEAK FLOWS DO NOT I				(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
NOTE: TEAM TEAMS DO NOT T	ACTORE DADRED	OND II PIN			
				CALLE	
IFT HYD (0114)				STANDHYD (2201) Area (ha)= 0.47	
= 2> OUT= 1 IFT= 40.0 min AREA	QPEAK	TPEAK	R.V.	ID = 5.0 min Total Imp(%) = 30.00 Dir. Conn.(%)	= 20.00
(ha)	(cms)	(hrs)	(mm)	IMPERVIOUS (1)	
ID= 2 (0020): 1.33 SHIFT ID= 1 (0114): 1.33		3.00 3.67	7.22 7.22	Surface Area (ha)= 0.14 0.33 Dep. Storage (mm)= 1.00 5.00	
				Average Slope (%)= 1.00 3.60	
				Length (m) = 55.98 25.00 Mannings n = 0.013 0.250	
D HYD (1000)	ja opeak	TPEAK	R.V.	Max.Eff.Inten.(mm/hr)= 44.60 3.42 over (min) 5.00 20.00	
D HYD (1000) 1 + 2 = 3 AR	EA QPEAK a) (cms)	TPEAK (hrs)	R.V. (mm)	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii)	
D HYD (1000) 1 + 2 = 3 AR 	13 0.002	3.75	1.51	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00	
$\begin{array}{c} \begin{array}{c} \text{D} \ \text{HYD} & (1000) \ \\ 1 + 2 = 3 & & \text{AR} \\ \hline \\ $	13 0.002 33 0.036	3.75 3.67	1.51 7.22	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. peak (cms)= 0.29 0.06	*TOTALS*
D HYD (1000) 1 + 2 = 3 AR (h ID1= 1 (0107): 1. + ID2= 2 (0114): 1.	13 0.002 33 0.036	3.75 3.67	1.51 7.22	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (i) Unit Hyd. Tpeak (min)= 5.00 20.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. peak (cms)= 0.29 0.06 0.00 0.00 0.00	*TOTALS* 0.013 (iii) 3.00
$\begin{array}{c} \begin{array}{c} \text{D} \ \text{HYD} & (1000) \ \\ 1 + 2 = 3 & & \text{AR} \\ \hline \\ $	13 0.002 33 0.036 46 0.038	3.75 3.67 3.67 3.67	1.51 7.22 4.60	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (cms)= 0.29 0.06 PEAK FLOW (cms)= 0.01 0.00 TIME TO PEAK (hrs)= 3.00 3.25 RUNOFF VOLUME (mm)= 27.55 2.19	0.013 (iii) 3.00 7.24
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL	3.75 3.67 3.67 LOWS IF ANY	1.51 7.22 4.60	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (i) Unit Hyd. Tpeak (min)= 5.00 20.00 20.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 20.00 20.00 Unit Hyd. peak (cms)= 0.29 0.06 20.00 20.00 PEAK FLOW (cms)= 0.01 0.00 0.00 71ME TO PEAK (hrs)= 3.00 3.25 RUNOFF VOLUME (mm)= 27.55 2.19 707AL RAINFALL (mm)= 28.55 28.55	0.013 (iii) 3.00
D HYD (1000) 1 + 2 = 3 AR IDI= 1 (0107): 1. + ID2= 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL	3.75 3.67 3.67 LOWS IF ANY	1.51 7.22 4.60	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. peak (cms)= 0.29 0.00 PEAK FLOW (cms)= 0.01 0.00 TIME TO FEAK (hrs)= 3.00 3.25 RUNOFF VOLUME (mm)= 27.55 2.19 TOTAL RAINFALL (mm)= 28.55 28.55 RUNOFF COEFFICIENT = 0.96 0.08	0.013 (iii) 3.00 7.24 28.55
D HYD (1000) 1 + 2 = 3 AR IDl = 1 (0107): 1, + ID2 = 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL	3.75 3.67 3.67 LOWS IF ANY	1.51 7.22 4.60		0.013 (iii) 3.00 7.24 28.55
D HYD (1000) 1 + 2 = 3 AR IDI= 1 (0107): 1. + ID2= 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I 	13 0.002 33 0.036 	3.75 3.67 3.67 .0WS IF ANY 	1.51 7.22 4.60 №.	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. peak (cms)= 0.29 0.00 PEAK FLOW (cms)= 0.01 0.00 TIME TO FEAK (hrs)= 3.00 3.25 RUNOFF VOLUME (mm)= 27.55 2.19 TOTAL RAINFALL (mm)= 28.55 28.55 RUNOFF COEFFICIENT = 0.96 0.08	0.013 (iii) 3.00 7.24 28.55
D HYD (1000) + 2 = 3 AR ID1= 1 (0107): 1. + 1D2= 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I 	13 0.002 33 0.036 	3.75 3.67 3.67 .0WS IF ANY TPEAK (hrs)	1.51 7.22 4.60 YY.	over (min) 5.00 20.00 Storage Coeff. (min) = 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. peak (cms) = 0.29 0.06 PEAK FLOW (cms) = 0.01 0.00 TIME TO PEAK (hrs) = 3.00 3.25 RUNOFF VOLUME (mm) = 27.55 2.19 TOTAL RAINFALL (mm) = 28.55 28.55 RUNOFF COEFFICIENT = 0.96 0.08 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. YOU SHOULD CONSIDER SPLITTING THE AREA.	0.013 (iii) 3.00 7.24 28.55
D HYD (1000) + 2 = 3 AR IDl = 1 (0107): 1. + ID2 = 2 (0114): 1. ID = 3 (1000): 2. NOTE: FEAK FLOWS DO NOT I 	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL EA QPEAK a) (cms) 46 0.038	3.75 3.67 3.67 .0WS IF ANY TPEAK (hrs) 3.67	1.51 7.22 4.60 ЧҮ. 	over (min) 5.00 20.00 Storage Coeff. (min) = 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. peak (cms) = 0.29 0.06 PEAK FLOW (cms) = 0.01 0.00 TIME TO PEAK (hrs) = 3.00 3.25 RUNOFF VOLUME (mm) = 27.55 2.19 TOTAL FAINFALL (mm) = 28.55 28.55 RUNOFF VOLIME (mm) = 0.96 0.08 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	0.013 (iii) 3.00 7.24 28.55
D HYD (1000) 1 + 2 = 3 AR IDJ = 1 (0107): 1. + ID2 = 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I D HYD (1001) 1 + 2 = 3 AR IDJ = 1 (1000): 2. + ID2 = 2 (0107): 1.	13 0.002 33 0.036 	3.75 3.67 3.67 .0WS IF ANY TPEAK (hrs) 3.67 3.75	1.51 7.22 4.60 YY. R.V. (mm) 4.60 1.51	over (min) 5.00 20.00 Storage Coeff. (min) = 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. Tpeak (min) = 0.29 0.06 PEAK FLOW (cms) = 0.01 0.00 TIME TO PEAK (hrs) = 3.00 3.25 RUNOFF VOLUME (mm) = 27.55 2.19 TOTAL FAINFALL (mm) = 28.55 28.55 RUNOFF VOLIME (mm) = 0.96 0.08 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: STORAGE SELECTED FOR PERVIOUS LOSSES: CI* = 47.8 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CI* = 47.8 (ii) TIME STEP (DT) SHOULD EE SMALLER OR EQUAL (ibove) (ii) TIME STEP (DT) SHALLER OR EQUAL	0.013 (iii) 3.00 7.24 28.55
D HYD (1000) 1 + 2 = 3 AR IDI = 1 (0107): 1. + ID2 = 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I D HYD (1001) 1 + 2 = 3 AR IDI = 1 (1000): 2. + ID2 = 2 (0107): 1. ID = 3 (1001): 3.	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL 	3.75 3.67 3.67 LOWS IF ANY TPEAK (hrs) 3.67 3.75	1.51 7.22 4.60 YY. R.V. (rmm) 4.60 1.51 3.63		0.013 (iii) 3.00 7.24 28.55
D HYD (1000) L + 2 = 3 AR IDl = 1 (0107): 1. + ID2 = 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I D HYD (1001) L + 2 = 3 AR IDL = 1 (1000): 2. + ID2 = 2 (0107): 1. D HZD (1007): 1.	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL 	3.75 3.67 3.67 LOWS IF ANY TPEAK (hrs) 3.67 3.75	1.51 7.22 4.60 YY. R.V. (rmm) 4.60 1.51 3.63	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 0.29 0.06 PEAK FLOW (cms)= 0.29 0.00 TIME TO PEAK (hrs)= 3.00 3.25 RUNOFF VOLUME (mm)= 27.55 2.19 TOTAL RAINFALL (mm)= 2.8.55 28.55 RUNOFF COEFFICIENT = 0.96 0.08 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: FOR ARBAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITING THE ARBA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD EE SMALLER OR EQUAL THAN HE STORAGE COEFFICI SENT. THAN THE STORAGE COEFFICIENT.	0.013 (iii) 3.00 7.24 28.55
HYD (1000) + 2 = 3 AR IDl= 1 (0107): 1. + ID2= 2 (0114): 1. ID = 3 (1000): 2. NOTE: PEAK FLOWS DO NOT I HYD (1001) + 2 = 3 AR IDl= 1 (1000): 2. + ID2= 2 (0107): 1. ID = 3 (1001): 3.	13 0.002 33 0.036 46 0.038 NCLUDE BASEFL 	3.75 3.67 3.67 LOWS IF ANY TPEAK (hrs) 3.67 3.75	1.51 7.22 4.60 YY. R.V. (rmm) 4.60 1.51 3.63	over (min) 5.00 20.00 Storage Coeff. (min)= 2.49 (ii) 19.70 (ii) Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. Tpeak (min)= 0.29 0.06 PEAK FLOW (cms)= 0.29 0.00 TIME TO PEAK (hrs)= 3.00 3.25 RUNOFF VOLUME (mm)= 27.55 2.19 TOTAL RAINFALL (mm)= 2.8.55 28.55 RUNOFF COEFFICIENT = 0.96 0.08 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: FOR ARBAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITING THE ARBA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD EE SMALLER OR EQUAL THAN HE STORAGE COEFFICI SENT. THAN THE STORAGE COEFFICIENT.	0.013 (iii) 3.00 7.24 28.55

6 hour SCS (Target).txt

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RAINFALL (mm)= 28.55 28.55 28.55 F COEFFICIENT = 0.96 0.08 0.25
ING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
INGFOR AREAS WITH IMPERIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.
CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^* = 47.8$ Ia = Dep. Storage (Above)
TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT. PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
(0900)
= 3 AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
IDI= 1 (2102): 0.71 0.018 3.00 6.70
ID2= 2 (2202): 0.47 0.013 3.00 7.24
ID = 3 (0090): 1.18 0.031 3.00 6.92
PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
R (0201) > OUT= 1
min OUTFLOW STORAGE OUTFLOW STORAGE
(cms) (ha.m.) ((cms) (ha.m.)
0.0000 0.0000 0.0052 0.0213
0.0001 0.0050 0.0060 0.0258
0.0003 0.0058 0.0068 0.0296 0.0009 0.0073 0.0074 0.0325
0.0021 0.0096 0.0081 0.0325
0.0034 0.0134 0.0086 0.0379
0.0039 0.0157 0.0000 0.0000
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
W : ID= 2 (0090) 1.180 0.031 3.00 6.92 CW: ID= 1 (0201) 1.180 0.001 6.00 2.16
24. The T (0201) T TOO 0.001 0.00 5.10
PEAK FLOW REDUCTION [Qout/Qin](%)= 2.99
TIME SHIFT OF PEAK FLOW (min)=180.00
MAXIMUM STORAGE USED (ha.m.) = 0.0074
(2103) Area (ha)= 0.44
5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
IMPERVIOUS PERVIOUS (i)
ce Area (ha)= 0.13 0.31
Storage (mm) = 1.00 5.00
ge Slope (%)= 2.00 2.00
h $(\mathfrak{m}) = 54.16$ 10.00
ngs n = 0.013 0.250
ff.Inten.(mm/hr) = 44.60 4.26
over (min) 5.00 15.00
ge Coeff. (min)= 1.98 (ii) 12.83 (ii)
Hyd. Tpeak (min) = 5.00 15.00
Hyd. peak (cms)= 0.31 0.08
TOTALS FLOW (cms)= 0.01 0.00 0.013 (iii)
H

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TIME TO PEAK (hrs)= 3.00 3.17 3.00 RUNOFF VOLUME (mm)= 27.55 2.19 7.24 TOTAL RAINFALL (mm)= 28.55 28.55 28.55	ID1= 1 (0201): 1.18 0.001 6.00 2.16 + ID2= 2 (0030): 0.63 0.018 3.00 7.23
RUNOFF COEFFICIENT = 0.96 0.08 0.25	ID = 3 (0070): 1.81 0.018 3.00 3.92
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! *** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 208 YOU SHOULD CONSIDER SPLITTING THE AREA.	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (D') SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 	
ZALIB STANDHYD (2203) Area (ha)= 0.19 DT = 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	ID = 1 (0070): 2.98 0.059 3.00 5.83 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.06 0.13 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 35.59 25.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr) = 44.60 3.42 over (min) 5.00 20.00 Storage Coeff. (min) = 1.90 (ii) 19.11 (ii)	I RESERVOIR (0202) I NH= 2> OUT= 1 DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0430 0.0228 0.0001 0.0173 0.0913 0.0255 0.0006 0.0179 0.1374 0.0275 0.0094 0.0198 0.1695 0.0292 0.0236 0.0214 0.1892 0.0304
Unit Hyd. Tpeak (min)= 5.00 20.00 Unit Hyd. peak (cms)= 0.32 0.06 FEAK FLOW (cms)= 0.00 0.00 0.005 (iii) TIME TO PEAK (hrs)= 3.00 3.25 3.00 RUNOFF VOLUME (mm)= 27.55 2.19 7.20 TOTAL RAINFALL (mm)= 28.55 28.55 28.55 RUNOFF COEFFICIENT = 0.96 0.08 0.25 *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) INFLOW : ID= 2 (0070) 2.980 0.059 3.00 5.83 OUTFLOW: ID= 1 (0202) 2.980 0.059 15.92 0.14 PEAK FLOW REDUCTION [Qout/Qin](%)= 0.17 TIME SHIFT OF PEAK FLOW (min)=775.00 MAXIMUM STORAGE USED (ha.m.)= 0.0170
 *** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAR FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
ADD HYD (0030) 1 + 2 = 3 AREA QPEAK TPEAK R.V. TD1= 1 (2103): 0.44 0.013 3.00 7.24 + ID2 = 2 (2203): 0.19 0.005 3.00 7.23 ID = 3 (0030): 0.63 0.018 3.00 7.23	Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr) = 44.60 5.49 over (min) 5.00 15.00 Storage Coeff. (min) = 1.84 (ii) 11.64 (ii) Unit Hyd. Tpeak (min) = 5.00 15.00 Unit Hyd. peak (cms) = 0.32 0.09 *TOTALS* PEAK FLOW (cms) = 0.01 0.000 0.008 (iii)
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	TIME TO PEAK (hrs)= 3.00 3.17 3.00 RUNOFF VOLUME (mm)= 27.55 2.32 6.09 TOTAL RAINFALL (mm)= 28.55 28.55 28.55 RUNOFF COEFFICIENT 0.96 0.08 0.21
ADD HYD (0070) 1 + 2 = 3 AREA QPEAK TPEAK R.V. 	***** WARNING: STORAGE COEFF. IS SWALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.

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(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	CALIB
CN* = 47.8 Ia = Dep. Storage (Above)	STANDHYD (2300) Area (ha)= 0.08
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	ID= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00
THAN THE STORAGE COEFFICIENT.	
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	IMPERVIOUSPERVIOUS (i)Surface Area0.050.03
	Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
	Average Slope (%)= 1.00 2.00
ALIB	Length $(m) = 23.09 + 5.00$
TANDHYD (2204) Area (ha)= 0.20	Mannings n = 0.013 0.250
= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	
	Max.Eff.Inten.(mm/hr)= 44.60 3.65
IMPERVIOUS PERVIOUS (1)	over (min) 5.00 5.00
Surface Area (ha)= 0.06 0.14 Dep. Storage (mm)= 1.00 5.00	Storage Coeff. (min)= 1.46 (ii) 3.73 (ii) Unit Hyd. Tpeak (min)= 5.00 5.00
Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60	Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. peak (cms)= 0.33 0.25
Length $(m) = 36.51$ 25.00	*TOTALS*
Mannings n = 0.013 0.250	PEAK FLOW (cms)= 0.01 0.00 0.007 (iii)
-	TIME TO PEAK (hrs)= 3.00 3.00 3.00
Max.Eff.Inten.(mm/hr)= 44.60 3.42	RUNOFF VOLUME (mm)= 27.55 1.84 18.03
over (min) 5.00 20.00	TOTAL RAINFALL (mm) = 28.55 28.55 28.55
Storage Coeff. (min) = 1.93 (ii) 19.14 (ii)	RUNOFF COEFFICIENT = 0.96 0.06 0.63
Unit Hyd. Tpeak (min) = 5.00 20.00	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
Unit Hyd. peak (cms) = 0.31 0.06 *TOTALS*	WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
PEAK FLOW (cms) = 0.00 0.00 0.005 (iii)	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
TIME TO PEAK (hrs)= 3.00 3.25 3.00	$CN^* = 47.8$ Ia = Dep. Storage (Above)
RUNOFF VOLUME (num) = 27.55 2.19 7.20	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
TOTAL RAINFALL (num) = 28.55 28.55 28.55	THAN THE STORAGE COEFFICIENT.
RUNOFF COEFFICIENT = 0.96 0.08 0.25	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
 CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 	IDI= (2000): 3.52 0.013 3.00 1.12 + ID2= 2 (2300): 0.08 0.007 3.00 18.03
	ID = 3 (0113): 3.60 0.020 3.00 1.49
	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
DD HYD (0093)	
1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)	** SIMULATION NUMBER: 2 **
(ha) (cms) (hrs) (mm) ID1= 1 (2104): 0.34 0.008 3.00 6.09	** SINULATION NUMBER: 2 **
+ ID2= 2 (2204): 0.20 0.005 3.00 7.20	
ID = 3 (0093): 0.54 0.013 3.00 6.50	
	READ STORM Filename: C:\Users\cproctorbennett\AppD
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	ata\Local\Temp\ F001166_c2b0_41bb_057_167022c22560\21124c0c
	750011ff-e3b9-41bb-9e57-167e83c22650\3113dcOe Ptotal= 39.33 mm Comments: 5-Year, 6 hour SCS Type II Storm Distrib
	TIME RAIN TIME RAIN TIME RAIN TIME RAIN
DD HYD (2000)	hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
1 + 2 = 3 AREA QPEAK TPEAK R.V.	0.25 1.60 1.75 3.90 3.25 8.60 4.75 2.40
(ha) (cms) (hrs) (mm)	0.50 1.60 2.00 3.90 3.50 8.60 5.00 2.40
ID1= 1 (0202): 2.98 0.000 15.92 0.14 + ID2= 2 (0093): 0.54 0.013 3.00 6.50	0.75 2.40 2.25 4.70 3.75 3.90 5.25 1.60 1.00 2.40 2.50 4.70 4.00 3.90 5.50 1.60
	1.00 2.40 2.55 4.70 4.00 3.90 5.55 1.60 1.25 2.40 2.75 23.60 4.25 3.10 5.75 1.60
+ 1D2= 2 (0093): 0.54 0.013 3.00 6.50	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
ID = 3 (2000): 3.52 0.013 3.00 1.12	
ID = 3 (2000): 3.52 0.013 3.00 1.12	
ID = 3 (2000): 3.52 0.013 3.00 1.12 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	

1	2	1	7	c

| CALIB

CALIB			
NASHYD (1100)	Area (ha)=	2.26	Curve Number (CN)= 46.4
ID= 1 DT= 5.0 min	Ia (mm)=	6.70	# of Linear Res.(N)= 3.00
	U.H. $Tp(hrs) =$	0.64	

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 TIME 3.90 | 3.083 0.083 1.60 | 1.583 8.60 | 4.58 2.40 0.167 1.60 | 1.667 3.90 | 3.167 8.60 | 4.67 2.40 0.250 1.60 | 1.750 3.90 | 3.250 8.60 | 4.75 0.333 1.60 | 1.833 3.90 | 3.333 8.60 | 4.83 2.40 0.417 1.60 | 1.917 3.90 | 3.417 8.60 | 4.92 2.40 3.90 | 3.500 0.500 1.60 | 2.000 8.60 1 5.00 4.70 | 3.583 0.583 2.40 | 2.083 3.90 j 5.08 0.667 2.40 | 2.167 4.70 | 3.667 3.90 | 5.17 0.750 2.40 | 2.250 4.70 | 3.750 3.90 | 5.25 0.833 2.40 | 2.333 4.70 | 3.833 3.90 | 5.33 0.917 2.40 | 2.417 4.70 | 3.917 3.90 | 5.42 4.70 | 4.000 1.000 2.40 | 2.500 3.90 | 5.50 1.083 2.40 | 2.583 23.60 | 4.083 3.10 | 5.58 1.167 2.40 | 2.667 23.60 | 4.167 3.10 | 5.67 1.250 2.40 | 2.750 23.60 | 4.250 3.10 | 5.75 1.333 2.40 | 2.833 61.30 | 4.333 3.10 | 5.83 1.417 2.40 | 2.917 61.30 | 4.417 3.10 | 5.92 1.500 2.40 | 3.000 61.30 | 4.500 3.10 | 6.00 1.60 Unit Hyd Qpeak (cms)= 0.135 PEAK FLOW (cms) = 0.010 (i) TIME TO PEAK (hrs) = 3.667 RUNOFF VOLUME (mm) = 3.264 TOTAL RAINFALL (mm) = 39.325 RUNOFF COEFFICIENT = 0.083 (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. _____ | DIVERT HYD (0107)| | 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 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 0.00 0.01 0.01 0.00 0.00 0.00 0.00 0.01 0.02 0.01 0.00 0.00 0.00 0.03 0.03 0.01 0.00 0.00 0.00 0.04 0.04 0.02 0.00 0.00 0.00 0.06 0.07 0.03 0.00 0.00 0.00 0.10 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) TOTAL HYD.(ID= 1): 2.26 0.01 3.67 3.26 ____ ID= 2 (2) 1.36 0.01 3.67 3.26 : ID= 3 (2) : 0.90 0.00 3.67 3.26 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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2.40

2.40

1.60

1.60

1.60

1.60

1.60

1.60

1.60

1.60

1.60

1.60

1.60

STANDHYD									
	(1203)	Area	(ha) =	0.19					
ID= 1 DT=	5.0 min	Total	Imp(%)=	30.00	Dir.	Conn.	(%)=	20.00	
			IMPERVI	0110	DEDUTO	(g. / i)			
Surfac	e Area	(ha) =							
	torage								
	e Slope								
	e prope								
	gs n								
Max.Ef	f.Inten.(m	nm/hr)=	61.3	0	8.67				
			5.0						
Storag	e Coeff.								
	yd. Tpeak								
	yd. peak								
							1	OTALS	
PEAK F	LOW	(cms)=	0.0	1	0.00			0.008	(iii
TIME T	LOW O PEAK	(hrs) =	3.0	0	3.17			3.00	
RUNOFF	O PEAK VOLUME RAINFALL COEFFICIE	(mm) =	38.3	2	4.40			11.14	
TOTAL	RAINFALL	(mm) =	39.3	3	39.33			39.33	
RUNOFF	COEFFICIE	ENT =	0.9	7	0.11			0.28	
**** WARNI **** WARNI	NG:FOR ARE	CAS WITH		US RAT	IOS BELC	W 20%			

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha) =	0.14	0.33	
Dep. Storage	(mm) =	1.00	5.00	
Average Slope	(8)=	1.00	3.60	
Length	(m) =	55.98	25.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(n	m/hr)=	61.30	8.67	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.19 (ii)	14.06 (ii)	
Unit Hyd. Tpeak	(min) =	5.00	15.00	
Unit Hyd. peak	(cms)=	0.31	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.020 (iii)
TIME TO PEAK	(hrs)=	3.00	3.17	3.00
RUNOFF VOLUME	(mm) =	38.32	4.40	11.17

39.33

0.97

39.33

0.11

39.33

0.28

***** 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* = 47.8 Ia = Dep. 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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TOTAL RAINFALL (mm) =

RUNOFF COEFFICIENT =

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	15/79		16/79
CALIB STANDHYD (1201) Area (ha)= 0.47 ID=1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)	= 20.00	ADD HYD (0020) 1 + 2 = 3 AREA QPEAK TPEAK R.V.	
$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
Max.Eff.Inten.(mm/hr)= 61.30 8.67 over(min) 5.00 15.00		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
Storage Coeff. (min)= 2.19 (ii) 14.06 (ii) Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.31 0.08	*TOTRLS*	ADD HYD (0020) 3 + 2 = 1 AREA QPEAK TPEAK R.V.	
	101A20 0.020 (iii) 3.00 11.17 39.33 0.28	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 			
		ID = 3 (0020): 1.33 0.056 3.00 11.16 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.06 0.14 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60 Length (m)= 36.51 25.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 61.30 8.67 over (min) 5.00 15.00			
Storage Coeff. (min)= 1.70 (ii) 13.57 (ii) Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.32 0.08 PEAK FLOW (cms)= 0.01 0.00 TIME TO PEAK (hrs)= 3.00 3.17 RUNOFF VOLUME (mm)= 36.32 4.40 TOTAL RAINFALL (mm)= 39.33 39.33	*TOTALS* 0.008 (iii) 3.00 11.14 39.33	ADD HYD (1000) ADD HYD (1000) 1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) ID1= 1 (0107): 1.36 0.007 3.67 3.26 + ID2= 2 (0114): 1.33 0.056 3.67 11.16 	
RUNOFF COEFFICIENT = 0.97 0.11 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	0.28	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN [★] = 47.8 Ia = Dep. 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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	(11) THAN THE STORAGE COEFFICIENT. THAN THE STORAGE COEFFICIENT. (111) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.				
CALIB STANDHYD (2101) Area (ha)= 0.70	ADD HYD (0050) 1 + 2 = 3 AREA QPEAK TPEAK R.V.				
Shadon D = 1 DT = (5.0 m) + Area = (16) =					
	ID1=1 (2101): 0.70 0.044 3.00 14.64				
IMPERVIOUS PERVIOUS (1)	+ ID2 = 2 (2201): 0.47 0.020 3.00 11.17				
Surface Area (ha)= 0.28 0.42					
Dep. Storage (mm) = 1.00 5.00	ID = 3 (0050): 1.17 0.064 3.00 13.25				
Average Slope (%)= 1.00 2.00					
Length $(m) = 68.31 10.00$	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.				
Mannings n = 0.013 0.250					
Max.Eff.Inten.(mm/hr)= 61.30 10.33					
over (min) 5.00 10.00	CALIB				
Storage Coeff. (min)= 2.47 (ii) 7.40 (ii)	STANDHYD (2102) Area (ha)= 0.71				
Unit Hyd. Tpeak (min)= 5.00 10.00	ID= 1 DT= 5.0 min Total Imp(%)= 27.00 Dir. Conn.(%)= 18.00				
Unit Hyd. peak (cms)= 0.29 0.13					
TOTALS	IMPERVIOUS PERVIOUS (1)				
PEAK FLOW (cms)= 0.04 0.01 0.044 (iii)	Surface Area (ha)= 0.19 0.52				
TIME TO PEAK (hrs)= 3.00 3.08 3.00	Dep. Storage (mm) = 1.00 5.00				
RUNOFF VOLUME (mm) = 38.32 4.50 14.64	Average Slope (%) = 0.60 2.00				
TOTAL RAINFALL (mm) = 39.33 39.33 39.33	Length $(m) = 68.80 10.00$				
RUNOFF COEFFICIENT = 0.97 0.11 0.37	Mannings n = 0.013 0.250				
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	Max.Eff.Inten.(mm/hr) = 61.30 9.54				
WARNING: SIORAGE COEFF. IS SMALLER IMAN TIME SIEP:	$\begin{bmatrix} p_{\text{MA}}, p_{\text{M}}, p_{M}, p_{M},$				
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	Storage Coeff. $(mn) = 2.89$ (ii) 10.76 (ii)				
(1) ON TROODERIC Since the Territor Transformation (Above) $CN^* = 47.8$ La = Dep. Storage (Above)	Unit Hyd T peak (min) = 5.00 15.00 15.00				
(ii) THE STEP (DT) SHOULD BE SHALLER OR EQUAL	Unit Hyd. Ipeak $(ms) = 0.28$ 0.09				
THAN THE STORAGE COEFFICIENT.	*TOTALS*				
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	PEAK FLOW (cms) = 0.02 0.01 0.028 (iii)				
	TIME TO PEAK (hrs)= 3.00 3.08 3.00				
	RUNOFF VOLUME (mn) = 38.32 4.32 10.43				
	TOTAL RAINFALL (mm) = 39.33 39.33 39.33				
CALIB	RUNOFF COEFFICIENT = 0.97 0.11 0.27				
STANDHYD (2201) Area (ha)= 0.47					
ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!				
	***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%				
IMPERVIOUS PERVIOUS (i)	YOU SHOULD CONSIDER SPLITTING THE AREA.				
Surface Area (ha)= 0.14 0.33					
Dep. Storage (mm)= 1.00 5.00	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:				
Average Slope (%)= 1.00 3.60	$CN^* = 47.8$ Ia = Dep. Storage (Above)				
Length (m)= 55.98 25.00	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL				
Mannings n = 0.013 0.250	THAN THE STORAGE COEFFICIENT.				
	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.				
Max.Eff.Inten.(mm/hr)= 61.30 8.67					
over (min) 5.00 15.00					
Storage Coeff. (min)= 2.19 (ii) 14.06 (ii)					
Unit Hyd. Tpeak (min) = 5.00 15.00	CALIB				
Unit Hyd. peak (cms)= 0.31 0.08	STANDHYD (2202) Area (ha)= 0.47				
TOTALS	ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00				
PEAK FLOW (cms) = 0.02 0.00 0.020 (iii)					
TIME TO PEAK (hrs) = 3.00 3.17 3.00	IMPERVIOUS PERVIOUS (i)				
RUNOFF VOLUME (mm) = 38.32 4.40 11.17	Surface Area (ha)= 0.14 0.33				
TOTAL RAINFALL (mm) = 39.33 39.33 39.33 RUNOFF COEFFICIENT = 0.97 0.11 0.28	Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 3.60				
RUNOFF COEFFICIENT = 0.97 0.11 0.28					
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!					
*** WARNING: STORAGE COEFF. IS SMALLEK THAN TIME STEP! *** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	Mannings n = 0.013 0.250				
YOU SHOULD CONSIDER SPLITING THE AREA.	Max.Eff.Inten.(mm/hr)= 61.30 8.67				
155 Should consider Statiling the Area.	$\begin{array}{ccc} \text{MAX.EII.Inten.}(mm/nt) = & \text{OI.SU} & \text{S.67} \\ \text{over}(min) & \text{S.00} & \text{IS.00} \end{array}$				
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	Storage Coeff. (min) = 2.19 (ii) 14.06 (ii)				
(1) CALLANCEDORS SILECTED FOR FRACTION DOSDESS. $CN^* = 47.8$ I a = Dep. Storage (Above)	Unit Hyd T peak (min) = 5.00 15.00 15.00				
	Line if a point (main) and a bill a				
0-06-09 11:32:59 AM 10122 VO3 Detailed Output - 6 hour SCS (Target).txt	2020-06-09 11:32:59 AM 10122 VO3 Detailed Output - 6 hour SCS (Tar				

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
TWE TOW INTER TOWER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.033 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.03 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.03 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.03 1.03 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.03 1.03 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.03 1.03 1.03 1.03 1.03 TWE TOY HER TOWER 1001: 0.03 1.03 1.03 1.03 <th></th> <th>19/79</th>		19/79
Non-1 NAME OPECA THEMA IS ALL 1 + 2 + 3 AREA OPECA THEMA IS ALL OALS DATE	<pre>***** WARNING: FOR AREAS WITH IMPERVIOUS LOSSES:</pre>	Unit Hyd. Tpeak (min) = 5.00 10.00 Unit Hyd. peak (cms) = 0.32 0.12 *TOTALS* PEAK FLOW (cms) = 0.01 0.01 0.020 (iii) TIME TO PEAK (hrs) = 3.00 3.08 3.00 RUNOFF VOLUME (mm) = 38.32 4.40 11.17 TOTAL RAINFALL (mm) = 39.33 39.33 39.33 RUNOFF COEFFICIENT = 0.97 0.11 0.28 ****** 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* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFF.CIENT.
RESERVOIR (0200) I OUTELAN STORAGE I I OUTELAN STORAGE I OUTELAN STORAGE I I OUTELAN STORAGE I I OUTELAN STORAGE I I I	ADD HYD (0090) 1 + 2 = 3 AREA QPEAK TPEAK R.V. TD1= 1 (2102): 0.71 0.028 3.00 10.43 + ID2= 2 (2202): 0.47 0.020 3.00 11.17 ID = 3 (0090): 1.18 0.048 3.00 10.72	CALIB
AREA QEEAK TEEAK R.V. (ha) (mas) (hrs) (mm) OUTFLOW: ID = 2 (0000) 1.160 0.002 5.17 5.97 PEAK FLOW REDUCTION [Qout/Qin] (b] = 4.91 YOU SHOLD CONSIDER SELECTED FOR PERVIOUS LOSSES: TITLE SITT OF PEAK FLOW (min) = 13.0.00 (min) = 13.0.00 (min) = 13.0.00 MAXIMUM STORAGE USED (ha.m.) = 0.0104 (iii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 TITLE SITT OF PEAK FLOW (min) = 13.0.00 (min) = 13.0.00 (min) = 13.0.00 MAXIMUM STORAGE USED (ha.m.) = 0.0104 (iii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 TITLE SINALLER THAN TIME STEP! (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 TITLE SINALLER THAN TIME STORAGE COEFFICIENT (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 TITLE SINAL (b] (103) Area (ha) = 0.44 (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 TITLE SINAL (b] (1010) IDI = 0.003 (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 (iiii) FEAK FLOW RESULTION [Qout/Qin] (b] = 4.91 STANDING: STOR	IN= 2> OUT= 1 DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0052 0.0213 0.0001 0.0050 0.0068 0.0296 0.0003 0.0058 0.0068 0.0296 0.0009 0.0073 0.0074 0.0325 0.0021 0.0096 0.0086 0.0379	Max.Eff.Inten.(mm/hr)= 61.30 8.67 over (min) 5.00 15.00 Storage Coeff. (min)= 1.67 (ii) 13.54 (ii) Unit Hyd. Tpeak (mn)= 5.00 15.00 Unit Hyd. peak (cms)= 0.32 0.08 *TOTALS* PEAK FLOW (cms)= 0.01 0.00 0.008 (iii) TIME TO PEAK (hrs)= 3.00 3.17 3.00 RUNOFF VOLUME (mm)= 38.32 4.40 11.14 TOTALR RAINFRALL (mm)= 39.33 39.33 39.33
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) INFLOW: ID= 2 (0090) 1.180 0.048 3.00 10.72 OUTFLOW: ID= 1 (0201) 1.180 0.002 5.17 5.97 PEAK FLOW REDUCTION [Qout/Qin](%)= 4.91 TIME SHIFT OF PEAK TLOW (min)=130.00	 ***** 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* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
Max.Eff.Inten.(mm/hr)= 61.30 9.89	STANDHYD (2103) Area (ha) = 0.44 ID=1 DT= 5.0 min Total Imp(%) = 30.00 Dir. Conn.(%) = 20.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.13 0.31 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 2.00 2.00 Length (m) = 54.16 10.00 Mannings n = 0.013 0.250	ADD HYD (0030) 1 + 2 = 3 AREA OPEAK TPEAK R.V.
over (min) 5.00 10.00	Max.Eff.Inten.(mm/hr)= 61.30 9.89 over(min) 5.00 10.00	

	21/79 22/79
ADD HYD (0070) 1 + 2 = 3 AREA QPEAK TPEAK R.V. TD1= 1 (0201): 1.18 0.002 5.17 5.97 + 112= 2 (0030): 0.63 0.029 3.00 11.16 TD = 3 (0070): 1.81 0.029 3.00 7.78 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	RUNOFF COEFFICIENT = 0.97 0.12 0.25 ***** 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* = 47.8 Ia = Dep. 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 (0070) 3 + 2 = 1 AREA QPEAK TPEAK R.V. 1D1= 3 (0070): 1.81 0.029 3.00 7.78 + ID2= 2 (0050): 1.17 0.064 3.00 13.25 ID = 1 (0070): 2.98 0.093 3.00 9.93 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
IN= 2> OUT= 1 DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0430 0.0225 0.0001 0.0173 0.0913 0.0255 0.0006 0.0179 0.1374 0.0275 0.0004 0.0198 0.1695 0.0292 0.0236 0.0214 0.1892 0.0304 RREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) INFLOW : ID= 2 (0070) 2.980 0.093 3.00 9.93 OUTFLOW: ID= 1 (0202) 2.980 0.008 4.67 4.06	Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.32 0.08 *TOTALS* PEAK FLOW (cms)= 0.01 0.00 0.008 (iii) TIME TO PEAK (hrs)= 3.00 3.17 3.00 RUNOFF VOLUME (mm)= 38.32 4.40 11.14 TOTAL RAINFALL (mm)= 39.33 39.33 39.33 RUNOFF COEFFICIENT = 0.97 0.11 0.28 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.
PEAK FLOW REDUCTION [Qout/Qin](%)= 8.22 TIME SHIFT OF PEAK FLOW (min)=100.00 MAXIMUM STORAGE USED (ha.m.)= 0.0194	 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 I.a = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALTB STANDHYO (2104) Area (ha)= 0.34 ID=1 DT= 5.0 min Total Imp(%)= 29.00 Dir. Conn.(%)= 15.00 	
Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.12 *TOTALS* PEAK FLOW (cms)= 0.01 0.01 0.014 (iii) TIME TO FEAK (hrs)= 3.00 3.00 3.00 RUNOFF VOLUME (mm)= 38.32 4.63 9.67 TOTAL RAINFALL (mm)= 39.33 39.33 39.33	ADD HYD (2000) 1 + 2 = 3 AREA QPEAK TPEAK R.V.
2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 hour SCS (Ta	arget).txt 2020-06-09 11:32:59 AM 10122_V03 Detailed Output - 6 hour SCS (Target).txt

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. STAINENT (A) D1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= MERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 2.00 Average Slope (%)= 1.00 2.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 61.30 7.45	
ALIB CRANDHYD (2300) Area (ha)= 0.08 FINDERVIOUS Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 O.05 0.03 Dep. Storage (mm)= 1.00 Average Slope (%)= 1.00 Length (m)= 2.09 Length (m)= 0.013 0.250	CALIB NASHYD (1100) Area (ha)= 2.26 Curve Number (CN)= 46.4 ID= 1 DT= 5.0 min Ia (mm)= 6.70 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.64 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN ' TIME RAIN TIME RAIN
TANDHYD (2300) Area (ha)= 0.08 = 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 2.00 Length (m)= 23.09 5.00 Mannings n = 0.013 0.250	ID= 1 DT= 5.0 min Ia (mm)= 6.70 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.64 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN ' TIME RAIN TIME RAIN
= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 2.00 Length (m)= 23.09 5.00 Mannings n = 0.013 0.250	U.H. Tp(hrs)= 0.64 NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN ' TIME RAIN TIME RAIN
IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.05 0.03 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 2.00 Length (m) = 23.09 5.00 Mannings n = 0.013 0.250	NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP. TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN ' TIME RAIN TIME RAIN
Surface Area (ha) = 0.05 0.03 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 2.00 Length (m) = 23.09 5.00 Mannings n = 0.013 0.250	TRANSFORMED HYETOGRAPH TIME RAIN TIME RAIN ' TIME RAIN TIME RAIN
Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 2.00 Length (m)= 23.09 5.00 Mannings n = 0.013 0.250	TIME RAIN TIME RAIN TIME RAIN TIME RAIN
Average Slope (%)= 1.00 2.00 Length (m)= 23.09 5.00 Mannings n = 0.013 0.250	TIME RAIN TIME RAIN TIME RAIN TIME RAIN
Mannings n = 0.013 0.250	
Max.Eff.Inten.(mm/hr)= 61.30 7.45	
	0.083 1.80 1.583 4.50 3.083 9.90 4.58 2.70 0.167 1.80 1.667 4.50 3.167 9.90 4.67 2.70
over (min) 5.00 5.00	0.250 1.80 1.750 4.50 3.250 9.90 4.75 2.70
Storage Coeff. (min) = 1.29 (ii) 3.28 (ii)	0.333 1.80 1.833 4.50 3.333 9.90 4.83 2.70
Unit Hyd. Tpeak (min) = 5.00 5.00	0.417 1.80 1.917 4.50 3.417 9.90 4.92 2.70
Unit Hyd. peak (cms)= 0.33 0.27 *TOTALS*	0.500 1.80 2.000 4.50 3.500 9.90 5.00 2.70 0.583 2.70 2.083 5.40 3.583 4.50 5.08 1.80
PEAK FLOW (cms) = 0.01 0.00 0.009 (iii)	0.667 2.70 2.167 5.40 3.667 4.50 5.17 1.80
TIME TO PEAK (hrs) = 3.00 3.00 3.00	0.750 2.70 2.250 5.40 3.750 4.50 5.25 1.80
RUNOFF VOLUME (mm) = 38.33 3.78 25.54 TOTAL RAINFALL (mm) = 39.33 39.33 39.33	0.833 2.70 2.333 5.40 3.833 4.50 5.33 1.80 0.917 2.70 2.417 5.40 3.917 4.50 5.42 1.80
TOTAL RAINFALL (mm) = 39.33 39.33 39.33 39.33 (mm) = 0.97 0.10 0.65	0.917 2.70 2.417 5.40 3.917 4.50 5.42 1.80 1.000 2.70 2.500 5.40 4.000 4.50 5.50 1.80
	1.083 2.70 2.583 27.00 4.083 3.60 5.58 1.80
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	1.167 2.70 2.667 27.00 4.167 3.60 5.67 1.80
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	1.250 2.70 2.750 27.00 4.250 3.60 5.75 1.80 1.333 2.70 2.833 70.20 4.333 3.60 5.83 1.80
(i) ON PROGLAGES SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 I a = Dep. Storage (Above)	1.333 2.70 2.833 70.20 4.333 3.60 5.83 1.80 1.417 2.70 2.917 70.20 4.417 3.60 5.92 1.80
(ii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL	1.500 2.70 3.000 70.20 4.500 3.60 6.00 1.80
THAN THE STORAGE COEFFICIENT.	
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	Unit Hyd Qpeak (cms)= 0.135
IND HYD (0113) 1 + 2 = 3 AREA QPEAK TID1= 1 (2000): 3.52 0.022 3.00 5.00	PEAK FLOW $(cms) = 0.014$ (i) TIME TO PEAK $(hrs) = 3.667$ RUNOFF VOLUME $(mn) = 4.422$ TOTAL RAINFALL $(mm) = 45.000$ RUNOFF COFFFICIENT $= 0.098$ (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
+ ID2= 2 (2300): 0.08 0.009 3.00 25.54	
ID = 3 (0113): 3.60 0.031 3.00 5.46	
	DIVERT HYD (0107)
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	IN= 1 # OUT= 5
	Outflow / Inflow Relationships

* SIMULATION NUMBER: 3 **	Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
	(cms) (cms) (cms) (cms) (cms) 0.00 0.00 0.00 0.00 0.00 0.00
	0.00 0.00 0.00 0.00 0.00
	0.01 0.00 0.00 0.00 0.00 0.01
READ STORM Filename: C:\Users\cproctorbennett\AppD ata\Local\Temp\	0.01 0.00 0.00 0.00 0.00 0.01 0.02 0.01 0.00 0.00 0.00 0.03
750011ff-e3b9-41bb-9e57-167e83c22650\2a628570	
Ptotal= 45.00 mm Comments: 10-Year, 6 hour SCS Type II Storm Distri	0.04 0.02 0.00 0.00 0.00 0.06
	0.07 0.03 0.00 0.00 0.00 0.10
TIME RAIN TIME RAIN TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr	AREA OPEAK TPEAK R.V.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	(ha) (Cms) (hrs) (mm)
0.50 1.80 2.00 4.50 3.50 9.90 5.00 2.70	TOTAL HYD.(ID= 1): 2.26 0.01 3.67 4.42
1.00 2.70 2.50 5.40 4.00 4.50 5.50 1.80 1.25 2.70 2.75 27.00 4.25 3.60 5.75 1.80	ID= 2 (2) : 1.44 0.01 3.67 4.42 ID= 3 (2) : 0.82 0.00 3.67 4.42

ID= 4 (2)	: 0.0	0 0.00	0.00	0.00		
ID= 4 (2) ID= 5 (2) ID= 6 (2)	: 0.0	0 0.00	0.00	0.00		
CALIB	1					
STANDHYD (1203) D= 1 DT= 5.0 min			Dir Cor	n (8) - 20.00		
	-					
Surface Area	(ha) =	IMPERVIOUS 0.06	PERVIOUS 0.13	(i)		
Surface Area Dep. Storage	(mm) =	1.00	5.00			
Average Slope	(%)=	1.00				
Length	(m) =	35.59	3.60 25.00 0.250			
Dep. Storage Average Slope Length Mannings n	=	0.013	0.200			
Max.Eff.Inten.	(mm/hr)=	70.20	11.52 15.00			
ove.	L (IIIII)	5.00	15.00			
Storage Coeff.		1.58 (11)	12.18 (1	11)		
Unit Hyd. Tpeal Unit Hyd. peak		5.00 0.33	15.00 0.09			
onit: nyu. peak	(Citts) =	0.35	0.05	*TOTALS*		
PEAK FLOW	(cms) =	0.01	0.00	0.010 (iii)	
TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL	(hrs) =	3.00	3.08	3.00		
RUNOFF VOLUME	(mm) =	44.00	5.82	13.43		
TOTAL RAINFALL	(mm) =	45.00	45.00	45.00		
RUNOFF COEFFIC:	IENT =	0.98	0.13	0.30		
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE	DURE SELEC 47.8 I P (DT) SHO STORAGE C	IDER SPLITTING TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OEFFICIENT. INCLUDE BASEFI	US LOSSES: (e (Above) OR EQUAL			
(i) CN PROCEI CN* = (ii) TIME STEI THAN THE	DURE SELEC 47.8 I P (DT) SHO STORAGE C V DOES NOT	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER GEFFICIENT. INCLUDE BASEFI	JS LOSSES: pe (Above) OR EQUAL .OW IF ANY.			
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE (iii) PEAK FLOW CALIB	DURE SELEC 47.8 I 2 (DT) SHO STORAGE C V DOES NOT	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OFFFICIENT. INCLUDE BASEFI (ha) = 0.47	US LOSSES: (e (Above) OR EQUAL .OW IF ANY.			
YOU SI (i) CN PROCEL CN* = (ii) THAN THE (iii) PEAK FLOX CALIE STANDHYD (1202) D= 1 DT= 5.0 min	DURE SELEC 47.8 I 2 (DT) SHO STORAGE C V DOES NOT 	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OEFFICIENT. INCLUDE BASEFI (ha)= 0.47 Imp(%)= 30.00 IMPERVIOUS	US LOSSES: (Above) OR EQUAL OW IF ANY. Dir. Cor PERVIOUS	nn.(%)= 20.00		
YOU SI (i) CN PROCED CN* = (ii) THAN THE (iii) PEAK FLOC CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area	URE SELEC 47.8 I (DT) SHO STORAGE C DOES NOT	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OFFTICIENT. INCLUDE BASEFI (ha) = 0.47 Imp(%) = 30.00 IMPERVIOUS 0.14	VS LOSSES: (Above) OR EQUAL .OW IF ANY. Dir. Cor PERVIOUS 0.33	nn.(%)= 20.00		
YOU SI (i) CN PROCED CN* = (ii) THAN THE (iii) PEAK FLOC CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area	URE SELEC 47.8 I (DT) SHO STORAGE C DOES NOT	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OFFTICIENT. INCLUDE BASEFI (ha) = 0.47 Imp(%) = 30.00 IMPERVIOUS 0.14	VS LOSSES: (Above) OR EQUAL .OW IF ANY. Dir. Cor PERVIOUS 0.33	nn.(%)= 20.00		
YOU SI (i) CN PROCED CN* = (ii) THAN THE (iii) PEAK FLOC CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area	URE SELEC 47.8 I (DT) SHO STORAGE C DOES NOT	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OFFTICIENT. INCLUDE BASEFI (ha) = 0.47 Imp(%) = 30.00 IMPERVIOUS 0.14	VS LOSSES: (Above) OR EQUAL .OW IF ANY. Dir. Cor PERVIOUS 0.33	nn.(%)= 20.00		
YOU SI (i) CN PROCED CN* = (ii) THAN THE (iii) PEAK FLOC CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area	URE SELEC 47.8 I (DT) SHO STORAGE C DOES NOT	TED FOR PERVIOU a = Dep. Storag ULD BE SMALLER OFFTICIENT. INCLUDE BASEFI (ha) = 0.47 Imp(%) = 30.00 IMPERVIOUS 0.14	VS LOSSES: (Above) OR EQUAL .OW IF ANY. Dir. Cor PERVIOUS 0.33	nn.(%)= 20.00		
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE (iii) PEAK FLOT CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n	DURE SELEC 47.8 I P (DT) SHO STORAGE C V DOES NOT Area Total - (ha) = (mm) = (%) = (m) = =	TED FOR PERVIOU a = Dep. Storag OULD BE SMALLER OEFFICIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL OW IF ANY. Dir. Cor PERVICE 0.33 5.00 3.60 25.00 0.250	un.(%)= 20.00 (i)		
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE (iii) PEAK FLOT CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n	DURE SELEC 47.8 I P (DT) SHO STORAGE C V DOES NOT Area Total - (ha) = (mm) = (%) = (m) = =	TED FOR PERVIOU a = Dep. Storag OULD BE SMALLER OEFFICIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL OW IF ANY. Dir. Cor PERVICE 0.33 5.00 3.60 25.00 0.250	un.(%)= 20.00 (i)		
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE (iii) PEAK FLOT CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n	DURE SELEC 47.8 I P (DT) SHO STORAGE C V DOES NOT Area Total - (ha) = (mm) = (%) = (m) = =	TED FOR PERVIOU a = Dep. Storag OULD BE SMALLER OEFFICIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL OW IF ANY. Dir. Cor PERVICE 0.33 5.00 3.60 25.00 0.250	un.(%)= 20.00 (i)		
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE (iii) PEAK FLOT CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n	DURE SELEC 47.8 I P (DT) SHO STORAGE C V DOES NOT Area Total - (ha) = (mm) = (%) = (m) = =	TED FOR PERVIOU a = Dep. Storag OULD BE SMALLER OEFFICIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL OW IF ANY. Dir. Cor PERVICE 0.33 5.00 3.60 25.00 0.250	un.(%)= 20.00 (i)		
YOU SI (i) CN PROCED CN* = (ii) TIME STED THAN THE (iii) PEAK FLOT CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n	DURE SELEC 47.8 I P (DT) SHO STORAGE C V DOES NOT Area Total - (ha) = (mm) = (%) = (m) = =	TED FOR PERVIOU a = Dep. Storag OULD BE SMALLER OEFFICIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL OW IF ANY. Dir. Cor PERVICE 0.33 5.00 3.60 25.00 0.250	un.(%)= 20.00 (i)		
YOU SI (i) CN PROCEL CN* = (ii) THAN THE (iii) PEAK FLOT CALLE STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. ove: Storage Coeff. Unit Hyd. Tpeak	URE SELEC 47.8 I 2 (DT) SHO STORAGE C N DOES NOT - - Area (ha) = (mm) = (%) = (mm/hr) = c (min) = c (min) = c (min) =	TED FOR PERVIOU a = Dep. Storaç ULD ES SMALLER OFFTCIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL DIF. CON DIF. CON PERVIOUS 0.33 5.00 0.25.00 0.25.00 11.52 15.00 12.67 (1 15.00 12.67 (3	nn.(%)= 20.00 (i)		
YOU SI (i) CN PROCEL CN* = (ii) THAN THE (iii) PEAK FLOT CALLE STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. ove: Storage Coeff. Unit Hyd. Tpeak	URE SELEC 47.8 I 2 (DT) SHO STORAGE C N DOES NOT - - Area (ha) = (mm) = (%) = (mm/hr) = c (min) = c (min) = c (min) =	TED FOR PERVIOU a = Dep. Storaç ULD ES SMALLER OFFTCIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL DIF. CON DIF. CON PERVIOUS 0.33 5.00 0.25.00 0.25.00 11.52 15.00 12.67 (1 15.00 12.67 (3			
YOU SI (i) CN PROCEL CN* = (ii) THAN THE (iii) PEAK FLOT CALLE STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. ove: Storage Coeff. Unit Hyd. Tpeak	URE SELEC 47.8 I 2 (DT) SHO STORAGE C N DOES NOT - - Area (ha) = (mm) = (%) = (mm/hr) = c (min) = c (min) = c (min) =	TED FOR PERVIOU a = Dep. Storaç ULD ES SMALLER OFFTCIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL DIF. CON DIF. CON PERVIOUS 0.33 5.00 0.25.00 0.25.00 11.52 15.00 12.67 (1 15.00 12.67 (3			
YOU SI (i) CN PROCEL CN* = (ii) THAN THE (iii) PEAK FLOT CALLE STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. ove: Storage Coeff. Unit Hyd. Tpeak	URE SELEC 47.8 I 2 (DT) SHO STORAGE C N DOES NOT - - Area (ha) = (mm) = (%) = (mm/hr) = c (min) = c (min) = c (min) =	TED FOR PERVIOU a = Dep. Storaç ULD ES SMALLER OFFTCIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL DIF. CON DIF. CON PERVIOUS 0.33 5.00 0.25.00 0.25.00 11.52 15.00 12.67 (1 15.00 12.67 (3			
YOU SI (i) CN PROCED CN* = (ii) THAN THE (iii) PEAK FLOC CALIE STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. ove: Storage Coeff. Unit Hyd. Tpeak	URE SELEC 47.8 I 2 (DT) SHO STORAGE C N DOES NOT - - Area (ha) = (mm) = (%) = (mm/hr) = c (min) = c (min) = c (min) =	TED FOR PERVIOU a = Dep. Storaç ULD ES SMALLER OFFTCIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL DIF. CON DIF. CON PERVIOUS 0.33 5.00 0.25.00 0.25.00 11.52 15.00 12.67 (1 15.00 12.67 (3	in.(%)= 20.00 (i) *TOTALS* 0.024 (3.00 13.44 45.00		
YOU SI (i) CN PROCED CN* = (ii) THAN THE (iii) PEAK FLOC CALIE STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. ove: Storage Coeff. Unit Hyd. Tpeak	URE SELEC 47.8 I 2 (DT) SHO STORAGE C N DOES NOT - - Area (ha) = (mm) = (%) = (mm/hr) = c (min) = c (min) = c (min) =	TED FOR PERVIOU a = Dep. Storaç ULD ES SMALLER OFFTCIENT. INCLUDE BASEFI 	IS LOSSES: (Above) OR EQUAL DIF. CON DIF. CON PERVIOUS 0.33 5.00 0.25.00 0.25.00 11.52 15.00 12.67 (1 15.00 12.67 (3			
YOU SI (i) CN PROCED CN* = (ii) THMS STED THAN THE (iii) PEAK FLOC CALIB STANDHYD (1202) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten. Over Storage Coeff. Unit Hyd. Peak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFIC: *** WARNING: STOR	DURE SELEC 47.8 I (DT) SHO STORAGE C V DOES NOT (ha) = (ma) = (ma) = (ma) = (min) = (min) = (cms) = (mm) = (mm) = (mm) = Mage Coefft	TED FOR PERVIOU a = Dep. Storaç ULD BE SMALLER SMALLER OFFTCIENT. INCLUDE BASEFI 	<pre>N LOSSES: (Above) OR EQUAL .OW IF ANY. Dir. Cor PERVIOUS 0.33 5.00 0.250 0.250 0.250 11.52 15.00 0.250 12.67 (j 15.00 0.250 0.01 3.17 5.82 45.00 0.13 3.17 5.87 5.87 5.87 5.87 5.87 5.87 5.87 5.8</pre>			

 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB | STANDHYD (1201) | Area (ha)= 0.47 |ID=1 DT= 5.0 min | Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00 -----IMPERVIOUS PERVIOUS (i) 0.33 Surface Area (ha)= 0.14 Dep. Storage (mm) = 1.00 5.00 Average Slope (8)= 1.00 3.60 Length (m) = 55.98 25.00 Mannings n = 0.013 0.250 70.20 11.52 Max.Eff.Inten.(mm/hr)= over (min) 5.00 15.00 Storage Coeff. (min)= 2.08 (ii) 12.67 (ii) Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.31 0.08 *TOTALS* 0.024 (iii) PEAK FLOW 0.02 0.01 (cms) = TIME TO PEAK (hrs)= 3.00 3.17 3.00 RUNOFF VOLUME (mm) = TOTAL RAINFALL (mm) = 44.00 5.82 13.44 45.00 45.00 45.00 RUNOFF COEFFICIENT = 0.98 0.13 0.30 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN^* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. _____ CALIB | STANDHYD (1204) | Area (ha)= 0.20 |ID= 1 DT= 5.0 min | Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00 -----

IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.06 0.14 Dep. Storage (mm) = 1.00 5.00 Average Slope (8)= 1.00 3.60 Length (m) = 36.51 25.00 0.250 Mannings n = 0.013 Max.Eff.Inten.(mm/hr)= 70.20 11.52 5.00 15.00 over (min) Storage Coeff. (min)= 1.61 (ii) 12.20 (ii) Unit Hyd. Tpeak (min)= 5.00 15.00 0.32 Unit Hyd. peak (cms)= 0.09 *TOTALS* PEAK FLOW (cms)= 0.01 0.00 0.010 (iii) TIME TO PEAK (hrs)= 3.00 3.08 3.00 RUNOFF VOLUME (mm) = 44.00 5.82 13.43 TOTAL RAINFALL (mm) = 45.00 45.00 45.00 RUNOFF COEFFICIENT = 0.98 0.13 0.30

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

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CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	ADD HYD (1001) 1 + 2 = 3 AREA QPEAK TPEAK R.V.
THAN THE STORAGE COEFFICIENT.	(ha) (cms) (hrs) (mm)
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	ID1= 1 (1000): 2.77 0.077 3.67 8.75 + ID2= 2 (0107): 0.82 0.004 3.67 4.42
	ID = 3 (1001): 3.59 0.081 3.67 7.76
 ADD HYD (0020)	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	NOID: PEAK FLOWS DO NOI INCLUDE EXSERIONS IF ANI.
ID1=1 (1201): 0.47 0.024 3.00 13.44	
+ ID2= 2 (1202): 0.47 0.024 3.00 13.44	CALIB
ID = 3 (0020): 0.94 0.047 3.00 13.44	STANDHYD (2101) Area (ha)= 0.70 ID= 1 DT= 5.0 min Total Imp(%)= 40.00 Dir. Conn.(%)= 30.00
15 5 (0010). 0.51 0.019 5.000 10.11	
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	IMPERVIOUS PERVIOUS (1)
	Surface Area (ha) = 0.28 0.42 Dep. Storage (mm) = 1.00 5.00
	Average Slope (%) = 1.00 2.00
	Length (m) = 68.31 10.00
DD HYD (0020) 3 + 2 = 1 AREA QPEAK TPEAK R.V.	Mannings n = 0.013 0.250
(ha) (cms) (hrs) (mm)	Max.Eff.Inten.(mm/hr)= 70.20 13.63
ID1= 3 (0020): 0.94 0.047 3.00 13.44	over (min) 5.00 10.00
+ ID2= 2 (1203): 0.19 0.010 3.00 13.43	Storage Coeff. (min)= 2.34 (ii) 7.01 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00
ID = 1 (0020): 1.13 0.057 3.00 13.44	Unit Hyd. peak (cms)= 0.30 0.14
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	*TOTALS* PEAK FLOW (cms)= 0.04 0.01 0.053 (iii)
NOIE. PEAK FLOWS DO NOI INCLODE BASELLOWS IF ANI.	$\begin{array}{c} \text{TERM FLOW } (hns) = 0.04 & 0.01 & 0.05 (111) \\ \text{TIME TO PEAK } (hns) = 3.00 & 3.00 & 3.00 \end{array}$
	RUNOFF VOLUME (mm) = 44.00 5.95 17.36
	TOTAL RAINFALL (mm) = 45.00 45.00 45.00 RUNOFF COEFFICIENT = 0.98 0.13 0.39
DD HYD (0020) I	KUNDEP COEFFICIENT = 0.96 0.13 0.35
1 + 2 = 3 AREA QPEAK TPEAK R.V.	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
(ha) (cms) (hrs) (mm) ID1= 1 (0020): 1.13 0.057 3.00 13.44	(1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
+ ID2 = 2 (1204): 0.20 0.010 3.00 13.43	CN* 47.8 Ia = Dep. Storage (Above)
	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
ID = 3 (0020): 1.33 0.067 3.00 13.44	THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
SHIFT HYD (0114)	CALIB STANDHYD (2201) Area (ha)= 0.47
N= 2> OUT= 1	ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
HIFT= 40.0 min AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)	IMPERVIOUS PERVIOUS (1)
ID= 2 (0020): 1.33 0.07 3.00 13.44	Surface Area (ha) = 0.14 0.33
SHIFT ID= 1 (0114): 1.33 0.07 3.67 13.44	Dep. Storage (num) = 1.00 5.00
	Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00
	Mannings n = 0.013 0.2500
DD HYD (1000)	Max.Eff.Inten.(mm/hr) = 70.20 11.52
1 + 2 = 3 AREA QPEAK TPEAK R.V.	over (min) 5.00 15.00
(ha) (cms) (hrs) (mm)	Storage Coeff. (min) = 2.08 (ii) 12.67 (ii)
ID1= 1 (0107): 1.44 0.010 3.67 4.42 + ID2= 2 (0114): 1.33 0.067 3.67 13.44	Unit Hyd. Tpeak (min)= 5.00 15.00 Unit Hyd. peak (cms)= 0.31 0.08
	TOTALS
ID = 3 (1000): 2.77 0.077 3.67 8.75	PEAK FLOW (cmms)= 0.02 0.01 0.024 (iii) TIME TO PEAK (hrs)= 3.00 3.17 3.00
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	$\frac{11 \text{ (III S)} = 3.00}{\text{RUNOFF VOLUME} (\text{IIIIS}) = 3.00 3.17 3.00}$
	TOTAL RAINFALL (mm) = 45.00 45.00 45.00
	RUNOFF COEFFICIENT = 0.98 0.13 0.30
	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
	6 hour SCS (Target).txt 2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 hour SCS (Targ

29/79 ***** WARNING: FOR AREAS WITH IMERSVIOUS RATIOS BELOW 201 VOU SHOULD CONSIDER SELICITED FOR PERVIOUS LOSSES: ON = 47.8 % La = Dep. Storage (Above) (1) CH PROCEDURE SELECTED FOR PERVIOUS LOSSES: ON = 47.8 % La = Dep. Storage (Above) (11) THEM STEP (FUT) SHOULD BE SARLER OR EQUAL THAN THE STORAGE COEFFICIENT. (11) THE STORAGE COEFFICIENT. (11) THEAR FLUX ROSS NOT INCLUDE BESELOW IF ANY. (11) THEAR THAN ROSS NOT INCLUDE BESELOW IF ANY. (11) THEAR THAN ROSS NOT INCLUDE BESELOW IF ANY. (12) THE TOP (0050) 1 1 + 2 - 3 AREA OPEAK TEENK R.V. (13) CONS) ; 1.17 0.076 3.00 13.44 (15) - 1 (201) ; 0.70 0.053 3.00 13.46 (15) - 1 (201) ; 0.70 0.053 3.00 13.46 (15) - 2 (202)] 0.47 0.076 3.00 15.79 (15) - 2 (202)] 0.47 0.076 3.00 15.79 (16) - 2 (17) - 2 (17) 0.076 3.00 15.79 (16) - 2 (17) - 2 (17) 0.076 3.00 13.44 (17) - 2 (17) 0.076 0.00 13.44 (17) 0.076 0.00 10.00 10.00 0.00 0.00 0.00 0.	
<pre>***** WARNING: FOR AREAS WITH INFERVIOUS PATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (1) CH = 41.8 Ia = Dep. Storage (Above) (1) TIME STEP [C7] SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COFFICIENT. (111) FEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ****** MARNING: STORAGE COFFICIENT = 0.98 0.13 0.30 ***********************************</pre>	
YOU SHOLD CONSIDER SPLITTING THE AREA. Max.Eff.Inten.(mm/hr)= 70.20 11.52 (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: over (min) 5.00 15.00 (1) TIME STEP (DT) SHOULD ES SMALLER OR EQUAL Unit Hyd. Tpeak (min)= 5.00 15.00 (11) TIME STEP (DT) SHOULD ES SMALLER OR EQUAL Unit Hyd. Tpeak (min)= 5.00 15.00 (11) TIME STEP (DT) SHOULD ES SMALLER OR EQUAL Unit Hyd. Tpeak (min)= 5.00 15.00 (11) THE STORAGE COEFFICIENT. (11) FRAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. "TOTALS" "TOTALS" (11) THE STOP (DOSO) (11) THE STORAGE COEFFICIENT. 0.02 0.01 0.024 (12) IN COOSO (11) TIME STEP (DT) 0.053 3.00 13.44 TOTAL SAMELER THAN TIME STEP! (12) IN COOSO (11) TIME STEP (COEFFICIENT. 0.98 0.13 0.030 IDI= 1 (2101): 0.70 0.053 3.00 13.44 TOTAL SAMELER SELECTED FOR PERVIOUS LOSSES: IDI= 1 (2101): 0.70 0.053 3.00 13.44 YOU SHOULD CONSIDER SELECTED FOR PERVIOUS LOSSES: IDI= 1 (2101): 0.70 0.053 3.00 13.44 YOU SHOULD CONSIDER SELECTED FOR PERVIOUS LOSSES: <	30/79
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: Storage Coeff. (min) = 2.08 (i) 12.67 (i) (ii) THE STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. "TOTALS" (iii) THE STEP (DT) SHOULD BASEFLOW IF ANY. "PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
I ADD HYD (0050) I RUNOFF COEFFICIENT = 0.98 0.13 0.30 I ADD HYD (0050) III = 1 (2101): 0.076 0.53 3.00 17.36 III = 1 (2101): 0.076 3.00 13.44 III = 3 (0050): 1.17 0.076 3.00 15.79 III = 3 (0050): 1.17 0.076 3.00 15.79 III = 1 (2102): 0.47 0.024 1.00 15.79 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 I a Dep. Storage (Above) III = 1 (2102): 0.47 0.024 1.00 15.79 (iii) TIME STEP (DT) SHOULD E SMALLER OR EQUAL THAN THE STEP (DT) SHOULD E SMALLER OR EQUAL THAN THE STEP (DT) SHOULD E SMALLER OR EQUAL NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. (iii) DEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. III = 1 (2102) Area (ha) = 0.71 III = 0.71	
+ ID2= 2 (2201): 0.47 0.024 3.00 13.44 	
ID = 3 (0050): 1.17 0.076 3.00 15.79 CN* = 47.8 Ia = Dep. Storage (Above) NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. (ii) TIME STDE (DT) SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
CALIE STANDHYD (2102) Area (ha)= 0.71	
STANDHYD (2102) Area (ha)= 0.71	
IDT= 5.0 min Total Imp(%) = 27.00 Dir. Conn. (%) = 18.00 Dir. Conn. (%) = 18.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha) = 0.19 0.52 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 0.60 2.00 Length (m) = 66.80 10.00 Mannings n = 0.013 0.250	
Max.Eff.Inten.(mm/hr)= 70.20 12.61	
Storage Coeff. (min) = 2.74 (ii) 9.77 (ii) Unit Hyd. Tpeak (min) = 5.00 10.00 Unit Hyd. Tpeak (min) = 0.28 0.11 *TOTALS* DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE PEAR FLOW (cms) = 0.02 0.01 0.037 (iii)	
YOU SHOULD CONSIDER SPLITTING THE AREA.	
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (ha) (cms) (hrs) (mm) CN* = 47.8 Ia = Dep. Storage (Above) INFLOW: ID= 2 (0090) 1.180 0.060 3.00 12.94 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL OUTFLOW: ID= 1 (0201) 1.180 0.003 5.08 8.18 THAN THE STORAGE COEFFICIENT. OUTFLOW: ID= 1 (0201) 1.180 0.003 5.08 8.18	
Internal the Storage Coefficient: internal the Storage Coefficient: (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. PEAK FLOW REDUCTION [Qout/Qin](%) = 5.01 THME SHIFT OF PEAK FLOW (min)=125.00 MRXIMUM STORAGE USED (ha.m.) = 0.0123	
IMPERVIJUS PERVIJUS (i) Surface Area (ha) = 0.14 0.33 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 55.98 25.00 Mannings n = 0.013 0.250	
2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 hour SCS (Target).txt 2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 hour SCS (Target).txt	ailed Output - 6 hour SCS (Target).txt

1 1			
Number of Aller and model to the No.3 1.2.7 No.3 1.2.7 Discovery cost, Reit- 1.2.5 1.1.1 1.2.7 1.1.1			ID = 3 (0030): 0.63 0.034 3.00 13.44
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Mannings n = 0.013 0.250		
$ \frac{1}{12} \sum_{k=1}^{2} \sum_{k=1$			
$ \begin{array}{c} \begin{array}{c} Mult $ 0, 1 \ part $ 0, 0 \ 1 \ 0, 0 \ 0 \ 1 \ 0, 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 \ 0 $	Storage Coeff (min) = 1.65 (ii) 8.59 (ii)		
Bit Bid, pack (mm) 0.12 TOWNED TOW			
$ \begin{array}{c} \label{eq:product} respective (respective) = 0.20 & 0.12 $	Unit Hyd. peak (cms) = 0.32 0.12		
Description 0.001 0.4.0 2.1.0 1.1.0 VENUENT CONTINUE 0.4.0 0.4.0 0.4.0 0.4.0 VENUENT CONTINUE 0.4.0 0.4.0 0.4.0 0.4.0 VENUENT CONTINUE 0.4.0 0.4.0 0.4.0 0.4.0 VENUENT CONTINUE FUNCTION CONTINUE 0.4.0 0.4.0 0.4.0 0.4.0 VENUENT CONTINUE FUNCTION CONTINUE 0.4.0			1 + 2 = 3 AREA QPEAK TPEAK R.V.
Interformed tournes 40.00 <td>PEAK FLOW (cms) = 0.02 0.01</td> <td></td> <td></td>	PEAK FLOW (cms) = 0.02 0.01		
TOTAL ANALYSIC (ms) 45.00 45.00 45.00 45.00 45.00 10.01 "" WARKING CONF." 1.50 0.10 10.01 10.01 10.01 10.01 10.01 "" WARKING CONF." 1.50 1.50 1.50 1.50 1.50 1.50 1.50 "" WARKING CONF." 1.50 1.50 1.50 1.50 1.50 1.50 1.50 "" WARKING CONF." 1.50<	TIME TO PEAK (hrs) = 3.00 3.08		
INDER CONFIGNENT 0.3 0.3 0.3 INDER CONFIGNENT 1.0 0.3 0.3 INDER CONFIGNE AND CUT I I CAUNATION THE MARKAN. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. (1.1) MONITAR ELECTED FOR EXECUTOR STATUS THE MARKAN. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. (1.1) MONITAR ELECTED FOR EXECUTOR STATUS THE MARKAN. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. (1.1) MONITAR ELECTED FOR EXECUTOR STATUS THE MARKAN. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. (1.1) MONITAR ELECTED FOR EXECUTOR STATUS THE MARKAN. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. INTER ELECTED FOR EXECUTOR ELECTED FOR EXECUTOR ELECTED FOR THE MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. INTE I EAR FLOW 50 MARKEN II AUX. INTERE EXECUTIOR ELECTED FOR			
** WARNING THE AREA WITH INTERVICES FOR FREVICES FOR TREVICES FOR FREVICES FOR FREVICES FOR FREVICES FOR FREVICES FOR FREVICES FOR FREVICES LOSSES: INTERVICE STORE SILEFTS FOR FREVICES FOR FREVICES LOSSES: INTERVICE STORE SILEFTS FOR FREVICES BAREAU FOR AUX INTERVICES FOR FREVICES FOR FREVICES FOR FREVICES BAREAU FOR AUX INTERVICES FOR FREVICES FOR FREVICES BAREAU FOR AUX INTERVICES FOR FREVICES FOR FREVICES FOR FREVICES BAREAU FOR AUX INTERVICES FOR FREVICES FOR FREVICES FOR FREVICES BAREAU FOR AUX INTERVICES FOR FREVICES FOR FREVICES FOR FREVICES BAREAU FOR AUX INTERVICES FOR FREVICES FOR FREVE FOR FREVICES FOR FREVICES FOR FREVICES FOR FREVE FOR FREVE FOR FREVICES FOR FREVE FOR FRE			
$\begin{array}{c} \mbox{tr} = 47.8 & \mbox{tr} = 14 = 0.09, \mbox{tr} = 0.08 \mbox{tr} = 0.08 \mbox{tr} = 0.08 \mbox{tr} = 0.03 tr$	** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%		
(1) THE STEP (FD BOULD ES SPALLES OF EQUAL THEN THE STATE (1) $3 + 2 = 1$ (AREA OFERS OF EXEM F. N. (11) THES STEP (SD BOULD ES SPALLES OF EQUAL STEPS) (1) $3 + 2 = 1$ (AREA OFERS OF EXEM F. N. (11) THES STEP (SD BOULD ES SPALLES OF EQUAL STEP) (1) $3 + 2 = 1$ (AREA OFERS OF EXEM F. N. (11) THES STEP (SD BOULD ES SPALLES OF EQUAL STEP) (1) $3 + 2 = 1$ ((1) $3 + 2 = 1$ ((1) $3 + 2 = 1$ ((11) THE STEP (SD BOULD ES SPALLES OF EQUAL STEPAN ST AND OF SPALE STEPAN ST AND OF THE ST AND	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		
THMI THE STORAGE CONFICTENT:			
1111 PEAK FLOW DOES NOT TIKLIDER BASEFLOW IF ART. 1101 = 3 (0070): 1.01 0.03 1.00 1.00 1.2.28 TID = 1 (0070): 2.98 0.112 3.00 12.28 1.00 12.28 TID = 1 (0070): 2.98 0.112 3.00 12.28 1.00 12.28 TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. Storage Coff, (III) = 1.03 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. Storage Coff, (III) = 1.03 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. OUIT BUG TORM THE THE TO BUG TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID E TID = 1 (0070): 1.01 TIKLIDE BASEFLOW IF ART. TID = 1 (0070): 1.01 TI			
ALIS + 112 - 2 (050): 1.17 0.076 3.00 15.79 ALIS - 1 (0571): 2.98 0.112 3.00 15.79 MURKEY (2205): 1.17 0.076 3.00 15.79 MURKEY (2205): 1.17 0.076 3.00 15.79 MURKEY (2205): 0.13 0.012 3.00 15.79 MURKEY (2205): 1.00 0.013 0.012 15.00 MARES (1.101) 0.00 0.013 0.001 0.013 0.001 MARES (1.101) 0.003 0.012 0.003 0.0174 0.0015 10.0114 MARES (1.101) 0.003 0.0174 0.0013 0.0224 0.0134 0.0225 MURES (1.011) 0.003 0.013 0.0234 0.0224 0.0224 0.0224 UNIT MYM, THE (1001) 115.00 0.0034 0.0134 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.014 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0224 0.0226 <td< td=""><td></td><td></td><td></td></td<>			
Display Display <t< td=""><td>(III) FEAR FLOW DOES NOT INCLODE BASEFLOW IF ANY.</td><td></td><td></td></t<>	(III) FEAR FLOW DOES NOT INCLODE BASEFLOW IF ANY.		
$ \begin{array}{c} \text{Life} & \\ \text{PRUPT [2:0,00]} & \text{Area (ha) = 0.19} \\ \text{PRUPT [2:0,00]} & PRUVT [1:0,0nn,(0) = 20,00 \\ \hline \\ \hline \\ \text{Der, Storage (mm) = 1.00 5.00 \\ \text{Area (ma) = 0.06 6.0.13 \\ \text{Der, Storage (mm) = 1.00 5.00 \\ \text{Area (ma) = 0.03 5.00 \\ \text{Area (ma) (ma) (ma) = 0.03 5.00$			
<pre>= 1 0F 10 min TOTAL Imp(1)= 3.00 Dir. Comn. (b)= 20.00 IMPERVICUUS PERVICUUS (1) Austage Atsa min TOTAL Imp(1)= 3.00 Dir. Comn. (b)= 20.00 IMPERVICUUS PERVICUUS (1) Austage Slope (b)= 1.00 3.60 Austage Slope (b)= 1.00 3.60 Memings n = 0.013 0.250 Mem. Str. fitters (mm) + 1 00TELOR STORAGE 0.0000 0.0000 0.0430 0.0228 Mem. Str. fitters (mm) + 5.00 15.00 Out H Myd. Tpeak (mn) = 5.00 15.00 TOTAL RATING (mm) + 45.00 45.00 FUNDEY VOLUME (mm) = 44.00 5.42 33.43 TOTAL RATING STORAGE DIFTING THE STEPL ** WANNUG: STORAGE COFF I SUMLER THAN THE STEPL (i) CH PROCEDURE SELECTED FOR FERVIOUS LOSSES: (i) CH PROCEDURE SELECTED FOR FERVIOUS FERVIOUS (I) E3.00 THE STORAGE COFF I SUM STORAGE COFF I SUM FERVIER SEQUEL THAN THE STORAGE COFF I SUM STORAGE COFF I SUM FERVIER SEQUEL THAN THE STORAGE COFF I SUM FERVIER SETURM THE SETURM THE STEPH (i) CH PROCEDURE SELECTED FOR FERVICUS (I) FARK FLOW COMING TERVIEWE UNICE TORAGE COFF I SUM FERVIEWE UNICE STORAGE UNICE (I) I SUM SUM SU</pre>			
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Surface Area (ha) = 0.06 0.13 0.05 0.00 Average Stope (h) = 1.00 3.60 1.00 5.00 Average Stope (h) = 1.00 3.60 1.07 F.0.07 STORAGE Length (m) = 3.53 2.50 0.01 0.250 Mamilys n = 0.013 0.250 0.013 0.250 Over (min) 5.00 15.00 1.08 5.00 0.0173 1 0.0013 0.0253 Storage Coeff. (min) = 5.00 11.52 0.000 0.0173 1 0.0191 0.0273 Out it My. Deak (min) = 5.00 15.00 0.000 0.0173 1 0.0191 0.0273 Duit it My. Deak (min) = 5.00 15.00 0.000 0.0173 1 0.0191 0.0273 Duit My. Deak (min) = 5.00 15.00 0.000 0.0173 1 0.0191 0.0273 PEAK FLOW (cms) = 0.01 0.00 0.010 (ill) 0.010 0.01 (ill) TIME TO FEAK (hrs) = 0.01 0.00 0.010 (ill) 0.000 0.0173 1 0.0291 RUNORY COLFFICIENT = 0.98 0.13 0.30 0.30 0.30 NUMING: FOR AREA SUM: IN IMPERVICUS PATTOR BELOW 201 TIME STO FEAK SULER N. THE STEP! Y WANNOW: FOR AREA SUM: IN IMPERVICUS PATTOR BELOW 201 TIME STOP FLOW: IN ERSETTION IN THE STEP! Y HER STEP (DT) HOULD BE SULETION THE AREA. IMPERVICUS RESULER N. THE AREA (hai = 0.14 0.24 Y HER STEP (DT) HOULD BE SULETION THE AREA (hai = 0.14 0.24 IMPERVICUS RESULETION THE AREA (hai = 0.10 0.204 Y HER STEP (DT) HOULD BE SULETION THE AREA (hai = 0.10 0.20 0.024 Y HER			
Dep. Storage (m) = 1.00 5.00 1.00 5.00 Merage Storage (m) = 1.00 3.60 1.00 3.60 Length (m) = 35.59 25.00 (mm) (ha.m.) (cma) (ha.m.) Manilings n = 0.013 0.250 (mm) (ha.m.) Max.Eff.Inten.mm/hr) = 70.20 11.32 0.0006 0.0179 0.0374 0.0275 Jonage Coeff. (min) = 1.560 (ii) 15.00 Vinit Hyd. peak (ma) = 0.01 0.00 5.82 0.0006 0.0179 0.0374 0.0275 Unit Hyd. peak (ma) = 0.01 0.00 5.82 0.0214 0.0035 0.0222 UNAF VOLVEME (ma) = 0.01 0.00 5.82 0.010 0.0111 UNDEF VOLVEME (ma) = 45.00 45.00 45.00 45.00 VINDEF VOLVEME (mm) = 45.00 45.00 45.00 45.00 VINDEF VOLVEME STITTINE THE ARIA. (i) CH PROCEDURE STITTINE THE ARIA. (i) CH PROCEDURE STITTINE THE ARIA. (ii) THE STRAFE COEFF. IS SMALLER THAN THE STEP! (ii) CH PROCEDURE STITTINE THE ARIA. (iii) THE STRAFE COEFF. IS SMALLER COEFF. IS SM			
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Dep. Storage (mm) = 1.00 5.00		
Manings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 70.20 11.52 0.0000 10.0433 0.0228 Storage Coeff. (min)= 1.58 (ii) 12.18 (ii) 0.0017 10.1374 0.0275 Unit Hyd. rpack (min)= 5.00 15.00 0.0023 0.0213 0.0236 0.0214 0.1892 0.0304 Unit Hyd. rpack (ms)= 0.33 0.05 ************************************	Average Slope (%)= 1.00 3.60		DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE
Max. Eff. Inten. $(mm/hr) =$ 0.0001 0.0173 0.0913 0.0235 over (min) 5.00 15.00 Unit Hyd. Tpeak $(ma) =$ 0.33 0.091 0.1123 0.0913 0.0225 Unit Hyd. Tpeak $(ma) =$ 0.33 0.09 0.0198 0.1695 0.0292 Unit Hyd. Tpeak $(ma) =$ 0.30 0.001 0.1018 0.1895 0.0292 Unit Hyd. Tpeak $(ma) =$ 0.300 0.001 0.1016 0.0292 0.0034 0.0292 Unit Hyd. Tpeak $(ma) =$ 0.300 0.010 0.011611 0.0292 0.0244 0.0224 TIME STOP COLVER $(ma) =$ 0.000 0.010 0.112 0.0913 0.0204 TIME STOP COLVER $(ma) =$ 0.98 0.13 0.30 11.62 11.62 11.62 RUNOFF COEFFICIENT = 0.98 0.13 0.30 11.62 11.62 11.62 11.62 ''' UN SHOULD CONSIDER SELITING THE AREA. 11.62 11.62 11.62 11.62 11.62 11.62 11.62 11.62 11.62	Length (m) = 35.59 25.00		(chb) (ndini) (chb) (ndini)
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over (min) 5.00 15.00 Storage Ceff. (min) = 1.58 (i) 12.18 (i) 0.198 (i) 0.198 (i) 0.198 (ii) Unit Hyd. peak (mn) = 5.00 15.00 0.023 (iii) 0.023 (iii) 0.030 (iiii) Unit Hyd. peak (mn) = 0.03 (iiii) 0.001 (iiii) AREA QEEAK (iiii) 0.198 (iiii) 0.198 (iiii) 0.198 (iiii) UNOEF VOLVE (mn) = 0.001 (iiii) INFLOW II D= 2 (0070 (2.980 (iiiii)) 0.014 (iiii) 0.012 (iiiiii) TOTAL PAINFALL (mm) = 44.00 (iiiii) 0.30 3.00 12.28 TOTAL PAINFALL (mm) = 45.00 (iiii) 0.30 3.00 12.28 TOTAL PAINFALL (mm) = 45.00 (iiii) 0.30 3.00 12.28 TOTAL PAINFALL (mm) = 0.98 (iii) (iii) 0.30 3.00 12.28 VINOEF COEFF. IS SNALLER THAN THE STEP! *** WARNING: STORAGE COEFF. IS SNALLER THAN THE STEP! *** WARNING STORAGE COEFF. IS SNALLER NEW 20% (ham) = 0.0204 ''iii) THE STEP (DT SNOLDER SPLICTENT (ham) = 0.0204 *** (ham) = 0.0204 ''iii) THE STEP (DT SNOLDE SESH (ible NET OF PEAK FLOW DE SNALER OF EQUAL (ible NET OF PEAK FLOW DE SNALER OF EQUAL (ible NET OF PEAK FLOW DE SNALER			
storage Coeff. [min] = 1.58 (ii) 12.18 (ii) 0.0304 Unit Hyd. peak (mns) = 0.03 0.09 *TOTALS* *TOTALS * *TOTALS* PEAK (ms) = 0.01 0.00 0.010 (iii) 0.010 (iii) TIME TO FEAK (hrs) = 3.00 3.08 3.00 0.010 (iii) RUNOFF VOLUME (mm) = 44.00 5.82 13.43 0.30 RUNOFF COEFFICIENT = 0.98 0.13 0.30 0.30 ** WARNING: STORAGE COFF. IS SMALLES THAN THE STEP! ** WARNING: STORAGE COFF. IS SMALLES THAN THE STEP! (i) CN FROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) CN FROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (iii) THE THE THEN SURLER OF COEFFICIENT. (iii) THE THE DY STORAGE COEFFICIENT. (iii) THE TO FROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (iii) THE THE DY IS STORAGE COEFFICIENT. (iii) THE THE DY IS STORAGE COEFFICIENT. (iii) THE THE DY IS STORAGE COEFFICIENT. (iii) THE TO FROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (iii) THE TO FROCEDURE SELECTENT. (iii) THE TO FROCE COEFFICIENT. (iii) THE TO FROCES NOT INCLUDE BASEFLOW IF ANY. (iii) THE TANDER TO REALER OR EQUAL THAN THE STORAGE COEFFICIENT. (
Unit Hyd. Tpeak (mm) = 5.00 15.00 Whit Hyd. Tpeak (mm) = 0.33 0.09 **TOTALS* **TOTALS* (ha) (mm) (ha) (mm) UDIT Hyd. Tpeak (mm) = 0.10 0.00 0.010 (iii) INFLOW ID = (0.070) (0.12) 3.00 12.28 TIME TO FEAK (hrs) = 3.00 3.08 3.00 45.00 45.00 45.00 45.00 45.00 45.00 (ha) (ma) = 0.13 0.30 ** WARNING: STORAGE COEFF. IS SMALLER THAN THE STEP! *** WARNING: STORAGE COEFF. IS SMALLER AT HAN THE STEP! *** (i) CN PROCEDURE SELECTED FOR FERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) THE TO FEAK FLOW IF ANY. (iii) THE STEP (DT) SHULBE SARELER ON IF ANY. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE STORAGE COEFFICIENT. (iii) THE AK FLOW DOES NOT INCLIES MALLER OR EQUIL THAN THE			
Unit Hyd. peak (cms) = 0.33 0.09 AREA QFEAK TEAK TEAK R.V. **TOTALS* (ha) (cms) (hrs) (mm) EEAK FLOW (cms) = 0.01 0.00 0.010 (iii) TIME TO FEAK (hrs) = 3.00 3.00 12.28 RUNOFF VOLUME (mm) = 44.00 5.82 13.43 RUNOFF COEFFICIENT = 0.98 0.13 0.30 RUNOFF COEFFICIENT = 0.98 0.13 0.30 ** WARNING: STOR AREA WITH IMEEKTION TING STREF! (min) = 45.00 YOU SHOULD CONSIDER SPLITTING THE AREA. (min) = 45.00 (i) CN FROCEDURE SELECTED FOR PERVIJUS LOSSES: (min) = 47.00 CN* = 47.8 I a = bp. Storage (hbove) (ham.) = 0.204 (ii) CN FROCEDURE SELECTED FOR PERVIJUS LOSSES: (iii) TIME STEP (DT) SHOULDE BASELER M IF ANY. IMPERVIJUE PERK FLOW (2104) Area (ha) = 0.34 (II) TIME STEP (DT) SHOULDE BASELER M IF ANY. IMPERVIJUE PERK FLOW (2104) Area (ha) = 0.34 III = 1 DT = 5.0 min Total Imp(%) = 29.00 Dir. Conn.(%) = 15.00 ''''''''''''''''''''''''''''''''''''			
PEAK FLOW (cms)= 0.01 0.00 0.010 (iii) TIME TO PEAK (hrs)= 3.00 3.08 3.00 TIME TO PEAK (hrs)= 3.00 3.08 3.00 TOTAL RAINFALL (mm)= 44.00 5.82 13.43 TOTAL RAINFALL (mm)= 45.00 45.00 45.00 TOTAL RAINFALL (mm)= 45.00 45.00 ** WARNING: STORAGE COEFFICIENT = 0.30 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 I a = Dep. Storage (Above) IMPERVIOUS ESSIGN (Above) (iii) TIME STREP (DT) SHOULDE E SMALLER OR EQUAL TIMEN THE STORAGE COEFFICIENT. IMPERVIOUS ESSIGN (Above) (iiii) PEAK FLOW DOES NOT INCLUEE BASEFLOW IF ANY. IMPERVIOUS PERVIOUS (i) (iiii) PEAK FLOW DOES NOT INCLUE BASEFLOW IF ANY. IMPERVIOUS PERVIOUS (i) (iiii) PEAK FLOW DOES NOT INCLUE BASEFLOW IF ANY. IMPERVIOUS PERVIOUS (i) (iiii) PEAK FLOW DOES NOT INCLUE BASEFLOW IF ANY. Manings n = 0.013 0.250	Unit Hyd. peak (cms)= 0.33 0.09		AREA QPEAK TPEAK R.V.
TIME TO PEAK (hrs)= 3.00 3.08 3.00 RUNOF YOUME (mm) = 44.00 5.82 13.43 TOTAL RAINFALL (mm) = 45.00 45.00 45.00 RUNOF YOUF COEFFICIENT = 0.98 0.13 0.30 ** WARNING: STORAGE COEFF. IS SNALLER THAN TIME STEP! max.INH IMPERVIOUS RATIOS RATUS & USED (ha.m.) = 0.0204 ** WARNING: STORAGE COEFF. IS SNALLER THAN TIME STEP! max.INH IMPERVIOUS RATIOS RATUS & USED (ha.m.) = 0.0204 ** WARNING: STORAGE COEFF. IS SNALLER THAN TIME STEP! max.INH IMPERVIOUS RATIOS RATUS & USED (ha.m.) = 0.0204 ** WARNING: STORAGE COEFF. IS SNALLER THAN TIME STEP! max.INH STORAGE USED (ha.m.) = 0.0204 ** WARNING: STORAGE COEFF. IS SNALLER THAN TIME STEP! max.INH STORAGE USED (ha.m.) = 0.0204 ** WARNING: STORAGE COEFF. IS SNALLER THAN TIME STEP! max.INH STORAGE USED (ha.m.) = 0.0204 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: max.INH STORAGE COEFF. INT. (iii) THE STEP (DT) SHOULD BE SNALLER OR EQUAL is TANDHYD (2004) A rea (ha) = 0.34 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.10 0.24			
RUNOFF VOLUME (mm) = 44.00 5.92 13.43 TOTAL RAINFALL (mm) = 45.00 45.00 45.00 RUNOFF COEFFICIENT = 0.98 0.13 0.30 ** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! TIME SHIFT OF PEAK FLOW (min) = 45.00 ** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% (ha.m.) = 0.0204 ** WARNING: FOR AREAS WITH IMPERVIOUS LOSSES: (ho. PROCEDURE SELECTED FOR FERVIOUS LOSSES: (ho. PROCEDURE SELECTEOT FOR FERVIOUS LOSSES: (hi of NECCEDURE SELECTEOT FOR FERVIOUS LOSSES: (ho. The STEP (DT) SHOULD BE SMALLER OR EQUAL (ho. DT) Total Imp(%) = 29.00 Dir. Conn.(%) = 15.00 (hii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.10 0.24 (bp. Storage (mm) = 0.01 0.24 Dep. Storage (mm) = 0.00 0.24 (hii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. IMPERVIOUS (i) Surface Area (ha) = 0.01 0.24 (hor main = 0.003 0 1 0.01 0.24 Dep. Storage (mm) = 0.00 (hor main = 0.013 0.250 0.250 Dent (m) = 1.00 0.01 0.250 (hor main = <td< td=""><td></td><td></td><td></td></td<>			
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RUNOFF COEFFICIENT 0.98 0.13 0.30 *** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (min) = 45.00 *** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELW 20% (min) = 0.0204 *** WARNING: CONSIDER SELECTED FOR PERVIOUS LOSSES: (min) = 45.00 (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (min) = 45.00 (1) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (min) = 47.8 (1) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (min) = 45.00 (11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (min) = 45.00 (11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (min) = 45.00 (11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (min) = 45.00 (11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL (min) = 45.00 (11) TIME STEP (DT) SHOULD BEASEFLOW IF ANY. (min) = 45.00 (111) FEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (min) = 10.01 Imp(%) = 29.00 Dir. Conn.(%) = 15.00 (111) FEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.10 0.24 (111) FEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.10 0.24 (112) FOR (0030) (min) = 45.00 (min) = 45.00 (114) FEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.10 0.24 (114) FOR (0030)			PEAK FLOW REDUCTION [cout/cip](%)= 12.98
<pre>** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%</pre>			
** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SPLECTED FOR PERVIOUS LOSSES: (ii) CN PROCEDURE SUBLECTED FOR PERVIOUS LOSSES: (iii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iiii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha)= 0.10 0.100 0.24 Dent TOT = 0.00 AVERAGE Slope (%)= 2.00 0.0030 0.250 1 + 2 = 3 AREA OPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr)= 70.20 14.36			MAXIMUM STORAGE USED (ha.m.) = 0.0204
YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 IA = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) TIME STORAGE (COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. (IIII) PEAK FLOW DOES NOT INCLUDE BASE			
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (i) STANDHYD (2104) Area (ha) = 0.34 CN* = 47.8 Ia = Dep. Storage (Above) (ii) THE STEP (DT) SHOUL DE SWALLER OR EQUAL (iii) THE STEP (DT) SHOUL DE SAMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. IID= 1 DT = 5.0 min DTal Imp(%) = 29.00 Dir. Conn.(%) = 15.00 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.34 IID= 1 DT = 5.0 min DTal Imp(%) = 29.00 Dir. Conn.(%) = 15.00 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.010 0.24 Dep. Storage (mm) = 1.00 5.00			
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THAN THE STORAGE COEFFICIENT. IMPERVIOUS PERVIOUS (i) (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha) = 0.10 0.24			
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. Surface Area (ha)= 0.10 0.24 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 2.00 2.00 Length (m)= 47.61 10.00 Mannings n = 0.013 0.250 1 + 2 = 3 AREA QPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr)= 70.20 14.36			
Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 2.00 2.00 Length (m) = 47.61 10.00 Dep HYD (0030) 0.250 1 + 2 = 3 AREA QPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr) = 70.20 14.36			
Average Slope (%) = 2.00 2.00 Length (m) = 47.61 10.00 DD HYD (0030) annings n 0.013 0.250 1 + 2 = 3 AREA QPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr) = 70.20 14.36	,,		
DD HYD (0030) 1+ 2 = 3 AREA QPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr) = 70.20 14.36			Average Slope (%)= 2.00 2.00
DD HYD (0030) 1 + 2 = 3 AREA QPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr) = 70.20 14.36			Length $(m) = 47.61 10.00$
1 + 2 = 3 AREA QPEAK TPEAK R.V. Max.Eff.Inten.(mm/hr) = 70.20 14.36			Mannings n = 0.013 0.250
			Max Eff. Thten $(mm/hr) = 70.20$ 14.36
(ha) (cms) (hrs) (mm) over (min) 5.00 10.00			
$ \begin{array}{c} (m) & (m) & (m) & (m) & (m) \\ \text{ID1} = 1 \ (2103): & 0.44 & 0.025 & 3.00 & 13.45 \\ \end{array} \right) \\ \begin{array}{c} (m) & (m) & (m) & (m) & (m) & (m) \\ \text{Storage Coeff. } (m) & (m) & (m) & (m) \\ \text{Storage Coeff. } (m) & (m) & (m) & (m) \\ \end{array}$	(114) (0115) (1115) (111		
+ ID2= 2 (2203): 0.19 0.010 3.00 13.43 Unit Hyd. Tpeak (min)= 5.00 10.00	+ ID2= 2 (2203): 0.19 0.010 3.00 13.43		Unit Hyd. Tpeak (min) = 5.00 10.00
Unit Hyd. peak (cms)= 0.33 0.13		=	Unit Hyd. peak (cms)= 0.33 0.13

TOTALS PEAK FLOW (cms) = 0.01 0.01 0.017 (iii) TIME TO PEAK (hrs) = 3.00 3.08 3.00 RUNOFF VOLUME (mm) = 44.00 6.12 11.78 TOTALS 45.00 45.00 45.00 RUNOFF COEFFICIENT 0.98 0.14 0.26	1 + 2 = 3 AREA QPEAK TPEAK R.V.
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD ES SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
CALIB STANDHYD (2204) Area (ha)= 0.20 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 2.00 Length (m) = 23.09 5.00 Mannings n = 0.013 0.250
$\begin{array}{rcrr} & \text{IMPERVIOUS} & \text{PERVIOUS} & (i) \\ \text{Surface Area} & (ha) = & 0.06 & 0.14 \\ \text{Dep. Storage} & (mm) = & 1.00 & 5.00 \\ \text{Average Slope} & (\$) = & 1.00 & 3.60 \\ \text{Length} & (m) = & 36.51 & 25.00 \\ \text{Mannings n} & = & 0.013 & 0.250 \end{array}$	Max.Eff.Inten.(mm/hr)= 70.20 9.92 over (min) 5.00 5.00 Storage Coeff. (min)= 1.22 (ii) 3.11 (ii) Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. Tpeak (cms)= 0.33 0.27 PEAK FLOW (cms)= 0.01 0.00 0.011 (iii) TIME TO PEAK (hrs)= 3.00 3.00 3.00
Max.Eff.Inten.(mm/hr)= 70.20 11.52 over (min) 5.00 15.00 Storage Coeff. (min)= 1.61 (ii) 12.20 (ii) Unit Hyd. Tpeak (min)= 5.00 15.00	RUNOFF VOLUME (mm) = 44.00 5.04 29.58 TOTAL RAINFALL (mm) = 45.00 45.00 45.00 RUNOFF COEFFICIENT = 0.98 0.11 0.66
Unit Hyd. peak (cms)= 0.32 0.09 PEAK FLOW (cms)= 0.01 0.00 0.010 (iii) TIME TO PEAK (hrs)= 3.00 3.08 3.00 RUNOFF VOLUME (mm)= 44.00 5.82 13.43 TOTAL RAINFALL (mm)= 45.00 45.00 45.00 RUNOFF COEFFICIENT = 0.98 0.13 0.30	<pre>***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DI) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.</pre>
<pre>***** 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:</pre>	
	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
ID = 3 (0093): 0.54 0.027 3.00 12.39 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	<pre></pre>
ADD HYD (2000)	TIME RAIN TIME RAIN TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
2020-06-09 11:32:59 AM 10122_V03 Detailed Output - 6 hour SCS (Target).txt	2020-06-09 11:32:59 AM 10122_V03 Detailed Output - 6 hour SCS (Target).

2	C	1	7	0	

0.25	2.50	1	1.75	6.20	1	3.25	13.60	1	4.75	3.70
0.50	2.50		2.00	6.20	1	3.50	13.60	1	5.00	3.70
0.75	3.70	1	2.25	7.40	1	3.75	6.20	1	5.25	2.50
1.00	3.70	1	2.50	7.40	1	4.00	6.20	1	5.50	2.50
1.25	3.70	1	2.75	37.00	1	4.25	4.90	1	5.75	2.50
1.50	3.70	1	3.00	96.30	1	4.50	4.90	1	6.00	2.50

-----CALTR

CALIB			
NASHYD (1100)	Area (ha)=	2.26	Curve Number (CN)= 46.4
ID= 1 DT= 5.0 min	Ia (mm) =	6.70	# of Linear Res.(N)= 3.00
	U.H. $Tp(hrs) =$	0.64	

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

	-	"	RANSFORME	D	UVETOCE	27.DU		
THE	DATM	TIME	RAIN		TIME		THE	RATN
TIME	RAIN					RAIN	TIME	
hrs	mm/hr	hrs	mm/hr	1.	hrs	mm/hr	hrs	mm/hr
0.083	2.50	1.583	6.20	1	3.083	13.60	4.58	3.70
0.167	2.50	1.667	6.20	L.	3.167	13.60	4.67	3.70
0.250	2.50	1.750	6.20	1	3.250	13.60	4.75	3.70
0.333	2.50	1.833	6.20	L.	3.333	13.60	4.83	3.70
0.417	2.50	1.917	6.20	1	3.417	13.60	4.92	3.70
0.500	2.50	2.000	6.20	L	3.500	13.60	5.00	3.70
0.583	3.70	2.083	7.40	L	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	1	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	L	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	1	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	1	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	L	4.000	6.20	5.50	2.50
1.083	3.70	2.583	37.00	1	4.083	4.90	5.58	2.50
1.167	3.70	2.667	37.00	L	4.167	4.90	5.67	2.50
1.250	3.70	2.750	37.00	1	4.250	4.90	5.75	2.50
1.333	3.70	2.833	96.30	L	4.333	4.90	5.83	2.50
1.417	3.70	2.917	96.30	L	4.417	4.90	5.92	2.50
1.500	3.70	3.000	96.30	L	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.135

PEAK FLOW	(cms)=	0.028	(i)
TIME TO PEAK	(hrs) =	3.667	
RUNOFF VOLUME	(mm) =	8.703	
TOTAL RAINFALL	(mm) =	61.775	
RUNOFF COEFFICI	ENT =	0.141	

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

_____ -----| DIVERT HYD (0107)| | 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
0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.00	0.00	0.00	0.00	0.01
0.01	0.00	0.00	0.00	0.00	0.01
0.02	0.01	0.00	0.00	0.00	0.03
0.03	0.01	0.00	0.00	0.00	0.04
0.04	0.02	0.00	0.00	0.00	0.06
0.07	0.03	0.00	0.00	0.00	0.10
		AREA	QPEAK	TPEAK	R.V.

2020-06-09 11:32:59 AM

10122_VO3 Detailed Output - 6 hour SCS (Target).txt

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

2020-06-09 11:32:59 AM

10122_VO3 Detailed Output - 6 hour SCS (Target).txt

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* WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.	***** 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:	100 SHOULD CONSIDER SELITING THE AREA.	
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^* = 47.8$ Ia = Dep. Storage (Above)	
THAN THE STORAGE COEFFICIENT.	CN^ = 4.6 La = Dep. Storadge (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
LIB		
ANDHYD (1201) Area (ha)= 0.47 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	ADD HYD (0020)	
	1 + 2 = 3 AREA OPEAK TPEAK R.V.	
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.14 0.33	(ha) (cms) (hrs) (mm) ID1= 1 (1201): 0.47 0.040 3.00 20.92	
Dep. Storage (mm) = 1.00 5.00	+ ID2= 2 (1202): 0.47 0.040 3.00 20.92	
Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00	ID = 3 (0020): 0.94 0.080 3.00 20.92	
Mannings n = 0.013 0.250		
Max.Eff.Inten.(mm/hr)= 96.30 24.50	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
over (min) 5.00 10.00		
Storage Coeff. (min)= 1.83 (ii) 9.67 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00		
Unit Hyd. peak (cms) = 0.32 0.11	ADD HYD (0020)	
TOTALS	3 + 2 = 1 AREA QPEAK TEEAK R.V.	
PEAK FLOW (cms)= 0.03 0.02 0.040 (iii) TIME TO PEAK (hrs)= 3.00 3.08 3.00	(ha) (cms) (hrs) (mm) ID1= 3 (0020): 0.94 0.080 3.00 20.92	
RUNOFF VOLUME (mm)= 60.78 10.98 20.92	+ ID2= 2 (1203): 0.19 0.016 3.00 20.92	
TOTAL RAINFALL (mm) = 61.78 61.78 61.78 RUNOFF COEFFICIENT = 0.98 0.18 0.34	ID = 1 (0020): 1.13 0.096 3.00 20.92	
* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! * WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
YOU SHOULD CONSIDER SPLITTING THE AREA.		
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	ADD HYD (0020) 1 + 2 = 3 AREA QPEAK TPEAK R.V.	
THAN THE STORAGE COEFFICIENT.	(ha) (cms) (hrs) (mm)	
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	ID1= 1 (0020): 1.13 0.096 3.00 20.92 + ID2= 2 (1204): 0.20 0.017 3.00 20.92	
	ID = 3 (0020): 1.33 0.113 3.00 20.92	
LIB		
ANDHYD (1204) Area (ha)= 0.20 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
IMPERVIOUS PERVIOUS (i)		
Surface Area (ha)= 0.06 0.14	SHIFT HYD (0114)	
Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60	IN= 2> OUT= 1 SHIFT= 40.0 min AREA QPEAK TPEAK R.V.	
Length (m) = 36.51 25.00	(ha) (cms) (hrs) (mm)	
Mannings n = 0.013 0.250	ID= 2 (0020): 1.33 0.11 3.00 20.92 SHIFT ID= 1 (0114): 1.33 0.11 3.67 20.92	
Max.Eff.Inten.(mm/hr)= 96.30 24.50		
over (min) 5.00 10.00		
Storage Coeff. (min)= 1.42 (ii) 9.25 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00		
Unit Hyd. peak (cms)= 0.33 0.12	ADD HYD (1000)	
TOTALS PEAK FLOW (cms)= 0.01 0.01 0.017 (iii)	1 + 2 = 3 AREA QPEAK TEEAK R.V.	
PEAK FLOW (Cms)= 0.01 0.01 0.01 (111) TIME TO PEAK (hrs)= 3.00 3.08 3.00	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
RUNOFF VOLUME (mm) = 60.77 10.98 20.92	+ ID2= 2 (0114): 1.33 0.113 3.67 20.92	
TOTAL RAINFALL (num) = 61.78 61.78 61.78 RUNOFF COEFFICIENT = 0.98 0.18 0.34	ID = 3 (1000): 2.87 0.134 3.67 14.36	

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	RUNOFF VOLUME (mm)= 60.78 10.98 20.92 TOTAL RAINFALL (mm)= 61.78 61.78 61.78
	RUNOFF COEFFICIENT = 0.98 0.18 0.34
	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
) HYD (1001) . + 2 = 3 AREA QPEAK TPEAK R.V.	***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.
(ha) (cms) (hrs) (mm)	
ID1= 1 (1000): 2.87 0.134 3.67 14.36 + ID2= 2 (0107): 0.72 0.008 3.67 8.70	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\star} = 47.8$ Ia = Dep. Storage (Above)
	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
ID = 3 (1001): 3.59 0.142 3.67 13.23	THAN THE STORAGE COFFICIENT. (ii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
JB	ADD HYD (0050)
NDHYD (2101) Area (ha)= 0.70 1 DT= 5.0 min Total Imp(%)= 40.00 Dir. Conn.(%)= 30.00	1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)
	ID1= 1 (2101): 0.70 0.080 3.00 26.06 + ID2= 2 (2201): 0.47 0.040 3.00 20.92
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.28 0.42	
Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 2.00	ID = 3 (0050): 1.17 0.120 3.00 24.00
Hength (m) = 68.31 10.00 Mannings n = 0.013 0.250	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
Max.Eff.Inten.(mm/hr)= 96.30 25.49 over(min) 5.00 10.00	
Storage Coeff. (min)= 2.06 (ii) 6.18 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00	STANDHYD (2102) Area (ha)= 0.71 ID= 1 DT= 5.0 min Total Imp(%)= 27.00 Dir. Conn.(%)= 18.00
Unit Hyd. peak (cms)= 0.31 0.15	
TOTALS PEAK FLOW (cms)= 0.06 0.02 0.080 (iii)	IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.19 0.52
TIME TO PEAK (hrs)= 3.00 3.00 3.00	Dep. Storage (mm) = 1.00 5.00
RUNOFF VOLUME (nmn) = 60.77 11.19 26.06 TOTAL RAINFALL (nmn) = 61.78 61.78 61.78	Average Slope (%)= 0.60 2.00 Length (m)= 68.80 10.00
RUNOFF COEFFICIENT = 0.98 0.18 0.42	Average Stope (5) -
WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	Max.Eff.Inten.(mm/hr)= 96.30 23.69
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	over (min) 5.00 10.00 Storage Coeff. (min)= 2.42 (ii) 7.88 (ii)
CN* = 47.8 Ia = Dep. Storage (Above)	Unit Hyd. Tpeak (min) = 5.00 10.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.	Unit Hyd. peak (cms)= 0.30 0.13 *TOTALS*
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	PEAK FLOW (cms)= 0.03 0.02 0.059 (iii) TIME TO PEAK (hrs)= 3.00 3.08 3.00
	RUNOFF VOLUME (mm) = 60.77 10.80 19.79
	TOTAL RAINFALL (mm) = 61.78 61.78 61.78 RUNOFF COEFFICIENT = 0.98 0.17 0.32
NDHYD (2201) Area (ha)= 0.47	
1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
IMPERVIOUS PERVIOUS (1)	VOUSTOEL VOUSTOER SELITING THE AREA.
Surface Area (ha)= 0.14 0.33 Dep. Storage (mm)= 1.00 5.00	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
Average Slope (%)= 1.00 3.60	$CN^* = 47.8$ Ia = Dep. Storage (Above)
Length (m) = 55.98 25.00 Mannings n = 0.013 0.250	(ii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
-	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
Max.Eff.Inten.(mm/hr)= 96.30 24.50 over(min) 5.00 10.00	
Storage Coeff. (min) = 1.83 (ii) 9.67 (ii)	
Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.11	CALIB STANDHYD (2202) Area (ha)= 0.47
TOTALS	ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
PEAK FLOW (cms)= 0.03 0.02 0.040 (iii) TIME TO PEAK (hrs)= 3.00 3.08 3.00	IMPERVIOUS PERVIOUS (1)

Dep. Storage $(mm) = 1.00$ 5.00	IMPERVIOUS PERVIOUS (i)	
sept second (num) second second		
Average Slope (%) = 1.00 3.60	Surface Area (ha)= 0.13 0.31	
Length (m) = 55.98 25.00	Dep. Storage (mm)= 1.00 5.00	
Mannings n = 0.013 0.250	Average Slope (%)= 2.00 2.00	
	Length (m) = 54.16 10.00	
Max.Eff.Inten.(mm/hr)= 96.30 24.50	Mannings n = 0.013 0.250	
over (min) 5.00 10.00		
Storage Coeff. (min) = 1.83 (ii) 9.67 (ii)	Max.Eff.Inten.(mm/hr)= 96.30 24.50	
Jnit Hyd. Tpeak (min)= 5.00 10.00	over (min) 5.00 10.00	
t Hyd. peak (cms)= 0.32 0.11	Storage Coeff. (min)= 1.46 (ii) 6.85 (ii)	
	VTALS* Unit Hyd. Tpeak (min)= 5.00 10.00	
	0.040 (iii) Unit Hyd. peak (cms)= 0.33 0.14	
	3.00	*TOTALS*
(mm) = 60.78 10.98 2	20.92 PEAK FLOW (cms) = 0.02 0.02	0.039 (iii)
	51.78 TIME TO PEAK (hrs)= 3.00 3.00	3.00
	0.34 RUNOFF VOLUME (mm) = 60.77 10.98	20.93
	TOTAL RAINFALL (mm) = 61.78 61.78	61.78
DEFF. IS SMALLER THAN TIME STEP!	RUNOFF COEFFICIENT = 0.98 0.18	0.34
WITH IMPERVIOUS RATIOS BELOW 20%		
DULD CONSIDER SPLITTING THE AREA.	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	
SHOULD CONSIDER SPELITING THE AREA.	***** WARNING: STORAGE COLFF. IS SMALLER IAAW INDE SIEP: ***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	
NURE CELECONED FOR DEDUTOUS LOCSES.	YOU SHOULD CONSIDER SPLITTING THE AREA.	
RE SELECTED FOR PERVIOUS LOSSES:	YOU SHOULD CONSIDER SPLITTING THE AREA.	
47.8 Ia = Dep. Storage (Above)		
TEP (DT) SHOULD BE SMALLER OR EQUAL	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	
TORAGE COEFFICIENT.	CN* = 47.8 Ia = Dep. Storage (Above)	
DOES NOT INCLUDE BASEFLOW IF ANY.	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	
	THAN THE STORAGE COEFFICIENT.	
	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
0090)		
AREA QPEAK TPEAK R.V.	CALIB	
- (ha) (cms) (hrs) (mm)	STANDHYD (2203) Area (ha)= 0.19	
02): 0.71 0.059 3.00 19.79	ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%	= 20.00
0.47 0.040 3.00 20.92		
	IMPERVIOUS (1)	
0): 1.18 0.099 3.00 20.24	Surface Area (ha)= 0.06 0.13	
	Dep. Storage (mm)= 1.00 5.00	
DO NOT INCLUDE BASEFLOWS IF ANY.	Average Slope (%)= 1.00 3.60	
the attended bridge howe at rate.	Length (m) = 35.59 25.00	
	Mannings n = 0.013 0.250	
	Max.Eff.Inten.(mm/hr)= 96.30 24.50	
	over (min) 5.00 10.00	
OUTFLOW STORAGE OUTFLOW ST		
	Da.m.) Unit Hyd. Tpeak (min) = 5.00 10.00	
	0.0213 Unit Hyd. peak (cms)= 0.33 0.12	
	0.0258	*TOTALS*
0.0003 0.0058 0.0068	0.0296 PEAK FLOW (cms)= 0.01 0.01	0.016 (iii)
0.0009 0.0073 0.0074	0.0296 PEAK FLOW (cms) = 0.01 0.01 0.0325 TIME TO PEAK (hrs) = 3.00 3.08	3.00
	0.0352 RUNOFF VOLUME (mm) = 60.77 10.98	20.92
	0.0379 TOTAL RAINFALL (mm) = 61.78 61.78	61.78
	RUNOFF COEFFICIENT = 0.98 0.18	0.34
AREA OPEAK TPEAK	R.V. ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	
(ha) (cms) (hrs)	R.V. ***** WARNING: STURAGE COEFT. IS SMALLER THAN TIME STEP: (mmn) ****** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	
1.180 0.099 3.00	20.24 YOU SHOULD CONSIDER SPLITTING THE AREA.	
1.180 0.005 5.08	15.49	
	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	
PEAK FLOW REDUCTION [Qout/Qin](%)= 4.7		
IME SHIFT OF PEAK FLOW (min)=125.0		
<pre>4 STORAGE USED (ha.m.) = 0.0</pre>		
	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
Area (ha)= 0.44		
(%)= 30.00 Dir. Conn.(%)=	20.00 ADD HYD (0030)	
	10122 V03 Detailed Output - 6 hour SCS (Target).txt 2020-06-09 11:32:59 AM	10122 VO3 Detailed
	TOTZZ_VOS DECATIEN ONCEPHE O NOUT SES (Tatget).tkt 2020-06-05 II.32.35 MM	TOISS NOS Decalled

Surface Area (ha)=

0.14

0.33

41/79

10122_VO3 Detailed Output - 6 hour SCS (Target).txt

1 + 2 = 3 AREA QPEAK TPEAK R.V.	Max.Eff.Inten.(mm/hr) = 96.30 26.79 over (min) 5.00 10.00 Storage Coeff. (min) = 1.35 (ii) 6.55 (ii) Unit Hyd. Tpeak (mm) = 5.00 10.00 Unit Hyd. cmms) = 0.33 0.14
ID = 3 (0030): 0.63 0.056 3.00 20.92 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	FEAK FLOW (cms) 0.01 0.028 (iii) TIME TO PEAK (hrs) 3.00 3.00 3.00 RUNOFF VOLUME (mm) 60.78 11.47 18.85 TOTAL RAINFALL (mm) 61.78 61.78 61.78 RUNOFF COFFICIENT 0.98 0.19 0.31
ADD HYD (0070) 1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) IDl= 1 (0201): 1.18 0.005 5.08 15.49 + ID2= 2 (0030): 0.63 0.056 3.00 20.92 ID = 3 (0070): 1.81 0.058 3.00 17.38 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	 ***** 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* = 47.6 I.a. Dep. 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 (0070) 3 + 2 = 1 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) TD1= 3 (0070): 1.61 0.058 3.00 17.38 + ID2= 2 (0050): 1.17 0.120 3.00 24.00 ID = 1 (0070): 2.98 0.178 3.00 19.98 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
RESERVOIR (0202) IN= 2> OUT= 1 DT= 5.0 min OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0430 0.0225 0.0006 0.0173 0.0951 0.0275 0.0004 0.0198 0.1374 0.0275 0.0094 0.0198 0.1695 0.0292 0.0236 0.0214 0.1892 0.0304	Max.Eff.Inten.(mm/hr) = 96.30 24.50 over (min) 5.00 10.00 Storage Coeff. (min) = 1.42 (ii) 9.25 (ii) Unit Hyd. Tpeak (min) = 5.00 10.00 Unit Hyd. peak (cms) = 0.33 0.12 PEAK FLOW (cms) = 0.01 0.01 0.017 (iii) TIME TO PEAK (hrs) = 3.00 3.08 3.00 RUNOFF VOLUME (mm) = 60.77 10.98 20.92 TOTAL RAINFALL (mm) = 61.78 61.78 RUNOFF COEFFICIENT = 0.98 0.18 0.34
AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) INFLOW: ID= 2 (0070) 2.980 0.176 3.00 19.98 OUTFLOW: ID= 1 (0202) 2.980 0.061 3.17 14.11 PEAK FLOW REDUCTION [Qout/Qin] (%) = 34.45 TIME SHIFT OF PEAK FLOW (min) = 10.00 MAXIMUM STORAGE USED (ha.m.) = 0.0239 0.239	 ***** 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* = 47.8 I a Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	

	750011ff-e3b9-41bb-9e57-167e83c22650\9ac8a4c3 Ptota1= 74.28 mm Comments: 50-Year, 6 hour SCS Type II Storm Distri
	TIME RAIN TIME RAIN TIME RAIN TIME RAIN hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
1 + 2 = 3 AREA QPEAK TPEAK R.V.	0.25 3.00 1.75 7.40 3.25 16.30 4.75 4.50
(ha) (cms) (hrs) (mm)	0.50 3.00 2.00 7.40 3.50 16.30 5.00 4.50
ID1= 1 (0202): 2.98 0.061 3.17 14.11	0.75 4.50 2.25 8.90 3.75 7.40 5.25 3.00
+ ID2= 2 (0093): 0.54 0.045 3.00 19.62	1.00 4.50 2.50 8.90 4.00 7.40 5.50 3.00
ID = 3 (2000): 3.52 0.078 3.08 14.96	1.25 4.50 2.75 44.50 4.25 5.90 5.75 3.00 1.50 4.50 3.00 115.80 4.50 5.90 6.00 3.00
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
	(CALIB
CALIB	NASHYD (1100) Area (ha)= 2.26 Curve Number (CN)= 46.4
STANDHYD (2300) Area (ha)= 0.08 D= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00	ID= 1 DT= 5.0 min Ia (mm)= 6.70 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.64
IMPERVIOUS PERVIOUS (1)	NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
Surface Area (ha) = 0.05 0.03	
Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 2.00	TRANSFORMED HYETOGRAPH
Average Slope (%)= 1.00 2.00 Length (m)= 23.09 5.00	TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN
Mannings n = 0.013 0.250	hrs mu/hr hrs mu/hr ' hrs mu/hr hrs mu/hr
	0.083 3.00 1.583 7.40 3.083 16.30 4.58 4.50
Max.Eff.Inten.(mm/hr)= 96.30 18.86	0.167 3.00 1.667 7.40 3.167 16.30 4.67 4.50
over (min) 5.00 5.00	0.250 3.00 1.750 7.40 3.250 16.30 4.75 4.50
Storage Coeff. (min) = 1.08 (ii) 2.74 (ii) Unit Hyd. Tpeak (min) = 5.00 5.00	0.333 3.00 1.833 7.40 3.333 16.30 4.83 4.50 0.417 3.00 1.917 7.40 3.417 16.30 4.92 4.50
Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. peak (cms)= 0.34 0.29	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
TOTALS	0.583 4.50 2.083 8.90 3.583 7.40 5.08 3.00
PEAK FLOW (cms) = 0.01 0.00 0.015 (iii)	0.667 4.50 2.167 8.90 3.667 7.40 5.17 3.00
TIME TO PEAK (hrs)= 3.00 3.00 3.00	0.750 4.50 2.250 8.90 3.750 7.40 5.25 3.00
RUNOFF VOLUME (mm) = 60.77 9.65 41.85 TOTAL RAINFALL (mm) = 61.78 61.78 61.78	0.833 4.50 2.333 8.90 3.833 7.40 5.33 3.00 0.917 4.50 2.417 8.90 3.917 7.40 5.42 3.00
TOTAL RAINFALL (mm) = 61.78 61.78 61.78 RUNOF COEFFICIENT = 0.98 0.16 0.68	0.917 4.50 2.417 8.90 3.917 7.40 5.42 3.00 1.000 4.50 2.500 8.90 4.000 7.40 5.50 3.00
RONOFF COEFFICIENT - 0.50 0.10 0.00	1.083 4.50 2.583 44.50 4.083 5.90 5.58 3.00
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	1.167 4.50 2.667 44.50 4.167 5.90 5.67 3.00
	1.250 4.50 2.750 44.50 4.250 5.90 5.75 3.00
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	1.333 4.50 2.833 115.80 4.333 5.90 5.83 3.00
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	1.417 4.50 2.917 115.80 4.417 5.90 5.92 3.00 1.500 4.50 3.000 115.80 4.500 5.90 6.00 3.00
THAN THE STORAGE COEFFICIENT.	
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	Unit Hyd Qpeak (cms)= 0.135
	PEAK FLOW (cms)= 0.042 (i) TIME TO PEAK (hrs)= 3.667
	RUNOFF VOLUME $(mm) = 12.649$
ADD HYD (0113)	TOTAL RAINFALL (mm) = 74.275
1 + 2 = 3 AREA QPEAK TPEAK R.V.	RUNOFF COEFFICIENT = 0.170
ID1= 1 (2000): 3.52 0.078 3.09 14.96	(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
+ ID2= 2 (2300): 0.08 0.015 3.00 41.85	
ID = 3 (0113): 3.60 0.080 3.08 15.55	
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	DIVERT HYD (0107) IN= 1 # OUT= 5
*********************	Outflow / Inflow Relationships
** SIMULATION NUMBER: 5 **	Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total
******************	(cms) (cms) (cms) (cms) (cms)
	0.00 0.00 0.00 0.00 0.00 0.00
	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.01 0.00 0.00 0.00 0.01
READ STORM Filename: C:\Users\cproctorbennett\AppD	
atalLocalTemp	0.02 0.01 0.00 0.00 0.00 0.03
20-06-09 11:32:59 AM 10122 VO3 Detailed Output - 6 hour SCS (Target).txt	2020-06-09 11:32:59 AM 10122 VO3 Detailed Output - 6 hour SCS (Targe

	47/79 41
0.03 0.01 0.00 0.00 0.04 0.04 0.02 0.00 0.00 0.06 0.07 0.03 0.00 0.00 0.10	RUNOFF VOLUME (mm) = 73.28 15.63 27.15 TOTAL RAINFALL (mm) = 74.28 74.28 74.28 RUNOFF COEFFICIENT 0.99 0.21 0.37
AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) TOTAL HYD.(ID= 1): 2.26 0.04 3.67 12.65	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB STANDHYD (1203) Area (ha)= 0.19 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	
IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.06 0.13 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 35.59 25.00 Mannings n = 0.013 0.250	IMPERVIOUS PERVIOUS (1) Surface Area (ha) = 0.14 0.33 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 55.98 25.00 Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 115.80 34.83 over (min) 5.00 10.00 Storage Coeff. (min)= 1.30 (ii) 8.10 (ii) Unit Hyd. Ppeak (min)= 5.00 10.00 Unit Hyd. peak (min)= 0.33 0.13 *TOTALS* *TOTALS* PEAK FLOW (cms)= 0.01 0.021 (iii)	Max.Eff.Inten.(mm/hr)= 115.80 34.83 over.(min) 5.00 10.00 Storage Coeff. (min)= 1.70 (ii) 8.51 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.12 *TOTALS*
TIME TO PEAK (hrs)= 3.00 3.00 3.00 RUNOFF VOLUME (mm)= 73.27 15.63 27.14 TOTAL RAINFALL (mm)= 74.28 74.28 RUNOFF COEFFICIENT = 0.99 0.21 0.37	PEAK FLOW (cms) = 0.03 0.02 0.053 (iii) TIME TO PEAK (hrs) = 3.00 3.06 3.00 RUNOFF VOLUME (mm) = 73.28 15.63 27.15 TOTAL FALNFALL (mm) = 74.28 74.28 RUNOFF COEFFICIENT 0.99 0.21 0.37
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.	***** 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* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 	 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUBE BASEFLOW IF ANY.
CALIB	
STANDHYD (1202) Area (ha)= 0.47 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00 IMPERVIOUS IMPERVIOUS PERVIOUS (i)	CALIB STANDHYD (1204) Area (ha)= 0.20 ID=1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
Surface Area (ha) = 0.14 0.33 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 55.98 25.00 Mannings n = 0.013 0.250	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Max.Eff.Inten.(mm/hr)= 115.80 34.83 over (min) 5.00 10.00 Storage Coeff. (min)= 1.70 (ii) 8.51 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.12 *TOTALS*	Max.Eff.Inten.(mm/hr)= 115.80 34.83 over (min) 5.00 10.00 Storage Coeff. (min)= 1.32 (ii) 8.12 (ii) Unit Hyd. Tpeak (min)= 5.00 Unit Hyd. peak (cms)= 0.33 0.13
PEAK FLOW (cms) = 0.03 0.02 0.053 (iii)	*TOTALS*

TIME TO PEAK (hrs)= 3.00 3.00 3.00 RUNOFF VOLUME (mm)= 73.28 15.63 27.14	ID1= 1 (0107): 1.55 0.029 3.67 12.65 + ID2= 2 (0114): 1.33 0.150 3.67 27.14
TOTAL RAINFALL (mm)= 74.28 74.28 74.28 RUNOFF COEFFICIENT = 0.99 0.21 0.37	ID = 3 (1000): 2.88 0.178 3.67 19.33
** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEPERICEMT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 	ADD HYD (1001) 1 + 2 = 3 AREA OPEAK TPEAK R.V.
	ID = 3 (1001): 3.59 0.191 3.67 18.02
ADD HYD (0020) 1 + 2 = 3 AREA QPEAK TPEAK R.V. 	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
ID1= 1 (1201): 0.47 0.053 3.00 27.15 + ID2= 2 (1202): 0.47 0.053 3.00 27.15 	
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	IMPERVIOUS PERVIOUS (1) Surface Area (ha)= 0.28 0.42 Dep. Storage (mm)= 1.00 5.00
DD HYD (0020) 3 + 2 = 1 AREA QPEAK TPEAK R.V.	Average Slope (%) = 1.00 2.00 Length (m) = 68.31 10.00 Mannings n = 0.013 0.250
(ha) (cms) (hrs) (mm) ID1= 3 (0020): 0.94 0.105 3.00 27.15 + ID2= 2 (1203): 0.19 0.021 3.00 27.14 	Max.Eff.Inten.(mm/hr)= 115.80 36.20 over (min) 5.00 10.00 Storage Coeff. (min)= 1.92 (ii) 5.74 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00
ID = 1 (0020): 1.13 0.127 3.00 27.14	Unit Hyd. peak (cms) = 0.31 0.15 *TOTALS*
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	PEAK FLOW (cms)= 0.07 0.03 0.102 (iii) TIME TO PEAK (hrs)= 3.00 3.00 3.00 RUNOFF VOLUME (mm)= 73.28 15.92 33.12 TOTAL RAINFALL (mm)= 74.28 74.28 74.28
 DD HYD (0020)	RUNOFF COEFFICIENT = 0.99 0.21 0.45
1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
ID1= 1 (0020): 1.13 0.127 3.00 27.14 + ID2= 2 (1204): 0.20 0.023 3.00 27.14	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^* = 47.8$ Ia = Dep. Storage (Above)
ID = 3 (0020): 1.33 0.150 3.00 27.14	 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
HIFT HYD (0114) N= 2> OUT= 1 HIFT= 40.0 min AREA QPEAK TPEAK R.V.	CALIB
(ha) (cms) (hrs) (mm) ID= 2 (0020): 1.33 0.15 3.00 27.14 SHIFT ID= 1 (0114): 1.33 0.15 3.67 27.14	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
DD HYD (1000) 1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (nm)	Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 115.80 34.83 over (min) 5.00 10.00 Storage Coeff. (min)= 1.70 (ii) 8.51 (ii)
0-06-09 11:32:59 AM 10122 VO3 Detailed Output - 6 hour SCS	G (Target).txt 2020-06-09 11:32:59 AM 10122 V03 Detailed Output - 6 hour SCS (Tar

	51/79		52/79
Unit Hyd. Tpeak (min) = 5.00 10.00 Unit Hyd. peak (cms) = 0.32 0.12 *TOTALS* PEAK FLOW (cms) = 0.03 0.02 0.053 (iii) TIME TO PEAK (hrs) = 3.00 3.08 3.00 RUNOFF VOLUME (mm) = 73.28 15.63 27.15 TOTAL RAINFALL (mm) = 74.28 74.28 74.28 RUNOFF COEFFICIENT = 0.99 0.21 0.37 ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING: STORAGE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 		<pre> CALIB Area (ha)= 0.47 ID=1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00</pre>	
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.		THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. ADD HYD (0090) 1 + 2 = 3 AREA QPEAK TPEAK R.V. 	
over (min) 5.00 10.00 Storage Coeff. (min) = 2.24 (ii) 6.99 (ii) Unit Hyd. Tpeak (min) = 5.00 10.00 Unit Hyd. peak (cms) = 0.30 0.14 *TOTALS* PEAK FLOW (cms) = 0.04 0.04 0.078 (iii) TIME TO PEAK (hrs) = 3.00 3.00 3.00 RUNOFF VOLUME (mm) = 73.28 15.39 25.80 TOTAL RAINFALL (mm) = 74.28 74.28 74.28 RUNOFF COEFFICIENT = 0.99 0.21 0.35 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING: STORAGE NUTH IMPERVIOUS RATIOS EELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above)			
<pre>C.N = 47.8 IA = UPD.Storage (Above) (i1) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (i11) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. </pre>		INFLOW: 1D=2 (0090) 1.180 0.131 3.00 26.34 OUTFLOW: ID=1 (0201) 1.180 0.006 5.17 21.58 PEAK FLOW REDUCTION [Qout/Qin](%)= 4.47 TIME SHIFT OF PEAK FLOW (min)=130.00 MAXIMUM STORAGE USED (ha.m.)= 0.0249	
2020-06-09 11:32:59 AM 10122_V03	Detailed Output - 6 hour SCS (Target).txt		SCS (Target).txt

ALIB TANDHYD (2103)					
IANDHID (2103)		(ha) = 0.44	1		
= 1 DT= 5.0 min		Imp(%)= 30.00) Dir. Conn.(3) = 20.00	ADD HYD (0030)
					1 + 2 = 3 AREA QPEAK TPEAK R.V.
Surface Area		IMPERVIOUS 0.13	PERVIOUS (i) 0.31		(ha) (cms) (hrs) (mm) TD1= 1 (2103): 0.44 0.052 3.00 27.15
SurIace Area Dep. Storage	(ha) = (mm) =	1.00	5.00		ID1= 1 (2103): 0.44 0.052 3.00 27.15 + ID2= 2 (2203): 0.19 0.021 3.00 27.14
Average Slope	(fun) = (%) =	2.00	2.00		
Length	(m) =	54.16	10.00		ID = 3 (0030): 0.63 0.073 3.00 27.15
Mannings n	=	0.013	0.250		
Mar. 1966 Tarken (*		115 00	24.62		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
Max.Eff.Inten.(r	(min) -	115.80 5.00	34.83 10.00		
Storage Coeff.			6.14 (ii)		
Unit Hyd. Tpeak		5.00	10.00		
Unit Hyd. peak		0.33	0.15		ADD HYD (0070)
				TOTALS	1 + 2 = 3 AREA QPEAK TPEAK R.V.
	(cms)=	0.03	0.02	0.052 (iii)	(ha) (cms) (hrs) (mm)
	(hrs) =	3.00	3.00	3.00	ID1= 1 (0201): 1.18 0.006 5.17 21.58
RUNOFF VOLUME		73.27	15.63	27.15	+ ID2= 2 (0030): 0.63 0.073 3.00 27.15
TOTAL RAINFALL		74.28	74.28	74.28	
RUNOFF COEFFICIE	ENT =	0.99	0.21	0.37	ID = 3 (0070): 1.81 0.077 3.00 23.52
** WARNING: STORAG					NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
** WARNING: FOR ARE		IMPERVIOUS RAT			
100 SH	COTD CON	JUDER SPEITTING	J INE AREA.		
		CTED FOR PERVIC			
		[a = Dep. Stora			ADD HYD (0070)
(ii) TIME STEP			R OR EQUAL		3 + 2 = 1 AREA QPEAK TPEAK R.V.
THAN THE : (iii) PEAK FLOW		COEFFICIENT.	NUCLE THE DAY		(ha) (cms) (hrs) (mm) ID1= 3 (0070): 1.81 0.077 3.00 23.52
(III) PEAK FLOW	DOES NO	I INCLUDE BASER	LOW IF ANI.		+ 1D1= 3 (0070): 1.81 0.077 3.00 23.32 $+$ 1D2= 2 (0050): 1.17 0.154 3.00 30.72
					ID = 1 (0070): 2.98 0.231 3.00 26.35
ALIB					
TANDHYD (2203)	D				NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
	Area	(ha)= 0.19	9		
= 1 DT= 5.0 min	Total	(ha) = 0.19 Imp(%) = 30.00	,) Dir. Conn.(b) = 20.00	NOLE. TEAK LEWIS DO NOT INCLUES ENDITIONS IT ANT.
= 1 DT= 5.0 min	Total	Imp(%) = 30.00) Dir. Conn.(s)= 20.00	
= 1 DT= 5.0 min	Total	Imp(%)= 30.00 IMPERVIOUS) Dir. Conn.(PERVIOUS (i)	s) = 20.00	
= 1 DT= 5.0 min Surface Area	Total (ha) =	Imp(%) = 30.00 IMPERVIOUS 0.06) Dir. Conn.(PERVIOUS (i) 0.13	s)= 20.00	
= 1 DT= 5.0 min Surface Area Dep. Storage	Total (ha) = (mm) =	Imp(%) = 30.00 IMPERVIOUS 0.06 1.00	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00</pre>	s)= 20.00	RESERVOIR (0202) IN= 2> OUT= 1
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope	Total (ha) = (mm) = (%) =	<pre>Imp(%)= 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60</pre>	s)= 20.00	
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length	Total (ha) = (mm) = (%) = (m) =	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00</pre>	s)= 20.00	
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope	Total (ha) = (mm) = (%) =	<pre>Imp(%)= 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60</pre>	s)= 20.00	RESERVOIR (0202) IN=2> OUT= 1 DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (cms) (cms) (ha.m.) 0.0000 0.0000 0.0430 0.0228
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n	Total (ha) = (mm) = (%) = (m) = =	Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00</pre>	s)= 20.00	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r</pre>	Total (ha) = (mm) = (%) = (m) = = mm/hr) =	<pre>Imp(%) = 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80</pre>	Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83	;)= 20.00	
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over	Total (ha) = (mm) = (%) = (m) = = mm/hr) = (min)	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250</pre>	s)= 20.00	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r</pre>	Total (ha) = (mm) = (%) = (m) = mm/hr) = (min) (min) =	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00</pre>	;)= 20.00	
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over Storage Coeff.	Total (ha) = (mm) = (%) = (m) = (min) = (min) = (min) =	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii)</pre>	s)= 20.00	
<pre>surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak</pre>	Total (ha) = (mm) = (%) = (m) = (min) = (min) = (min) =	<pre>Imp(%) = 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 0.250 34.83 10.00 8.10 (ii) 10.00 0.13</pre>	*TOTALS*	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. PEAK FLOW</pre>	Total (ha) = (mm) = (%) = (m) = (min) (min) = (min) = (cms) = (cms) =	<pre>Imp(%) = 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (i1) 5.00 0.33 0.01</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01</pre>	*TOTALS* 0.021 (iii)	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak PEAK FLOW TIME TO PEAK</pre>	Total (ha) = (mm) = (%) = (m) = (mn/hr) = (min) = (min) = (cms) = (hrs) =	Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00</pre>	*TOTALS* 0.021 (iii) 3.00	
= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r Over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak PEAK FLOW TIME TO PEAK RUNOFF VOLUME	Total (ha) = (mm) = (%) = (m) = (min) (min) = (min) = (cms) = (hrs) = (mm) =	<pre>Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00 73.27</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63</pre>	*TOTALS* 0.021 (iii) 3.00 27.14	
<pre>surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r</pre>	Total (ha) = (mm) = (m) = (min) = (min) = (min) = (cms) = (hrs) = (mm) = (mm) =	Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00 73.27 74.28	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(n Over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak Deak FLOW TIME TO PEAK RUNOFF VOLUME</pre>	Total (ha) = (mm) = (m) = (min) = (min) = (min) = (cms) = (hrs) = (mm) = (mm) =	<pre>Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00 73.27</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63</pre>	*TOTALS* 0.021 (iii) 3.00 27.14	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak UNIT TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICIE RUNOFF COEFFICIE</pre>	Total (ha) = (mm) = (mm/h = (min) = (min) = (cms) = (hrs) = (mm) = (mm) = ENT =	<pre>Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00 73.27 73.27</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. peak Unit Hyd. peak TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICH ** WARNING: STORAK</pre>	Total (ha) = (mm) = (%) = (min) (min) = (min) = (cms) = (cms) = (hrs) = (mm) = cmm) = ENT = GE COEFF	<pre>Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 I15.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00 73.27 74.28 0.99 . IS SMALLER TH</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 KAN TIME STEP!</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Peak PEAK FLOW TIME TO PEAK RUNOFF VOLME TOTAL RAINFALL RUNOFF COLFFICII ** WARNING: STORA**</pre>	Total (ha) = (mm) = (mm) = (min) = (min) = (cms) = (cms) = (hrs) = (mm) = ENT = GE COEFF EAS WITH	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 HAN TIME STEP! IIOS BELOW 20%</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak PEAK FLOW TIME TO PEAR RUNOFF VOLVME TOTAL RAINFALL RUNOFF COLME TOTAL RAINFALL RUNOFF COLMERT TOTAL RAINFALL RUNOFF COLMERT RUNOFF CO</pre>	Total (ha) = (mm) = (%) = (m) = (min) = (min) = (cms) = (hrs) = (mrm) = (mrm) = ENT = GE COEFF EAS WITH OULD CON:	Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 0.33 0.01 3.00 73.27 74.28 0.99 . IS SMALLER TH IMPERVIOUS RAT SIDER SPLITING	<pre>Dir. Conn.(PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 VAN TIME STEP! VIOS BELOW 20% 5 THE AREA.</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	<pre></pre>
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. To PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICII ** WARNING: STORA YOU SH (i) CN PROCED</pre>	Total (ha) = (mm) = (%) = (min) = (min) = (min) = (cms) = (hrs) = (hrs) = (mr) = ENT = GE COEFF EAS WITH OULD CON: UULE SELE/	<pre>Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (i1) 5.00 0.33 0.01 3.00 73.27 74.28 0.99 .IS SMALLER TH IMPERVIOUS RAIL SIDER SPLITINC STED FOR PERVIC</pre>	<pre>D Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 than TIME STEP! TICOS BELOW 208 5 THE AREA. DUS LOSSES:</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(over Storage Coeff. Unit Hyd. Peak PEAK FLOW TIME TO PEAK RUNOFF VOLMME TOTAL RAINTALL RUNOFF COEFFICII ** WARNING: FOR ARI YOU SH (1) CN PROCEDD CCN* = -</pre>	Total (ha)= (mm)= (%)= (m)= (min) (min)= (cms)= (cms)= ENT = EAS WITH OULD CON: URE SELE: 47.8	<pre>Imp(%) = 30.00 IMPERVIOUS 0.06 1.00 1.00 1.00 35.59 0.013 115.80 5.00 1.30 (i1) 5.00 0.33 0.01 3.00 73.27 74.28 0.99 . IS SMALLER TH IMPERVIOUS RAT SIDER SPLITTINC TED FOR PERVIOU </pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 TIOS BELOW 20% 5 THE AREA. DUS LOSSES: US LOSSES: US</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	<pre></pre>
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak PEAK FLOW TIME TO PEAK RUNOFF COLIME TOTAL RAINFALL RUNOFF COEFFICI RUNOFF COEFFICI TOTAL RAINFALL RUNOFF COEFFICI RUNOFF COEFFICI (i) CN PROCEDU CN* = - (i) TIME STEP</pre>	Total (ha) = (mm) = (%) = (mm) = (min) = (min) = (min) = (cms) = (cms) = (hrs) = (mm) = ENT = GE COEFF EAS WITH OULD CON: URE SELE: 47.8 ~	<pre>Imp(%)= 30.00 IMPERVIOUS 0.06 1.00 35.59 0.013 115.80 5.00 1.30 (ii) 5.00 0.33 0.01 3.00 73.27 74.28 0.99 . IS SMALLER TH IMPERVIOUS RAT SIDER SPLITING CTED FOR PERVIC IA = Dep. Store FOR PERVIC IA = Dep. Store FOR PERVIC</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 TIOS BELOW 20% 5 THE AREA. DUS LOSSES: US LOSSES: US</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	<pre></pre>
<pre>l DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINTALL RUNOFF COEFFICIT *** WARNING: STORA *** WARNING: STORA (i) CN PROCEDU CN* = / (ii) TIME STEP THAN THE ST</pre>	Total (ha) = (mm) = (%) = (m) = (min) = (min) = (cms) = (cms) = (cms) = GE COEFF EAS WITH OULD CONN. UURS SELEU (DT) SH(STORAGE)	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 BAN TIME STEP! FIOS BELOW 20% F THE AREA. USS LOSSES: LUGS (Above) R OR EQUAL</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	
<pre>= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(r Storage Coeff. Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak Unit Hyd. Tpeak PEAK FLOW TIME TO PEAK RUNOFF VOLUME TOTAL RAINFALL RUNOFF COEFFICI ** WARNING: STORA* ** WARNING: STORA (i) CN PROCEDU CN* = - (ii) TIME STEP</pre>	Total (ha) = (mm) = (%) = (m) = (min) = (min) = (cms) = (cms) = (cms) = GE COEFF EAS WITH OULD CONN. UURS SELEU (DT) SH(STORAGE)	<pre>Imp(%) = 30.00 IMPERVIOUS</pre>	<pre>Dir. Conn. (PERVIOUS (i) 0.13 5.00 3.60 25.00 0.250 34.83 10.00 8.10 (ii) 10.00 0.13 0.01 3.00 15.63 74.28 0.21 BAN TIME STEP! FIOS BELOW 20% F THE AREA. USS LOSSES: LUGS (Above) R OR EQUAL</pre>	*TOTALS* 0.021 (iii) 3.00 27.14 74.28	<pre></pre>

5 hour SCS (Target).txt

Dep. Storage (mm) = 1.00 5.00	+ ID2= 2 (2204): 0.20 0.023 3.00 27.14
Average Slope (%) = 2.00 2.00 Length (m) = 47.61 10.00	ID = 3 (0093): 0.54 0.060 3.00 25.68
Mannings n = 0.013 0.250	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
Max.Eff.Inten.(mm/hr)= 115.80 37.98 over (min) 5.00 10.00	
Storage Coeff. (min)= 1.25 (ii) 5.78 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00	
Unit Hyd. peak (cms)= 0.33 0.15	ADD HYD (2000)
TOTALS PEAK FLOW (cms)= 0.02 0.02 0.037 (iii)	1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)
TIME TO PEAK (hrs)= 3.00 3.00 3.00 RUNOFF VOLUME (mm)= 73.28 16.28 24.82	ID1= 1 (0202): 2.98 0.126 3.08 20.48 + ID2= 2 (0093): 0.54 0.060 3.00 25.68
TOTAL RAINFALL (mm) = 74.28 74.28 74.28	
RUNOFF COEFFICIENT = 0.99 0.22 0.33	ID = 3 (2000): 3.52 0.160 3.08 21.28
**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! **** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
YOU SHOULD CONSIDER SPLITTING THE AREA.	
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	CALIB
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	STANDHYD (2300) Area (ha)= 0.08 ID= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00
THAN THE STORAGE COEFFICIENT.	
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03
	Dep. Storage (mm) = 1.00 5.00
CALIB	Average Slope (%) = 1.00 2.00 Length (m) = 23.09 5.00
STANDHYD (2204) Area (ha)= 0.20	Mannings n = 0.013 0.250
ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	Max.Eff.Inten.(mm/hr)= 115.80 27.03
IMPERVIOUS PERVIOUS (i)	over (min) 5.00 5.00
Surface Area (ha)= 0.06 0.14 Dep. Storage (mm)= 1.00 5.00	Storage Coeff. (min)= 1.00 (ii) 2.54 (ii) Unit Hyd. Tpeak (min)= 5.00 5.00
Average Slope (%) = 1.00 3.60	Unit Hyd. peak (cms)= 0.34 0.29
Length (m)= 36.51 25.00 Mannings n = 0.013 0.250	*TOTALS* PEAK FLOW (cms)= 0.02 0.00 0.019 (iii)
-	TIME TO PEAK (hrs)= 3.00 3.00 3.00
Max.Eff.Inten.(mm/hr)= 115.80 34.83 over (min) 5.00 10.00	RUNOFF VOLUME (mm) = 73.27 13.84 51.28 TOTAL RAINFALL (mm) = 74.28 74.28 74.28
Storage Coeff. (min)= 1.32 (ii) 8.12 (ii)	RUNOFF COEFFICIENT = 0.99 0.19 0.69
Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.33 0.13	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
TOTALS	
PEAK FLOW (cms)= 0.01 0.01 0.023 (iii) TIME TO PEAK (hrs)= 3.00 3.00 3.00	(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: $CN^{\star} = 47.8$ Ia = Dep. Storage (Above)
RUNOFF VOLUME (mm) = 73.28 15.63 27.14	(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
TOTAL RAINFALL (mm) = 74.28 74.28 74.28 RUNOFF COEFFICIENT = 0.99 0.21 0.37	THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! **** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	
YOU SHOULD CONSIDER SPLITTING THE AREA.	ADD HYD (0113)
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	1 + 2 = 3 AREA QPEAK TPEAK R.V.
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	(ha) (cms) (hrs) (mm) ID1= 1 (2000): 3.52 0.160 3.08 21.28
(11) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.	$\begin{array}{c} 101 = 1 & (2000) \\ + & 102 = 2 & (2300) \\ \end{array}; 0.08 & 0.019 & 3.00 & 51.28 \end{array}$
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	ID = 3 (0113): 3.60 0.163 3.08 21.94
	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
ADD HYD (0093) 1 + 2 = 3 AREA QPEAK TPEAK R.V.	
$1 \neq 2 = 3$ AKDA QPBAR TPEAR K.V. 	** SIMULATION NUMBER: 6 **
ID1= 1 (2104): 0.34 0.037 3.00 24.82	****************

READ STORM Filename: C:\Users\cproctorbennett\AppD ata\Local\Temp\ 750011ff-e3b9-41bb-9e57-167e83c22650\fbaa91b3 Ptotal= 86.45 mm Comments: 100-Year, 6 hour SCS Type II Storm Distr	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
CALIB NASHYD (1100) Area (ha)= 2.26 Curve Number (CN)= 46.4 D= 1 DT= 5.0 min Ia (mm)= 6.70 # of Linear Res.(N)= 3.00 	
TIME RAIN TIME RAIN TIME RAIN RAIN <th< th=""><th>Dep. Storage (mm)= 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 35.59 25.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr) = 134.80 46.14 over (min) 5.00 10.00 Storage Coeff. (min) = 1.22 (ii) 7.30 (ii) Unit Hyd. Tpeak (min) = 0.33 0.14</th></th<>	Dep. Storage (mm)= 1.00 5.00 Average Slope (%) = 1.00 3.60 Length (m) = 35.59 25.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr) = 134.80 46.14 over (min) 5.00 10.00 Storage Coeff. (min) = 1.22 (ii) 7.30 (ii) Unit Hyd. Tpeak (min) = 0.33 0.14
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	*TOTALS* PEAK FLOW (cms)= 0.01 0.01 0.027 (iii) TIME TO PEAK (hrs)= 3.00 3.00 3.00 RUNOFF VOLUME (mm)= 85.45 20.74 33.66 TOTAL RAINFALL (mm)= 86.45 86.45 86.45 RUNOFF COEFFICIENT = 0.99 0.24 0.39 ***** WARNING: STORAGE COEFF. IS SWALLER THAN THE STEP! ***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.
1.333 5.20 2.833 134.80 4.333 6.90 5.83 3.50 1.417 5.20 2.917 134.80 4.417 6.90 5.92 3.50 1.500 5.20 3.000 134.80 4.500 6.90 6.00 3.50 Unit Hyd Qpeak (cms)= 0.135 PEAK FLOW (cms)= 0.056 (i) TIME TO FEAK (hrs)= 3.667	 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
<pre>(ii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.</pre>	CALIB STANDHYD (1202) Area (ha)= 0.47 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
DIVERT HYD (0107) IN= 1 # OUT= 5 Outflow / Inflow Relationships	Surface Area (ha)= 0.14 0.33 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60 Length (m)= 55.95 25.00 Mannings n = 0.013 0.250
Cutlow / Inlice Relationships Flow 1 + Flow 2 + Flow 3 + Flow 4 + Flow 5 = Total (cms) (cms) (cms) (cms) (cms) (cms)	Max.Eff.Inten.(mm/hr)= 134.80 46.14 over (min) 5.00 10.00 Storage Coeff. (min)= 1.60 (ii) 7.68 (ii)

		59/79
Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.13		Storage Coeff. (min)= 1.24 (ii) 7.32 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00
PEAK FLOW (cms)= 0.04 0.03 TIME TO PEAK (hrs)= 3.00 3.00	*TOTALS* 0.066 (iii) 3.00	Unit Hyd. peak (cms) = 0.33 0.13 *TOTALS* PEAK FLOW (cms) = 0.01 0.01 0.028 (iii)
RUNOFF VOLUME (mm) = 85.45 20.74 TOTAL RAINFALL (mm) = 86.45 86.45 RUNOFF COEFFICIENT = 0.99 0.24	33.67 86.45 0.39	TIME TO PEAK (hrs)= 3.00 3.00 RNNOFF VOLUME (mm)= 85.45 20.74 33.66 TOTAL RAINFALL (mm)= 86.45 86.45 86.45 RUNOFF COEFFICIENT = 0.99 0.24 0.39
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! *** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.		***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING: FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		YOU SHOULD CONSIDER SPLITTING THE AREA.
 CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 		 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 I a Dep. Storage (Above) (i) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (ii) PERA FLOW DOES NOT INCLUDE BASSFLOW IF ANY.
CALIB STANDHYD (1201) Area (ha)= 0.47		
D= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%	%)= 20.00	ADD HYD (0020) 1 + 2 = 3 AREA QPEAK TPEAK R.V.
Surface Area (ha) = 0.14 0.33 Dep. Storage (mm) = 1.00 5.00		$ \begin{array}{c} \text{IDI=1} & (1201): & 0.47 & 0.066 & 3.00 & 33.67 \\ + & \text{ID2=2} & (1202): & 0.47 & 0.066 & 3.00 & 33.67 \end{array} $
Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00		ID = 3 (0020): 0.94 0.133 3.00 33.67
Mannings n = 0.013 0.250		
Max.Eff.Inten.(mm/hr)= 134.80 46.14		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
over (min) 5.00 10.00 Storage Coeff. (min)= 1.60 (ii) 7.68 (ii)		
Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.32 0.13		ADD HYD (0020)
PEAK FLOW (cms)= 0.04 0.03	*TOTALS* 0.066 (iii)	3 + 2 = 1 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)
TIME TO PEAK (hrs)= 3.00 3.00 RUNOFF VOLUME (mm)= 85.45 20.74	3.00 33.67	ID1= 3 (0020): 0.94 0.133 3.00 33.67 + ID2= 2 (1203): 0.19 0.027 3.00 33.66
TOTAL RAINFALL (num) = 86.45 86.45 RUNOFF COEFFICIENT = 0.99 0.24	86.45 0.39	$\frac{1}{10000000000000000000000000000000000$
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	0.35	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! *** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 200 YOU SHOULD CONSIDER SPLITTING THE AREA.		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL		ADD HYD (0020) 1 + 2 = 3 AREA QPEAK TPEAK R.V.
THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.		(ha) (cms) (hrs) (mm) ID1= 1 (0020): 1.13 0.160 3.00 33.67
		+ 1D2= 2 (1204): 0.20 0.028 3.00 33.66
		ID = 3 (0020): 1.33 0.188 3.00 33.67
CALIB STANDHYD (1204) Area (ha)= 0.20 D= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%	8)= 20.00	NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
IMPERVIOUS PERVIOUS (i)		
Surface Area (ha)= 0.06 0.14 Dep. Storage (mm)= 1.00 5.00		SHIFT HYD (0114) IN= 2> OUT= 1
Average Slope (%)= 1.00 3.60		SHIFT= 40.0 min AREA QPEAK TPEAK R.V.
Length (m)= 36.51 25.00 Mannings n = 0.013 0.250		(ha) (cms) (hrs) (mun) ID= 2 (0020): 1.33 0.19 3.00 33.67
Max.Eff.Inten.(mm/hr)= 134.80 46.14		SHIFT ID= 1 (0114): 1.33 0.19 3.67 33.67
over (min) 5.00 10.00		

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Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00		CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	
Dep. Storage (mm) = 1.00 5.00		(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.14 0.33		YOU SHOULD CONSIDER SPLITTING THE AREA.	
	- 20.00	***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	
STANDHYD (2201) Area (ha)= 0.47 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)	- 20.00		
 CALIB		TOTAL RAINFALL (mm) = 86.45 86.45 RUNOFF COEFFICIENT = 0.99 0.24	86.45 0.37
		RUNOFF VOLUME (mm) = 85.45 20.44	32.14
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.		PEAK FLOW (cms)= 0.05 0.05 TIME TO PEAK (hrs)= 3.00 3.00	0.097 (iii) 3.00
THAN THE STORAGE COEFFICIENT.			*TOTALS*
CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL		Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. peak (cms)= 0.31 0.14	
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		Storage Coeff. (min) = 2.11 (ii) 6.88 (ii)	
		over (min) 5.00 10.00	
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!		Max.Eff.Inten.(mm/hr) = 134.80 *******	
RUNOFF COEFFICIENT = 0.99 0.24	0.47	Mannings n = 0.013 0.250	
RUNOFF VOLUME (mm) = 85.45 21.10 TOTAL RAINFALL (mm) = 86.45 86.45	40.40 86.45	Average Slope (%) = 0.60 2.00 Length (m) = 68.80 10.00	
TIME TO PEAK (hrs) = 3.00 3.00	3.00	Dop Storage (mm) = 1.00 5.00	
	TOTALS 0.125 (iii)	IMPERVIOUS PERVIOUS (1) Surface Area (ha)= 0.19 0.52	
Unit Hyd. peak (cms)= 0.32 0.16			/
Storage Coeff. (min)= 1.80 (ii) 5.40 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00		STANDHYD (2102) Area (ha)= 0.71 ID= 1 DT= 5.0 min Total Imp(%)= 27.00 Dir. Conn.(%)= 18.00
over (min) 5.00 10.00		CALIB	
Max.Eff.Inten.(mm/hr)= 134.80 47.91			
Mannings n = 0.013 0.250			
Average Slope (%)= 1.00 2.00 Length (m)= 68.31 10.00		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
Dep. Storage (mm) = 1.00 5.00		ID = 3 (0050): 1.17 0.191 3.00 37.7	0
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.28 0.42		+ ID2= 2 (2201): 0.47 0.066 3.00 33.6	
		ID1= 1 (2101): 0.70 0.125 3.00 40.4	
STANDHYD (2101) Area (ha)= 0.70 ID= 1 DT= 5.0 min Total Imp(%)= 40.00 Dir. Conn.(%)	= 30.00	1 + 2 = 3 AREA QPEAK TPEAK R. (ha) (cms) (hrs) (m	m)
CALIB		ADD HYD (0050)	
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.		(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
ID = 3 (1001): 3.59 0.245 3.67 23.20		THAN THE STORAGE COEFFICIENT.	
+ ID2= 2 (0107): 0.70 0.017 3.67 17.04		$CN^* = 47.8$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL	
ID1= 1 (1000): 2.89 0.228 3.67 24.69		(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:	
1 + 2 = 3 AREA QPEAK TPEAK R.V (ha) (cms) (hrs) (mm		YOU SHOULD CONSIDER SPLITTING THE AREA.	
ADD HYD (1001)		***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%	
		***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	
		RUNOFF COEFFICIENT = 0.99 0.24	0.39
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.		RUNOFF VOLUME (mm) = 85.45 20.74 TOTAL RAINFALL (mm) = 86.45 86.45	33.67 86.45
	·	TIME TO PEAK (hrs)= 3.00 3.00	3.00
ID = 3 (1000): 2.89 0.228 3.67 24.69		PEAK FLOW (cms) = 0.04 0.03	*TOTALS* 0.066 (iii)
+ ID2= 2 (0114): 1.33 0.188 3.67 33.67		Unit Hyd. peak (mm)= 0.32 0.13	
		Storage Coeff. (min)= 1.60 (ii) 7.68 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00	
ADD HYD (1000) 1 + 2 = 3 AREA QPEAK TPEAK R.V	<i>.</i>	Max.Eff.Inten.(mm/hr)= 134.80 46.14 over(min) 5.00 10.00	
		Mannings n = 0.013 0.250	

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THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| STANDHYD (2202) | Area (ha)= 0.47 |ID=1 DT= 5.0 min | Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00

_____ CALIB

1

		IMPERVIOU	S PERVIOUS	(i)		
Surface Area	(ha) =	0.14	0.33			
Dep. Storage						
Average Slope						
Length	(m) =	55.98	25.00			
Mannings n						
Max.Eff.Inten.(nm/hr)=	134.80	46.14			
over Storage Coeff. Unit Hyd. Tpeak Unit Hyd. peak	(min)	5.00	10.00			
Storage Coeff.	$(\min) =$	1.60	(ii) 7.68	(ii)		
Unit Hyd. Tpeak	(min) =	5.00	10.00			
Unit Hyd. peak	(cms) =	0.32	0.13			
				*	FOTALS*	r
PEAK FLOW					0.066	(iii)
TIME TO PEAK						
RUNOFF VOLUME						
TOTAL RAINFALL						
RUNOFF COEFFICI	ENT =	0.99	0.24		0.39	
(i) CN PROCED	EAS WITH DULD CONS JRE SELEC	IMPERVIOUS IDER SPLIT TED FOR PE	RATIOS BELOW TING THE AREA	20%		
(ii) TIME STEP						
THAN THE	STORAGE C	OEFFICIENT				
(iii) PEAK FLOW	DOES NOT	INCLUDE B	ASEFLOW IF AN	Υ.		
D HYD (0090)						
1 + 2 = 3						
 TD1- 1 (01						
			97 3.00 66 3.00			
			66 3.00 =============			

ID = 3 (0090): 1.18 0.164 3.00 32.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0201) IN= 2> OUT= 1					
DT= 5.0 min	OUTFLOW	STORA	GE	OUTFLOW	STORAGE
	(cms)	(ha.m	.) i	(cms)	(ha.m.)
	0.0000	0.00	00	0.0052	0.0213
	0.0001	0.00	50 I	0.0060	0.0258
	0.0003	0.00	58	0.0068	0.0296
	0.0009	0.00	73	0.0074	0.0325
	0.0021	0.00	96	0.0081	0.0352
	0.0034	0.01	34	0.0086	0.0379
	0.0039	0.01	57 I	0.0000	0.0000
		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0)	090)	1.180	0.164	3.00	32.75
OUTFLOW: ID= 1 (0)	201)	1.180	0.007	5.17	27.99

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PEAK	FLOW	REDUG	CTION	[Qout/Qin](%)= 4.34	
TIME	SHIFT OF	PEAK	FLOW	(min)=130.00	
MAXIN	IUM STOR	AGE	USED	(ha.m.)= 0.0311	

CALIB		(1-1)-		
STANDHYD (2103) D= 1 DT= 5.0 min	Area	(na)= 0.4	14 20 Din Gun	- /01 - 00 00
ID= I DT= 5.0 min	Total	Imp(*) = 30.0	JU Dir. Con	n.(*) = 20.00
		IMPERVIOUS	PERVIOUS (i)
Surface Area			0.31	
Dep. Storage	(mm) =	1.00	5.00	
Average Slope	(%) =	2.00	2.00	
Length	(m) =	54.16	10.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(m/hr) =	134.80	46.14	
	(min)		10.00	
Storage Coeff.	(min) =	1.27 (ii	L) 5.77 (i	i)
Unit Hyd. Tpeak Unit Hyd. peak	(min) =	5.00	L) 5.77 (i 10.00	-
Unit Hyd. peak	(cms) =	0.33	0.15	
				TOTALS
PEAK FLOW			0.03	0.065 (iii)
TIME TO PEAK	(hrs)=	3.00	3.00	3.00
RUNOFF VOLUME			20.74	33.67
TOTAL RAINFALL RUNOFF COEFFICI	(mm) =	86.45	86.45	86.45
RUNOFF COEFFICI	ENT =	0.99	0.24	0.39
(ii) TIME STEP	47.8 1 (DT) SHO STORAGE (a = Dep. Stor DULD BE SMALLE COEFFICIENT.	cage (Above) SR OR EQUAL	
(iii) PEAK FLOW CALIB STANDHYD (2203)	Area	(ha)= 0.1		n (8)= 20.00
(iii) PEAK FLOW	Area	(ha)= 0.1		n.(%)= 20.00
(iii) PEAK FLOW 	Area Total	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS	L9 D0 Dir. Con PERVIOUS (
(iii) PEAK FLOW CALIB STANDHYD (2203) D= 1 DT= 5.0 min Surface Area	Area Total (ha)=	(ha)= 0.1 Imp(%)= 30.0 IMPERVIOUS 0.06	L9 D0 Dir. Con PERVIOUS (0.13	
(iii) PEAK FLOW CALIB STANDHYD (2203) D= 1 DT= 5.0 min Surface Area Dep. Storage	Area Total (ha)= (mm)=	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS 0.06 1.00	19 00 Dir. Con PERVIOUS (0.13 5.00	
(iii) PEAK FLOW CALIE STANDYD (2203) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope	Area Total (ha) = (mm) = (%) =	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS 0.06 1.00 1.00	19 00 Dir. Con PERVIOUS (0.13 5.00 3.60	
<pre>(iii) PEAK FLOW</pre>	Area Total (ha) = (mm) = (%) = (m) =	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS 0.06 1.00 1.00 35.59	19 10 Dir. Con PERVIOUS (0.13 5.00 3.60 25.00	
(iii) PEAK FLOW CALIB STANDHYD (2203) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope	Area Total (ha) = (mm) = (%) = (m) =	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS 0.06 1.00 1.00 35.59	19 10 Dir. Con PERVIOUS (0.13 5.00 3.60 25.00	
<pre>(iii) PEAK FLOW</pre>	Area Total (ha) = (mm) = (%) = (m) = =	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013	19 Dir. Con PERVIOUS (0.13 5.00 3.60 25.00 0.250	
(iii) PEAK FLOW CALIB STANDHYD (2203) D= 1 DT= 5.0 min Surface Area Dep. Storage Average Slope Length Mannings n Max.Eff.Inten.(Area Total (ha) = (mm) = (%) = (m) = =	(ha) = 0.1 Imp(%) = 30.0 IMPERVIOUS 0.06 1.00 1.00 35.59 0.013	19 10 Dir. Con PERVIOUS (0.13 5.00 3.60 25.00	

Storage Coeff.	(min) =	1.22 (ii)	7.30 (ii)	
Unit Hyd. Tpeak	(min) =	5.00	10.00	
Unit Hyd. peak	(cms) =	0.33	0.14	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.01	0.027 (iii
TIME TO PEAK	(hrs) =	3.00	3.00	3.00
RUNOFF VOLUME	(mm) =	85.45	20.74	33.66
TOTAL RAINFALL	(mm) =	86.45	86.45	86.45
RUNOFF COEFFICIE	INT =	0.99	0.24	0.39

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

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 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 	STANDHYD (2104) Area (ha)= 0.34 ID= 1 DT= 5.0 min Total Imp(%)= 29.00 Dir. Conn.(%)= 15.00
$\frac{1}{1 + 2} = 3 AREA QPEAK TPEAK R.V. \\ \hline \\ $	Length (n) = 47.61 10.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr) = 134.80 50.21 over (min) 5.00 10.00 Storage Coeff. (min) = 1.18 (ii) 5.23 (ii) Unit Hyd. peak (nin) = 5.00 10.00 Unit Hyd. peak (cms) = 0.33 0.16 PEAK FLOW (cms) = 0.02 0.03 0.047 (iii) TIME TO PEAK (hrs) = 3.00 3.00 3.00 RUNOFF VOLUME (mm) = 85.45 21.56 31.14 TOTAL RAINFRALL (mm) = 86.45 86.45 86.45 RUNOFF COEFFICIENT = 0.99 0.25 0.36 ****** WARNING: STORAGE COEFF. IS SMALLER THAN THE STEP! ***** WARNING: STORAGE COEFF. IS SMALLER THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 I a = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD EE SMALLER OR EQUAL THAN THE STORAGE COEFF.IENT.
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
ESERVOIR (0202) N= 2> OUT= 1 T= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0430 0.0228 0.0001 0.0173 0.0913 0.0225 0.0006 0.0179 0.1374 0.0275 0.0094 0.0198 0.1695 0.02292 0.0236 0.0214 0.1892 0.0304 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)	Max.Eff.Inten.(mm/hr)= 134.80 46.14 over (min) 5.00 10.00 Storage Coeff. (min)= 1.24 (ii) 7.32 (ii) Unit Hyd. Tpeak (min)= 5.00 10.00 Unit Hyd. Tpeak (cms)= 0.33 0.13 *TOTALS* *TOTALS* PEAK FLOW (cms)= 0.01 0.028 (iii) TIME TO PEAK (hrs)= 3.00 3.00 RUNOFF VOLUME (mm)= 85.45 20.74 33.66 TOTAL RAINFALL (mm)= 66.45 86.45 66.45 RUNOFF COEFFICIENT = 0.99 0.24 0.39 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
(ha) (cms) (mm) INFLOW : ID= 2 (0070) 2.980 0.288 3.00 OUTFLOW: ID= 1 (0202) 2.980 0.181 3.08 27.14 PEAK FLOW REDUCTION [Qout/Qin](%)= 62.85 TIME SHIFT OF PEAK FLOW (min)= 5.00 MAXIMUM STORAGE USED (ha.m.)= 0.0303	 (i) CN PROCEDURE SELECTED FOR PERVIOUS RATIOS ELEW 20% (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (c) CN * = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER CO EFGUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

DD HYD (0093) 1 + 2 = 3 AREA QPEAK TPEAK R.V.	
(ha) (cms) (hrs) (mm)	** SIMULATION NUMBER: 7 **
ID1= 1 (2104): 0.34 0.047 3.00 31.14 + ID2= 2 (2204): 0.20 0.028 3.00 33.66	***************************************
ID = 3 (0093): 0.54 0.076 3.00 32.07	CHICAGO STORM IDF curve parameters: A= 405.000
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	Ptotal= 24.91 mm B= 3.000 C= 0.760 used in: INTENSITY = A / (t + B)^C
	Duration of storm = 4.00 hrs
DD HYD (2000)	Storm time step = 10.00 min Time to peak ratio = 0.33
1 + 2 = 3 AREA QPEAK TPEAK R.V.	
(ha) (cms) (hrs) (mm) ID1= 1 (0202): 2.98 0.181 3.08 27.14	TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN TIME RAIN hrs mm/hr
+ ID2 = 2 (0093): 0.54 0.076 3.00 32.07	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	0.33 2.00 1.33 57.66 2.33 3.35 3.33 1.93
ID = 3 (2000): 3.52 0.228 3.00 27.89	0.50 2.32 1.50 15.20 2.50 2.96 3.50 1.81 0.67 2.81 1.67 8.31 2.67 2.66 3.67 1.71
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	0.83 3.61 1.83 5.91 2.83 2.42 3.83 1.62
	1.00 5.28 2.00 4.66 3.00 2.23 4.00 1.54
 ALIB	
TANDHYD (2300) Area (ha)= 0.08 = 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00	
	NASHYD (1100) Area (ha)= 2.26 Curve Number (CN)= 46.4
IMPERVIOUS PERVIOUS (i)	ID= 1 DT= 5.0 min Ia (mm)= 6.70 # of Linear Res.(N)= 3.00
Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00	U.H. Tp(hrs)= 0.64
Average Slope (%) = 1.00 2.00	NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.
Length (m) = 23.09 5.00 Mannings n = 0.013 0.250	
	TRANSFORMED HYETOGRAPH
Max.Eff.Inten.(mm/hr)= 134.80 36.03 over (min) 5.00 5.00	TIME RAIN TIME R
Storage Coeff. (min)= 0.94 (ii) 2.39 (ii)	0.083 1.76 1.083 11.75 2.083 3.88 3.08 2.07
Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. peak (cms)= 0.34 0.30	0.167 1.76 1.167 11.75 2.167 3.88 3.17 2.07 0.250 2.00 1.250 57.66 2.250 3.35 3.25 1.93
TOTALS	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
PEAK FLOW (cms) = 0.02 0.00 0.022 (iii)	0.417 2.32 1.417 15.20 2.417 2.96 3.42 1.81
TIME TO PEAK (hrs) = 3.00 3.00 3.00 RUNOFF VOLUME (mm) = 85.45 18.49 60.67	0.500 2.32 1.500 15.20 2.500 2.96 3.50 1.81 0.583 2.81 1.583 8.31 2.583 2.66 3.58 1.71
TOTAL RAINFALL (mm) = 86.45 86.45 86.45	0.667 2.81 1.667 8.31 2.667 2.66 3.67 1.71
RUNOFF COEFFICIENT = 0.99 0.21 0.70	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	0.833 3.61 1.833 5.91 2.833 2.42 3.83 1.62 0.917 5.28 1.917 4.66 2.917 2.23 3.92 1.54
	1.000 5.28 2.000 4.66 3.000 2.23 4.00 1.54
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) approximation of the pervision of the pervision	Unit Hyd Qpeak (cms)= 0.135
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.	PEAK FLOW (cms) = 0.003 (i)
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	TIME TO PEAK (hrs)= 2.333
	RUNOFF VOLUME (mm) = 1.063 TOTAL RAINFALL (mm) = 24.906
	IUTAL KAINERALD (HTT) 24.900 RUNOFF COEFFICIENT = 0.043
DD HYD (0113)	(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
1 + 2 = 3 AREA QPEAK TPEAK R.V.	(1) that the bold for results the brack the brack
(ha) (cms) (hrs) (mm)	
ID1= 1 (2000): 3.52 0.228 3.00 27.89 + ID2= 2 (2300): 0.08 0.022 3.00 60.67	DIVERT HYD (0107)
ID = 3 (0113): 3.60 0.250 3.00 28.62	IN= 1 # OUT= 5
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	Outflow / Inflow Relationships

$\begin{array}{c} \text{over} (\text{min}) & 5.00 & 25.00 \\ \text{Storage Coeff.} (\text{min}) = & 2.25 (\text{ii}) & 23.97 (\text{ii}) \\ \text{Unit Hyd. Tpeak (min)} = & 5.00 & 25.00 \\ \text{Unit Hyd. peak (cms)} = & 0.30 & 0.05 \\ & & & & & & & & & & & & & & & & & & $
over (min) 5.00 25.00 Storage Coeff. (min) = 2.25 (i) 23.97 (i) Unit Hyd. Tpeak (min) = 5.00 25.00 Unit Hyd. peak (cms) = 0.30 0.05 *TOTALS* PEAK FLOW (cms) = 0.01 0.015 (ii) TIME TO PEAK (hrs) = 1.33 1.75 RUNOFF VOLUME (mm) = 23.91 1.60 6.03 TOTAL RAINFALL (mm) = 24.91 24.91 24.91 RUNOFF COEFFICIENT = 0.96 0.06 0.24 ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ****** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) CM PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL YOU YOU
Storage Coeff. (min) = 2.25 (i) 23.97 (i) Unit Hyd. Tpeak (min) = 5.00 25.00 Unit Hyd. peak (cms) = 0.30 0.05 *TOTALS* PEAK FLOW (cms) = 0.01 0.00 0.015 (iii) TIME TO PEAK (hrs) = 1.33 1.75 1.33 RUNOFF VOLUME (mm) = 23.91 1.60 6.03 TOTAL RAINFALL (mm) = 24.91 24.91 24.91 RUNOFF COEFFICIENT = 0.96 0.06 0.24 ****** WARNING: STORAGE COEFF. IS SWALLER THAN TIME STEP! ****** WARNING: STORAGE COEFF. IS SWALLER THAN TIME STEP! ***** TO STORAGE COEFF. IS SWALLER THAN TIME STEP! ***** TO STORAGE COEFF. IS SWALLER THAN TIME STEP! ****** WARNING: STORAGE STORAGE COEFF. IS SWALLER THAN TIME STEP! ****** WARNING: STORAGE STORAGE STORAGE COEFF. IS SWALLER THAN TIME STEP! ****** WARNING: STORAGE STORAGE STORAGE COEFF. IS SWALLER THAN TIME STEP! ****** WARNING: STORAGE STORAGE STORAGE COEFF. IS SWALLER THAN TIME STEP! ****** WARNING: STORAGE STOR
<pre>***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA. (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SWALLER OR EQUAL</pre>
$CN^{\star} = 47.8$ Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
CALIB STANDHYD (1201) Area (ha)= 0.47 ID=1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.14 0.33 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 57.66 1.91 over (min) 5.00 25.00 Storage Coeff. (min)= 2.25 (ii) 23.97 (ii)
Unit Hyd. Tpeak (min)= 5.00 25.00 Unit Hyd. peak (cms)= 0.30 0.05 *TOTALS* PEAK FLOW (cms)= 0.01 0.00 0.015 (iii) TIME TO PEAK (hrs)= 1.33 1.75 1.33 RUNOFF VOLUME (mm)= 23.91 1.60 6.03 TOTAL RAINFALL (mm)= 24.91 24.91 RUNOFF COEFFICIENT = 0.96 0.06 0.24
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.06 0.14 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60 Length (m)= 36.51 25.00 Mannings n = 0.013 0.250

Storage Coeff. (min) Unit Hyd. Tpeak (min)		4 (ii) 0	23.46 (ii) 25.00		
Unit Hyd. peak (cms)	= 0.3	2	0.05	*TOTALS*	ADD HYD (1000) 1 + 2 = 3
PEAK FLOW (cms) TIME TO PEAK (hrs)	= 0.0 = 1.3	1 3 1	0.00	0.006 (iii) 1.33	
RUNOFF VOLUME (mm)	= 23.9	1	1.60	5.98	+ ID2= 2 (0114):
FOTAL RAINFALL (mm) RUNOFF COEFFICIENT	21.7	*	24.91 0.06	24.91 0.24	ID = 3 (1000):
***** WARNING: STORAGE COE ***** WARNING:FOR AREAS WI YOU SHOULD C	TH IMPERVIO	US RATIOS	BELOW 20%		NOTE: PEAK FLOWS DO
 (i) CN PROCEDURE SE CN* = 47.8 (ii) TIME STEP (DT) THAN THE STORAG 	Ia = Dep. SHOULD BE S	Storage MALLER OR	(Above)		ADD HYD (1001) 1 + 2 = 3
(iii) PEAK FLOW DOES	NOT INCLUDE	BASEFLOW			ID1= 1 (1000): + ID2= 2 (0107):
					ID = 3 (1001):
ADD HYD (0020)	1077		-		NOTE: PEAK FLOWS DO
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK R (hrs) (I)	
ID1= 1 (1201): + ID2= 2 (1202):	0.47 0	.015	1.33 6.0 1.33 6.0		
				=	STANDHYD (2101) Are
ID = 3 (0020):					ID= 1 DT= 5.0 min Tot
NOTE: PEAK FLOWS DO	NOT INCLUDE	BASEFLOW	S IF ANY.		Surface Area (ha)
					Dep. Storage (mm) Average Slope (%)
ADD HYD (0020)					Length (m) Mannings n
			TPEAK R (hrs) (r		Max.Eff.Inten.(mm/hr)
ID1= 3 (0020):	0.94 0	.030	1.33 6.		over (min)
+ ID2= 2 (1203):			1.33 5.	=	Storage Coeff. (min) Unit Hyd. Tpeak (min)
ID = 1 (0020):	1.13 0	.036	1.33 6.		Unit Hyd. peak (cms)
NOTE: PEAK FLOWS DO	NOT INCLUDE	BASEFLOW	S IF ANY.		PEAK FLOW (cms)
					TIME TO PEAK (hrs) RUNOFF VOLUME (mm)
					TOTAL RAINFALL (mm) RUNOFF COEFFICIENT
ADD HYD (0020) 1 + 2 = 3	AREA	OPEAK	TPEAK R		***** WARNING: STORAGE COE
	(ha)	(cms)	(hrs) (r		
ID1= 1 (0020): + ID2= 2 (1204):	1.13 0 0.20 0	.036	1.33 6.0 1.33 5.1		(i) CN PROCEDURE SE CN* = 47.8
ID = 3 (0020):				=	(ii) TIME STEP (DT) THAN THE STORAG
NOTE: PEAK FLOWS DO					(iii) PEAK FLOW DOES
CUITER UVD (0114)					CALIB
					STANDHYD (2201) Are ID= 1 DT= 5.0 min Tot
IN= 2> OUT= 1		EAK T ms) (PEAK R hrs) (1		
IN= 2> OUT= 1 SHIFT= 40.0 min			1.33 6	2	Surface Area (ha)
IN= 2> OUT= 1 SHIFT= 40.0 min ID= 2 (0020):	1.33 0				
ID= 2 (0020):	1.33 0		2.00 6	2	Dep. Storage (mm)

(ha) (cms) (hrs) (mm) 1.13 0.001 2.33 1.06 2.00 6.02 1.33 0.043 _____ _____ 2.46 0.044 2.00 3.74 NOT INCLUDE BASEFLOWS IF ANY. _____ AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) 3.74 2.46 0.044 2.00 1.13 0.001 2.33 1.06 _____ ____ _____ ____ 2.00 3.59 0.045 2.90 NOT INCLUDE BASEFLOWS IF ANY. rea (ha)= 0.70 Potal Imp(%)= 40.00 Dir. Conn.(%)= 30.00 IMPERVIOUS PERVIOUS (i) a) = 0.28 0.42 5.00 n) = 3) = 1.00 1.00 68.31 10.00 m) = = 0.013 0.250 57.66 2.47 :)= 5.00 20.00 n)= n)= ns)= 2.53 (ii) 16.03 (ii) 5.00 20.00 0.29 0.06 *TOTALS* s) = 0.03 0.00 0.034 (iii) ;)= 1.33 1.58 1.33 n) = 23.91 1.65 8.31 n) = 24.91 24.91 24.91 = 0.96 0.07 0.33 OEFF. IS SMALLER THAN TIME STEP! SELECTED FOR PERVIOUS LOSSES: Ia = Dep. Storage (Above) SHOULD BE SMALLER OR EQUAL AGE COEFFICIENT. NOT INCLUDE BASEFLOW IF ANY. -----area (ha)= 0.47 Potal Imp(%)= 30.00 Dir. Conn.(%)= 20.00 IMPERVIOUS PERVIOUS (i)) = 0.14 0.33 n) = 1.00

TPEAK

R.V.

AREA QPEAK

71/79

10122_VO3 Detailed Output - 6 hour SCS (Target).txt

	73/79		74/79
Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00 Mannings n = 0.013 0.250		CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.	
Max.Eff.Inten.(mm/hr)= 57.66 1.91 over (min) 5.00 25.00		(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.	
Storage Coeff. (min)= 2.25 (ii) 23.97 (ii) Unit Hyd. Tpeak (min)= 5.00 25.00 Unit Hyd. peak (cms)= 0.30 0.05	*TOTALS*	CALIB STANDHYD (2202) Area (ha)= 0.47 ID= 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00	
PEAK FLOW (cms) = 0.01 0.00 TIME TO PEAK (hrs) = 1.33 1.75 RUNOFF VOLUME (mm) = 23.91 1.60 TOTAL RAINFALL (mm) = 24.91 24.91 RUNOFF COEFFICIENT 0.96 0.06	0.015 (iii) 1.33 6.03 24.91 0.24	INDE T Die 5.0 min (*) Focal imp(*) Solido DFL Cont.(*) 20.00 IMPERVIOUS (PERVIOUS (i) Surface Area (ha)= 0.14 0.33 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60 Length (m)= 55.98 25.00	
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.		Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 57.66 1.91	
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAR FLOW DOES NOT INCLUDE BASEFLOW IF ANY. 		over (min) 5.00 25.00 Storage Coeff. (min)= 2.25 (ii) 23.97 (ii) Unit Hyd. Tpeak (min)= 5.00 25.00 Unit Hyd. peak (cms)= 0.30 0.05 *TOTALS* PEAK FLOW (cms)= 0.01 0.015 (iii)	
		TIME TO PEAK (hrs)= 1.33 1.75 1.33 RUNOFF VOLUME (mm)= 23.91 1.60 6.03 TOTAL RAINFALL (mm)= 24.91 24.91 RUNOFC COEFFICIENT = 0.96 0.06 0.24	
ADD HYD (0050) 1 + 2 = 3 AREA QPEAK TPEAK R. 	n) L	***** WARNING; STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING;FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.	
ID = 3 (0050): 1.17 0.049 1.33 7.3 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.		 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: (CI* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. (iii) PEAK FLOW DOES NOT INCLUDE BASSFLOW IF ANY. 	
		 - ADD HYD (0000)	
IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.19 0.52 Dep. Storage (mm)= 1.00 5.00 Average Slope (b)= 0.60 2.00 Length (m)= 68.80 10.00 Mannings n = 0.013 0.250		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
<pre>Max.Eff.Inten.(mm/hr)= 57.66 2.26</pre>		NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
DEFENDING CHEST Disc Disc PEAK FLOW (cms) = 0.02 0.00 TIME TO PEAK (hrs) = 1.33 1.58 RUNOFF VOLUME (mm) = 23.91 1.56 TOTAL RAINFALL (mm) = 24.91 24.91 RUNOFF COEFFICIENT 0.96 0.06	*TOTALS* 0.020 (iii) 1.33 5.57 24.91 0.22	DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0052 0.0213 0.0001 0.0050 0.0060 0.0258 0.0003 0.0058 0.0066 0.0296 0.0009 0.0073 0.0074 0.0325	
***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! ***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20% YOU SHOULD CONSIDER SPLITTING THE AREA.		0.0021 0.0096 0.0081 0.0352 0.0034 0.0134 0.0086 0.0379 0.0039 0.0157 0.0000 0.0000	
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:		AREA QEEAK TEEAK R.V. (ha) (cms) (hrs) (mm)	
2020-06-09 11:32:59 AM	10122_VO3 Detailed Output - 6 hour SCS (Target).txt	2020-06-09 11:32:59 AM 10122_VO3 Detailed Output - 6 h	our SCS (Target).txt

2017LIN: 19-1 (2017) 1.40 0.41 1.00 101		75/79		
$\frac{1}{120 \text{ KeV}} = \frac{1}{120 \text{ KeV}} = \frac{1}$	OUTFLOW: ID= 1 (0201) 1.180 0.001 4.17 1.00 PEAK FLOW REDUCTION [Qout/Qin](%)= 1.57 TIME SHIFT OF PEAK FLOW (min)=170.00 MAXIMUM STORAGE USED (ha.m.)= 0.0064		 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. Storage (Above) (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT. 	
Owner (bit) 5.80 20.00 Weiting Over (bit) 5.80 5.00 Weiting Over (bit) 5.00	CALIE STANDHYD (2103) $j=1$ DT= 5.0 min Total Imp(%) = 30.00 Dir. Conn.(%) = 20.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha) = 0.13 0.31 Dep. Storage (mm) = 1.00 5.00 Average Slope (%) = 2.00 2.00 Length (m) = 0.013 0.250		ADD HYD (0030) 1 + 2 = 3 AREA QPEAK TPEAK R.V. 	
$ \begin{array}{c} (1) \text{ ON PROCEDURE SELECTED FOR PERVIOUS LOSSES:} \\ \text{ Ch' = 47.8 } \text{ Ta beg. Storage (RBOVW)} \\ (11) The first begins and the RSULL man beson for RSULL man best restrict man beson for RSULL man beson for RSULL ma$	over min 5.00 20.00 Storage Coeff. (min) = 1.79 (ii) 15.55 (ii) Unit Hyd. Tpeak (min) = 5.00 20.00 Unit Hyd. peak (cms) = 0.32 0.07 PEAK FLOW (cms) = 0.11 0.00 0.014 (iii) TIME TO FEAK (hrs) = 1.33 1.58 1.33 RUNOFF VOLWE (mm) = 23.91 1.60 6.04 TOTAL RAINFALL (mm) = 24.91 24.91 24.91 RUNOFF COEFFICIENT = 0.96 0.06 0.24 **** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! **** ****		$\begin{bmatrix} ADD HYD & (0070) \\ & 1 + 2 = 3 \\ & AREA & QPEAK & TPEAK & R.V. \\ \hline & & & & \\ \hline & & & & \\ \hline & & & & \\ IDI = 1 & (0201) : & 1.18 & 0.001 & 4.17 & 1.00 \\ + & ID2 = 2 & (0030) : & 0.63 & 0.020 & 1.33 & 6.02 \\ \hline & & & & \\ IDI = 3 & (0070) : & 1.81 & 0.021 & 1.33 & 2.75 \\ \hline \end{array}$	
TAILE I ID = 1 (0070): 2.98 0.069 1.33 4.57 TAILPED (2203) Area (ha) = 0.19 ID = 1 (0070): 2.98 0.069 1.33 4.57 TOTAL HUP(5) = 30.00 D1r. Conn.(5) = 20.00 ID = 1 (0070): 2.98 0.069 1.33 4.57 Surface Area (ha) = 0.06 0.13 ID = 1 (0070): 2.98 0.069 1.33 4.57 Surface Area (ha) = 0.06 0.13 ID = 1 (0070): 2.98 0.069 1.33 4.57 Surface Area (ha) = 0.06 0.13 ID = 1 (0070): 2.98 0.069 1.33 4.57 Average Slope (h) = 1.00 3.60 ID = 1 (0070): 2.98 0.071 INCLUE BASEFLOWS IF ANY. Length (m) = 35.59 25.00 ID = 1 (0070): 2.08 0.071 INCLUE BASEFLOWS IF ANY. Max.Eff.Inten.tmm/hr) = 50.00 25.00 0.001 0.0173 0.0225 Max.Eff.Inten.tmm/hr) = 50.00 25.00 0.0000 0.0000 0.0430 0.0225 Max.Eff.Inten.tmm/hr) = 50.00 25.00 0.0001 0.0173 0.0255 Max.Eff.Inten.tmm/hr) = 50.00 25.00 0.0000 0.0000 0.0133 0.0225 Max.Eff.Inten.tmm/hr) = 50.00 25.00 0.0000 0.0019 0.1374 0.0275 Over (min) 50.00 25.00 0.0000 0.01019 0.1374 0.0275 Unit Hyd. peak (ms) = 0.32 0.02 0.0006 (ili) TINDEW (ms) = 0.01 0.00 0.006 (ili) ID = 1 (0020) 2.990 0.009 0.034 4.57 TINDEW (ms) = 0.01 0.00 0.006 (ili) ID = 1 (0020) 2.990 0.009 0.007 0.167 0.008 TINDEW (ms) = 2 (0070) 2.990 0.009 0.134 4.57	 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. 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 (0070) 3 + 2 = 1 AREA QPEAK TPEAK R.V. 	
IMPERVIOUS PERVIOUS (1) Surface (ha) = 0.06 0.13 Dep.storage (m) = 1.00 3.60 Average Slope (%) = 1.00 3.60 Average Slope (%) = 0.013 0.250 Mannings n = 0.013 0.250 Marnings n = 0.013 0.250 Marnings n = 0.013 0.250 Marnings n = 0.023 0.0179 0.0137 0.0235 Storage Coeff. (min) = 1.71 (i) 23.43 (i) 0.026 0.0214 0.1892 0.0304 Unit Hyd. peak (cms) = 0.032 0.050 0.0217 0.1374 0.0225 Storage Coeff. (min) = 1.71 (i) 23.43 (i) 0.1695 0.0236 0.0214 0.1892 0.0304 Unit Hyd. peak (cms) = 0.32 0.05 0.0066 0.198 0.1659 0.059 PEAK FLOW (cms) = 0.01 0.000 0.0006 (iii) INFLOW : ID = 2 (0070) 2.980 0.069 1.03 4.57 TIME TO FEAK (hrs) = 1.33 1.75 1.33 4.57 0.000 1.060 0.000 1.06 <td>ALIB TANDHYD (2203) Area (ha)= 0.19 = 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00</td> <td></td> <td>ID = 1 (0070): 2.98 0.069 1.33 4.57 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.</td> <td></td>	ALIB TANDHYD (2203) Area (ha)= 0.19 = 1 DT= 5.0 min Total Imp(%)= 30.00 Dir. Conn.(%)= 20.00		ID = 1 (0070): 2.98 0.069 1.33 4.57 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.	
Unit Hyd. Tpeak (min)= 5.00 25.00 Unit Hyd. peak (min)= 0.32 0.00 FEAK FLOW (cms)= 0.01 0.00 0.006 (iii) FEAK FLOW (cms)= 0.01 0.00 0.006 (iii) TIME TO FEAK (hrs)= 1.33 1.75 1.33 RUNOFF VOLUME (mm)= 23.91 1.60 5.98 TOTAL RAINFALL (mm)= 24.91 24.91 24.91 RUNOFF COEFFICIENT = 0.96 0.024 PEAK FLOW REDUCTION [Qout/Qin](%)= 0.11 TIME STORAGE COEFF. IS SMALLER THAN TIME STEP! SMALLER THAN TIME STORAGE USED (ha.m.) = 0.0134	IMPERVIOUS PERVIOUS (i) Surface Area (ha) 0.06 0.13 Dep. Storage (mm)= 1.00 5.00 Average Slope (%)= 1.00 3.60 Length (m)= 35.59 25.00 Mannings n = 0.013 0.250 Max.Eff.Inten.(mm/hr)= 57.66 1.91 over (min) 5.00 25.00		RESERVOIR (0202) IM= 2> OUT= 1 DT= 5.0 min OUTFLOW STORAGE OUTFLOW STORAGE (cms) (ha.m.) (cms) (ha.m.) 0.0000 0.0000 0.0430 0.0228 0.0001 0.0173 0.0913 0.0255 0.0006 0.0179 0.1374 0.0275 0.0094 0.0198 0.1655 0.0222	
*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!	Unit Hyd. Tpeak (min)= 5.00 25.00 Unit Hyd. peak (ms)= 0.32 0.05 PEAK FLOW (cms)= 0.01 0.00 0.006 (iii) TIME TO PEAK (hrs)= 1.33 1.75 1.33 RUNOFF VOLUME (mm)= 23.91 1.60 5.98 TOTAL RAINFALL (mm)= 24.91 24.91		AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) INFLOW : ID= 2 (0070) 2.980 0.069 1.33 4.57 OUTFLOW: ID= 1 (0202) 2.980 0.000 10.67 0.08 PEAK FLOW REDUCTION [Qout/Qin](%)= 0.11 TIME SHIFT OF PEAK FLOW (min)=560.00	
	*** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP! *** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%			

ADD HYD (10933) 1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) TD1= 1 (2104): 0.34 0.009 1.33 5.01 + ID2= 2 (2204): 0.20 0.006 1.33 5.98 ID = 3 (0093): 0.54 0.015 1.33 5.37 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ADD HYD (2000) 1 + 2 = 3 AREA QPEAK TPEAK R.V. ID1= 1 (0202): 2.98 0.000 10.67 0.08 + ID2= 2 (0093): 0.54 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID1= 1 (0202): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID1= 1 (2000) ATEA QPEAK TPEAK R.V. ID1= 1 (0202): 0.98 0.000 10.67 0.08 H ID2= 2 (0093): 0.54 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID1= 1 (D1= 1 (D1= 1) TOTAL Imp(%) = 63.00 Dir. Conn. (%) = 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha) = 0.05 0.03 Dep. Storage (mm) = 1.00 5.00
ID = 3 (0093): 0.54 0.015 1.33 5.37 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID = 102020: (nms) (nms) ID = 1 (0202): 2.98 0.000 1.67 ID = 3 (2000): 3.52 0.015 1.33 5.37 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID = 3 (2000): 3.52 0.015 1.33 5.37 ID = 3 (2000): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID = 3 (2000): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID = 1 DI = 5.0 min Total Imp(%) = 63.00 Dir. Conn. (%) = 63.00 ID = 1 DI = 5.0 min Total Imp(%) = 63.00 Dir. Conn. (%) = 63.00 Surface Area (ha) = 0.05 0.03 5.00
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
ADD HYD (2000) 1 + 2 = 3 AREA QPEAK TPEAK R.V. ID1= 1 (0202): 2.98 0.000 10.67 0.08 + ID2= 2 (093): 0.54 0.015 1.33 5.37 ID2= 2 (093): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. CALLE CALLE STANDHYD (2300) Area (ha)= 0.08 ID= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
ADD HYD (2000) 1 + 2 = 3 AREA QPEAK TPEAK R.V. IDJ = 1 (0202): 2.98 0.000 10.67 0.08 + UD2 = 2 (0093): 0.54 0.015 1.33 5.37 IDD = 3 (2000): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. CALLB STANDHYD (2300) Area (ha) = 0.08 IDD = 1 DT = 5.0 min Total Imp(%) = 63.00 Dir. Conn.(%) = 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha) = 0.05 0.03 Dep. Storage (mm) = 1.00 5.00
1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm) ID1= 1 (0202): 2.98 0.000 10.67 0.08 + ID2= 2 (0093): 0.54 0.015 1.33 5.37 ID = 3 (2000): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. ID1= 1 DT= 5.0 min Total Imp(%) = 63.00 Dir. Conn.(%) = 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha) = 0.05 0.03 Dep. Storage (mm) = 1.00 5.00
(ha) (cms) (hrs) (mm) ID1=1 (0.202): 2.98 0.000 10.67 0.08 + ID2=2 (0.093): 0.54 0.015 1.33 5.37
+ ID2 = 2 (0933): 0.54 0.015 1.33 5.37 ID = 3 (2000): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. CALIB STANDHYD (2300) Area (ha)= 0.08 DD= 1 DT= 5.0 min Total Imp(%) = 63.00 Dir. Conn.(%) = 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm) = 1.00 5.00
ID = 3 (2000): 3.52 0.015 1.33 0.89 NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. CALIB STANDHYD (2300) Area (ha)= 0.08 CD= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. CALIB STANDHYD (2300) Area (ha)= 0.08 ID= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
CALIB STANDHYD (2300) Area (ha)= 0.08 DP= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
CALIE STANDHYD (2300) Area (ha)= 0.08 ID= 1 DT= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (1) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
STANDHYD (2300) Area (ha)= 0.08 LD= 1 D7= 5.0 min Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00 IMPERVIOUS PERVIOUS (i) Surface Area (ha)= 0.05 0.03 Dep. Storage (mm)= 1.00 5.00
$\begin{array}{llllllllllllllllllllllllllllllllllll$
Dep. Storage (mm)= 1.00 5.00
Average Slope (%)= 1.00 2.00 Length (m)= 23.09 5.00
Length (m) = 23.09 5.00 Mannings n = 0.013 0.250
Max.Eff.Inten.(mm/hr)= 57.66 1.95 over(min) 5.00 5.00
Storage Coeff. (min) = 1.32 (ii) 3.36 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00 Unit Hyd. peak (cms)= 0.33 0.26
TOTALS
PEAK FLOW (cms)= 0.01 0.00 0.008 (iii) TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm) = 23.91 1.33 15.55
TOTAL RAINFALL (mm)= 24.91 24.91 24.91 RUNOFF COEFFICIENT = 0.96 0.05 0.62
**** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
 (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN* = 47.8 Ia = Dep. 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 (0113)
1 + 2 = 3 AREA QPEAK TPEAK R.V. (ha) (cms) (hrs) (mm)
ID1= 1 (2000): 3.52 0.015 1.33 0.89
+ ID2= 2 (2300): 0.08 0.008 1.33 15.55
ID = 3 (0113): 3.60 0.023 1.33 1.22

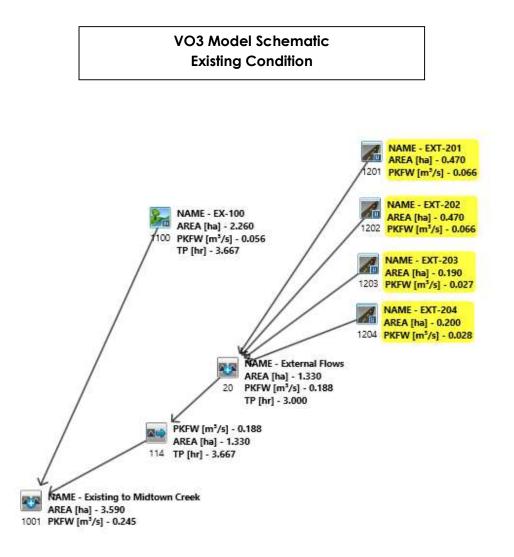
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

2020-06-09 11:32:59 AM

10122_VO3 Detailed Output - 6 hour SCS (Target).txt

Summary Output - All Storm Events Proposed Condition



1/16 2/16 ADD [1201 + 1202] 0020 3 5.0 0.94 0.03 3.00 7.24 n/a 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.03 3.00 7.23 n/a 0.000 v V I SSSSS U U A L V I v SS U U A A L ADD [0020 + 1204] 0020 3 5.0 1.33 0.04 3.00 7.22 n/a 0.000 V V I SS U U AAAAA L V V I SS U U A A L SHIFT [2 : 0020] 0114 1 5.0 1.33 0.04 3.67 7.22 n/a 0.000 vv I SSSSS UUUUU A A LLLLL [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.04 3.67 3.63 n/a 0.000 OOO TTTTT TTTTT H H Y Y M M OOO TM 0 0 T T H H YY MM MM O O ****** 0 О Т т н н у м м о о 000 ** SIMULATION NUMBER: 2 ** н н M M 000 Developed and Distributed by Civica Infrastructure ***** Copyright 2007 - 2013 Civica Infrastructure HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase All rights reserved. W/E COMMAND ha ' cms hrs min mm cms ***** SUMMARY OUTPUT ***** START @ 0.00 hrs READ STORM 15.0 Input filename: C:\Program Files (x86)\VO Suite 3.0\VO2\voin.dat [Ptot= 39.33 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\3113dc0e-b5d9-Output filename: C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\Scenario. 435 remark: 5-Year, 6 hour SCS Type II Storm Distribution, Custom Gauge: out Summary filename: C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\Scenario. sum ** CALIB NASHYD 1100 1 5.0 2.26 0.01 3.67 3.26 0.08 0.000 [CN=46.4 TIME: 11:32:07 [N = 3.0:Tp 0.64] DATE: 06-05-2020 CALIB STANDHYD USER: 1202 1 5.0 0.47 0.02 3.00 11.17 0.28 0.000 [I%=20.0:S%= 3.60] COMMENTS: * CALIB STANDHYD 1204 1 5.0 0.20 0.01 3.00 11.14 0.28 0.000 [I%=20.0:S%= 3.60] ***** * CALIB STANDHYD 1203 1 5.0 0.19 0.01 3.00 11.14 0.28 0.000 ** SIMULATION NUMBER: 1 ** [I%=20.0:S%= 3.60] *********************** * CALIB STANDHYD 1201 1 5.0 0.47 0.02 3.00 11.17 0.28 0.000 HYD ID DT AREA 'Qpeak Tpeak R.V. R.C. Qbase min ha 'cms hrs mm cms W/E COMMAND [I%=20.0:S%= 3.60] ADD [1201 + 1202] 0020 3 5.0 0.94 0.04 3.00 11.17 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.05 3.00 11.16 n/a 0.000 READ STORM 15.0 [Ptot= 28.55 mm] ADD [0020 + 1204] 0020 3 5.0 1.33 0.06 3.00 11.16 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\9a624bb6-1c30-47e SHIFT [2 : 0020] 0114 1 5.0 1.33 0.06 3.67 11.16 n/a 0.000 remark: 2-Year, 6 hour SCS Type II Storm Distribution, Custom Gauge: [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.07 3.67 6.19 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.00 3.75 1.51 0.05 0.000 [CN=46.4 ****** ** SIMULATION NUMBER: 3 ** [N = 3.0:Tp 0.64] ***** * CALIB STANDHYD 1202 1 5.0 0.47 0.01 3.00 7.24 0.25 0.000 [I%=20.0:S%= 3.60] HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND ha ' cms hrs min mm cms + CALIB STANDHYD 1204 1 5.0 0.20 0.01 3.00 7.20 0.25 0.000 [I%=20.0:S%= 3.60] START @ 0.00 hrs CALTE STANDHYD 1203 1 5.0 0.19 0.01 3.00 7.20 0.25 0.000 READ STORM 15.0 [I%=20.0:S%= 3.60] [Ptot= 45.00 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\2a628570-41db-CALIB STANDHYD 1201 1 5.0 0.47 0.01 3.00 7.24 0.25 0.000 * 46e [I%=20.0:S%= 3.60] remark: 10-Year, 6 hour SCS Type II Storm Distribution, Custom Gauge 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt

							ADD [1100 + 0114]	1001 3	5.0 3.	59 0	0.14 3.67	13.23 n/a	0.000	
CALIB NASHYD [CN=46.4] [N = 3.0:Tp 0.64]		2.26	0.01 3.67	4.42 0.10	0.000	**	**************************************	****** 5 **						
CALIB STANDHYD [1%=20.0:S%= 3.60]	1202 1 5.	0.47	0.02 3.00	13.44 0.30	0.000		COMMAND	HYD ID				R.V. R.C.		
CALIB STANDHYD [I%=20.0:S%= 3.60]		0.20	0.01 3.00	13.43 0.30	0.000		START @ 0.00 hrs		min h	a	cms hrs	mm	cms	
CALIB STANDHYD [1%=20.0:S%= 3.60]	1203 1 5.	0.19	0.01 3.00	13.43 0.30	0.000		READ STORM [Ptot= 74.28 mm]	1	.5.0	wDoto) T		0164-407 66-	7 4001 andb	637813500ba4\9ac8a4c
CALIB STANDHYD [1%=20.0:S%= 3.60]	1201 1 5.	0.47	0.02 3.00	13.44 0.30	0.000	414	remark: 50-Year, 6	-		-	-			05/015500Da4(94C0a4C
ADD [1201 + 1202]	0020 3 5.	0.94	0.05 3.00	13.44 n/a	0.000	*						10 55 0 17		
ADD [0020 + 1203]				13.44 n/a		**	CALIB NASHYD [CN=46.4] [N = 3.0:Tp 0.64]		5.0 2.	26 U	1.04 3.67	12.65 0.17	0.000	
ADD [0020 + 1204] SHIFT [2 : 0020]				13.44 n/a 13.44 n/a		*	CALIB STANDHYD [I%=20.0:S%= 3.60]	1202 1	5.0 0.	47 0	0.05 3.00	27.15 0.37	0.000	
[SHIFT= 40.0 min] ADD [1100 + 0114]	1001 3 5.0	0 3.59	0.08 3.67	7.76 n/a	0.000	*	CALIB STANDHYD [1%=20.0:S%= 3.60]	1204 1	5.0 0.	20 0).02 3.00	27.14 0.37	0.000	
**************************************	4 **					* *	CALIB STANDHYD [1%=20.0:S%= 3.60]	1203 1	5.0 0.	19 0).02 3.00	27.14 0.37	0.000	
	HYD ID D'		' Qpeak Tpeak			*	CALIB STANDHYD [1%=20.0:S%= 3.60]	1201 1	5.0 0.	47 0	0.05 3.00	27.15 0.37	0.000	
	miı	n ha	' cms hrs	mm	cms	*	ADD [1201 + 1202]	0020 3	5.0 0.	94 0	0.11 3.00	27.15 n/a	0.000	
START @ 0.00 hrs														
						*	ADD [0020 + 1203]	0020 1	5.0 1.	13 0	0.13 3.00	27.14 n/a	0.000	
READ STORM [Ptot= 61.77 mm]	15.					*	ADD [0020 + 1203] ADD [0020 + 1204]					27.14 n/a 27.14 n/a		
READ STORM [Ptot= 61.77 mm]	15.) rajachockalin	ngam\AppDat			-4991-ac6b-637813500ba4\9cef4af0-bi e	* * 2f- *		0020 3	5.0 1.	33 0	0.15 3.00		0.000	
READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6	15.) rajachockalin 6 hour SCS Typ	ngam\AppDat pe II Storr	n Distribution	, Custom Gaug	e	2E- *	ADD [0020 + 1204] SHIFT [2 : 0020]	0020 3 0114 1	5.0 1. 5.0 1.	33 0 33 0).15 3.00).15 3.67	27.14 n/a	0.000	
READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB NASHYD [CN=46.4]	15., rajachockalin hour SCS Typ 1100 1 5.,	ngam\AppDat pe II Storr		, Custom Gaug	e	* ***	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT= 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER:	0020 3 0114 1 1001 3	5.0 1. 5.0 1.	33 0 33 0).15 3.00).15 3.67	27.14 n/a 27.14 n/a	0.000	
READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB NASHYD [CN=46.4] [N = 3.0:Tp 0.64] CALIB STANDHYD	15.0 rajachockalin hour SCS Typ 1100 1 5.0 1202 1 5.0	ngam\AppDat pe II Storr D 2.26	n Distribution	, Custom Gaug 8.70 0.14	e 0.000	*	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT= 40.0 min] ADD [1100 + 0114]	0020 3 0114 1 1001 3 6 ** HYD ID	5.0 1. 5.0 1. 5.0 3.	33 0 33 0 59 0 EA 'Q).15 3.00).15 3.67).19 3.67 22peak Tpeak	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C.	0.000 0.000 0.000 Qbase	
READ STORM [Ptote = 61.77 mm] frame: c:Vusers)r remark: 25-Year, 6 CALIB NASHYD [CN=46.4] [N = 3.0:Tp 0.64] GALIB STANDHYD CALIB STANDHYD CALIB STANDHYD	15 rajachockalin hour SCS Typ 1100 1 5 1202 1 5 1204 1 5	ngam\AppDat pe II Storr D 2.26 D 0.47	n Distribution 0.03 3.67 0.04 3.00	, Custom Gaug 8.70 0.14	e 0.000 0.000	*	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT= 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: COMMAND START @ 0.000 hrs	0020 3 0114 1 1001 3 6 ** 6 ** HYD ID	5.0 1. 5.0 1. 5.0 3.	33 0 33 0 59 0 EA 'Q	0.15 3.00 0.15 3.67 0.19 3.67	27.14 n/a 27.14 n/a 18.02 n/a	0.000 0.000 0.000	
READ STORM [PtoLe 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 (CALIB NASHYD [(N=46.4] [N = 3.0:TP 0.64] [N = 3.0:TP 0.64] [CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD	15 rajachockali hour SCS Typ 1100 1 5 1202 1 5 1204 1 5 1203 1 5	ngam\AppDat pe II Storr 0 2.26 0 0.47 0 0.20	n Distribution 0.03 3.67 0.04 3.00 0.02 3.00	, Custom Gaug 8.70 0.14 20.92 0.34	e 0.000 0.000	*	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT = 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: COMMAND START @ 0.00 hrs READ STORM [Ptot= 86.45 mm]	0020 3 0114 1 1001 3 6 ** HYD ID	5.0 1. 5.0 1. 5.0 3. DT AR min h	33 0 33 0 59 0 EA 'Q a '	0.15 3.00 0.15 3.67 0.19 3.67 20peak Tpeak cms hrs	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C. mm	0.000 0.000 0.000 Qbase cms	
READ STORM [Ptot= 61.77 mm] fname : c:\Users\r remark: 25-Year, 6 CALIB NASHYD (cn+46.4] [N = 3.0:Tp 0.64] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD CALIE STANDHYD	15 rajachockalin hour SCS Typ 1100 1 5 1202 1 5 1203 1 5 1203 1 5	ngam\AppDat pe II Storr 0 2.26 0 0.47 0 0.20 0 0.19	n Distribution 0.03 3.67 0.04 3.00 0.02 3.00 0.02 3.00	, Custom Gaug 8.70 0.14 20.92 0.34 20.92 0.34	e 0.000 0.000 0.000	*	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT = 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: COMMAND START @ 0.00 hrs READ STORM [Ptot= 86.45 mm]	0020 3 0114 1 1001 3 	5.0 1. 5.0 1. 5.0 3. DT AR min h .5.0	33 0 33 0 59 0 EA 'Q a '	0.15 3.00 0.15 3.67 0.19 3.67 0.19 3.67 22peak Tpeak cms hrs	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C. mm	0.000 0.000 0.000 Qbase cms 7-4991-ac6b-	637813500ba4\fbaa91b
READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIE NASHYD [N = 3.0:Tp 0.64] [N = 3.0:Tp 0.64] CALIE STANDHYD [N=20.0:S%= 3.60] CALIE STANDHYD [N=20.0:S%= 3.60] CALIE STANDHYD [N=20.0:S%= 3.60]	15 rajachockalin hour SCS Typ 1100 1 5 1202 1 5 1204 1 5 1203 1 5 1201 1 5	ngam\AppDat ope II Storr 0 0.226 0 0.47 0 0.20 0 0.19 0 0.47	a Distribution 0.03 3.67 0.04 3.00 0.02 3.00 0.02 3.00 0.04 3.00	, Custom Gaug 8.70 0.14 20.92 0.34 20.92 0.34 20.92 0.34	e 0.000 0.000 0.000 0.000	* *** */ W/I 4cd	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: CONMAND START @ 0.000 hrs READ STORM [Ptot= 86.45 mm] fname : C:\Users\r remark: 100-Year,	0020 3 0114 1 1001 3 6 ** HYD ID Trajachocka 6 hour SCS	5.0 1. 5.0 1. 5.0 3. DT AR min h .5.0 Llingam\App II	33 0 33 0 59 0 EA 'Q a ' pData\L Storm D	0.15 3.00 0.15 3.67 0.19 3.67 0.19 3.67 Cpeak Tpeak cms hrs hrs cocal\Temp\ Distributio	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C. mm R.C. 016ded27-f6e n, Custom Ga	0.000 0.000 0.000 Qbase cms 7-4991-ac6b-	-637813500ba4\fbaa91b
READ STORM [Ptote 61.77 mm] frame : C:\Users\1 remark: 25-year, 6 CALIB NASHYD [CN=46.4] [N = 3.0:TP 0.64] [N = 3.0:TP 0.64] [CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=20.0:S%= 3.60] ADD [1201 + 1202]	15 rajachockalin hour SCS Typ 1100 1 5 1202 1 5 1203 1 5 1203 1 5 1201 1 5 0020 3 5	ngam\AppDat ope II Storr 0 0.47 0 0.20 0 0.19 0 0.47 0 0.94	n Distribution 0.03 3.67 0.04 3.00 0.02 3.00 0.02 3.00 0.04 3.00 0.08 3.00	<pre>, Custom Gaug 8.70 0.14 20.92 0.34 20.92 0.34 20.92 0.34 20.92 0.34</pre>	e 0.000 0.000 0.000 0.000 0.000	* *** */ W/I 4cd	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT = 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: COMMAND START @ 0.00 hrs READ STORM [Ptot= 86.45 mm] fname : C:\Users\r	0020 3 0114 1 1001 3 	5.0 1. 5.0 1. 5.0 3. DT AR min h .5.0 Llingam\App II	33 0 33 0 59 0 EA 'Q a ' pData\L Storm D	0.15 3.00 0.15 3.67 0.19 3.67 0.19 3.67 Cpeak Tpeak cms hrs hrs cocal\Temp\ Distributio	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C. mm	0.000 0.000 0.000 Qbase cms 7-4991-ac6b-	-637813500ba4\fbaa91b
READ STORM [ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB NASHYD [CN=46.4] [N = 3.0:Tp 0.64] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=20.0:S%= 3.60] ADD [1201 + 1202] ADD [0202 + 1203]	1100 1 5.0 1202 1 5.0 1204 1 5.0 1203 1 5.0 1201 1 5.0 1202 1 5.0 1203 1 5.0 1201 1 5.0 1202 1 5.0 1203 1 5.0 1201 1 5.0 1202 1 5.0 1203 1 5.0 1204 1 5.0 1205 1 5.0 1201 1 5.0 1202 1 5.0 1203 1 5.0 1204 1 5.0 1205 1 5.0 1205 1 5.0 1400 1 5.0 1500 1 5.0 1600 1 5.0 1700 1 5.0 1700 1 5.0 1700 1 5.0 <	ngam\AppDat pe II Storr 0 2.26 0 0.47 0 0.20 0 0.19 0 0.47 0 0.47 0 0.94 0 1.13	n Distribution 0.03 3.67 0.04 3.00 0.02 3.00 0.02 3.00 0.04 3.00 0.08 3.00 0.10 3.00	 , Custom Gauge 8.70 0.14 20.92 0.34 20.92 0.34 20.92 0.34 20.92 0.34 20.92 n/a 	e 0.000 0.000 0.000 0.000 0.000 0.000	* *** */ W/I 4cd	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT = 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: COMMAND START @ 0.00 hrs READ STORM [Ptot= 86.45 mm] fname : C:\Users\r remark: 100-Year, CALIE NASHYD [CN=46.4] [N = 3.0:Tp 0.64]	0020 3 0114 1 1001 3 	5.0 1. 5.0 1. 5.0 3. DT AR min h 5.0 s. S.O s. Type II 5.0 2.	33 0 33 0 59 0 EA ' Q a ' pData\L Storm D 26 0	0.15 3.00 0.15 3.67 0.19 3.67 0.19 3.67 22peak Tpeak cms hrs hrs bistributio 0.06 3.67	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C. mm R.C. 016ded27-f6e n, Custom Ga	0.000 0.000 Qbase cms 7-4991-ac6b- ug 0.000	-637813500ba4\fbaa91b
READ STORM [Ptot= 61.77 mm] fname: c:\Users\r remark: 25-Year, 6 CALIB NASHYD [CN=46.4] [N = 3.0:TP 0.64] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=20.0:S%= 3.60]	1100 1 5.0 1202 1 5.0 1202 1 5.0 1203 1 5.0 1201 1 5.0 1202 1 5.0 1203 1 5.0 1201 1 5.0 1202 1 5.0 1203 1 5.0 0020 3 5.0 0020 3 5.0 0020 3 5.0	ngam\AppDat pe II Storr 0 2.26 0 0.47 0 0.20 0 0.19 0 0.47 0 0.47 0 0.47 0 0.47 0 1.13 0 1.33	n Distribution 0.03 3.67 0.04 3.00 0.02 3.00 0.02 3.00 0.04 3.00 0.08 3.00 0.10 3.00 0.11 3.00	, Custom Gaug 8.70 0.14 20.92 0.34 20.92 0.34 20.92 0.34 20.92 0.34 20.92 n/a 20.92 n/a 20.92 n/a	e 0.000 0.000 0.000 0.000 0.000 0.000	* *** *** W/I 4cd * **	ADD [0020 + 1204] SHIFT [2 : 0020] [SHIFT = 40.0 min] ADD [1100 + 0114] SIMULATION NUMBER: CONMAND START @ 0.00 hrs EADD STORM [Ptot= B6.45 mm] fname : C:\Users\r remark: 100-Year, CALLB NASHYD [CN=46.4] [N = 3.0:Tp 0.64] CALLB STANDHYD [I%=20.0:S%= 3.60]	0020 3 0114 1 1001 3 	5.0 1. 5.0 1. 5.0 3. DT AR min h .5.0 Llingam\Ap 5.0 2. 5.0 0.	33 0 33 0 59 0 EA ' C pData\L Storm D 26 0 47 0	0.15 3.00 0.15 3.67 0.19 3.67 0.19 3.67 0.002 0.002 0.002 0.003 0.00 0.00 0.00	27.14 n/a 27.14 n/a 18.02 n/a R.V. R.C. mm 016ded27-f6e n, Custom Ga 17.04 0.20	0.000 0.000 Cbase cms 7-4991-ac6b- ug 0.000	-637813500ba4\fbaa91b

[I%=20.0:S%= 3.60] START @ 0.00 hrs 1203 1 5.0 0.19 0.03 3.00 33.66 0.39 0.000 CALIB STANDHYD READ STORM 15.0 [I%=20.0:S%= 3.60] [Ptot= 40.10 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\76ef7112-047c-CALIB STANDHYD 1201 1 5.0 0.47 0.07 3.00 33.67 0.39 0.000 41b [I%=20.0:S%= 3.60] remark: 5-Year, 12 hour SCS Type II Storm Distribution, Custom Gauge ADD [1201 + 1202] 0020 3 5.0 0.94 0.13 3.00 33.67 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.01 6.67 3.41 0.09 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.16 3.00 33.67 n/a 0.000 [CN=46.4 [N = 3.0:Tp 0.64]ADD [0020 + 1204] 0020 3 5.0 0.19 3.00 33.67 n/a 0.000 1.33 + CALIB STANDHYD 1202 1 5.0 0.47 0.02 6.00 11.47 0.29 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.19 3.67 33.67 n/a 0.000 [I%=20.0:S%= 3.60] [SHIFT= 40.0 min] CALTE STANDAYD 1204 1 5.0 0.20 0.01 6.00 11.44 0.29 0.000 ADD [1100 + 0114] 1001 3 5.0 3.59 0.24 3.67 23.20 n/a 0.000 [I%=20.0:S%= 3.60] ***** CALIB STANDHYD 1203 1 5.0 0.19 0.01 6.00 11.44 0.29 0.000 ** SIMULATION NUMBER: 7 ** [I%=20.0:S%= 3.60] ***** CALIB STANDHYD 1201 1 5.0 0.47 0.02 6.00 11.47 0.29 0.000 HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND [I%=20.0:S%= 3.60] . min ha cms hrs mm cms ADD [1201 + 1202] 0020 3 5.0 0.94 0.03 6.00 11.47 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.04 6.00 11.46 n/a 0.000 READ STORM 15.0 1.33 [Ptot= 29.00 mm] ADD [0020 + 1204] 0020 3 5.0 0.05 6.00 11.46 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\f39de83f-402c-4ed SHIFT [2 : 0020] 0114 1 5.0 1.33 0.05 6.67 11.46 n/a 0.000 remark: 2-Year, 12 hour SCS Type II Storm Distribution, Custom Gauge [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.06 6.67 6.39 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.00 6.67 1.57 0.05 0.000 ****** [CN=46.4 [N = 3.0:Tp 0.64] ** SIMULATION NUMBER: 9 ** ****** 0.01 6.00 7.39 0.25 0.000 CALIB STANDHYD 1202 1 5.0 0.47 [I%=20.0:S%= 3.60] W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase min ha cms hrs mm cms CALIB STANDHYD 1204 1 5.0 0.20 0.00 6.00 7.37 0.25 0.000 [I%=20.0:S%= 3.60] START @ 0.00 hrs CALIB STANDHYD 1203 1 5.0 0.19 0.00 6.00 7.37 0.25 0.000 READ STORM 15.0 [I%=20.0:S%= 3.60] [Ptot= 46.00 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\194ced42-6057-CALLE STANDHYD 1201 1 5.0 0.47 0.01 6.00 7.39 0.25 0.000 4h3 [I%=20.0:S%= 3.60] remark: 10-Year, 12 hour SCS Type II Storm Distribution, Custom Gaug ADD [1201 + 1202] 0020 3 5.0 0.94 0.02 6.00 7.39 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.01 6.67 4.64 0.10 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.03 6.00 7.38 n/a 0.000 [CN=46.4 [N = 3.0:Tp 0.64] ADD [0020 + 1204] 0020 3 5.0 1.33 0.03 6.00 7.38 n/a 0.000 CALIB STANDHYD 1202 1 5.0 0.47 0.02 6.00 13.86 0.30 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.03 6.67 7.38 n/a 0.000 [I%=20.0:S%= 3.60] [SHIFT= 40.0 min] CALIB STANDHYD 1204 1 5.0 0.20 0.01 6.00 13.84 0.30 0.000 ADD [1100 + 0114] 1001 3 5.0 3.59 0.03 6.67 3.73 n/a 0.000 [I%=20.0:S%= 3.60] ***** * CALIB STANDHYD 1203 1 5.0 0.19 0.01 6.00 13.82 0.30 0.000 ** SIMULATION NUMBER: 8 ** [I%=20.0:S%= 3.60] ***** * CALIB STANDHYD 1201 1 5.0 0.47 0.02 6.00 13.86 0.30 0.000 W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase [I%=20.0:S%= 3.60] min ha cms hrs mm ADD [1201 + 1202] 0020 3 5.0 0.94 0.04 6.00 13.86 n/a 0.000 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt 2020-06-09 11:41:53 AM

10122_V03 Summary Output - All Storms (Existing).txt

7/16 ** CALIB NASHYD 1100 1 5.0 2.26 0.04 6.58 13.44 0.18 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.05 6.00 13.85 n/a 0.000 [CN=46.4 [N = 3.0:Tp 0.64] ADD [0020 + 1204] 0020 3 5.0 1.33 0.06 6.00 13.85 n/a 0.000 CALIB STANDHYD 1202 1 5.0 0.47 0.05 6.00 28.34 0.37 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.06 6.67 13.85 n/a 0.000 [I%=20.0:S%= 3.60] [SHIFT= 40.0 min] CALTE STANDHYD 1204 1 5.0 0.20 0.02 6.00 28.33 0.37 0.000 ADD [1100 + 0114] 1001 3 5.0 3.59 0.07 6.67 8.05 n/a 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1203 1 5.0 0.19 0.02 6.00 28.33 0.37 0.000 ** SIMULATION NUMBER: 10 ** [I%=20.0:S%= 3.60] ***** + CALIB STANDHYD 1201 1 5.0 0.47 0.05 6.00 28.34 0.37 0.000 W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase min ha ' cms hrs mm cms [I%=20.0:S%= 3.60] ADD [1201 + 12021 0020 3 5.0 0.94 0.09 6.00 28.34 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.11 6.00 28.34 n/a 0.000 READ STORM 15.0 [Ptot= 63.33 mm] ADD [0020 + 1204] 0020 3 5.0 1.33 0.13 6.00 28.34 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\c9ee0843-fdd3-4b3 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.13 6.67 28.34 n/a 0.000 remark: 25-Year, 12 hour SCS Type II Storm Distribution, Custom Gaug [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.17 6.67 18.96 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.03 6.58 9.16 0.14 0.000 [CN=46.4 ******* [N = 3.0:Tp 0.64]** SIMULATION NUMBER: 12 ** **** CALIB STANDHYD 1202 1 5.0 0.47 0.03 6.00 21.67 0.34 0.000 [I%=20.0:S%= 3.60] W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase min ha cms hrs mm cms CALIB STANDHYD 1204 1 5.0 0.20 0.01 6.00 21.66 0.34 0.000 [I%=20.0:S%= 3.60] START @ 0.00 hrs CALIB STANDHYD 1203 1 5.0 0.19 0.01 6.00 21.64 0.34 0.000 READ STORM 15.0 [I%=20.0:S%= 3.60] [Ptot= 89.58 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\2dbc5c14-1239-CALIB STANDHYD 1201 1 5.0 0.47 0.03 6.00 21.67 0.34 0.000 49d [I%=20.0:S%= 3.60] remark: 100-Year, 12 hour SCS Type II Storm Distribution, Custom Gau ADD [1201 + 1202] 0020 3 5.0 0.94 0.06 6.00 21.67 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.05 6.58 18.25 0.20 0.000 0.08 6.00 21.66 n/a 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 [CN=46.4 [N = 3.0:Tp 0.64] ADD [0020 + 1204] 0020 3 5.0 1.33 0.09 6.00 21.66 n/a 0.000 CALIB STANDHYD 1202 1 5.0 0.47 0.06 6.00 35.42 0.40 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.09 6.67 21.66 n/a 0.000 [I%=20.0:S%= 3.60] [SHIFT= 40.0 min] CALIB STANDHYD 0.03 6.00 35.40 0.40 0.000 1204 1 5.0 0.20 ADD [1100 + 0114] 1001 3 5.0 3.59 0.12 6.67 13.79 n/a 0.000 [I%=20.0:S%= 3.60] ***** 1203 1 5.0 0.19 0.02 6.00 35.40 0.40 0.000 CALIB STANDHYD ** SIMULATION NUMBER: 11 ** [I%=20.0:S%= 3.60] ****** CALIB STANDHYD 1201 1 5.0 0.47 0.06 6.00 35.42 0.40 0.000 AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND HYD ID DT [I%=20.0:S%= 3.60] ha ' cms hrs min mm CMS ADD [1201 + 1202] 0020 3 5.0 0.94 0.12 6.00 35.42 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.14 6.00 35.41 n/a 0.000 READ STORM 15.0 [Ptot= 76.58 mm] ADD [0020 + 1204] 0020 3 5.0 1.33 0.17 6.00 35.41 n/a 0.000 fname : C:\Users\rajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\b5edcc6e-e601-4c9 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.17 6.67 35.41 n/a 0.000 remark: 50-Year, 12 hour SCS Type II Storm Distribution, Custom Gaug [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.22 6.67 24.61 n/a 0.000 2020-06-09 11:41:53 AM 10122 VO3 Summary Output - All Storms (Existing).txt 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt

9/16 10/16 **** CALIB STANDHYD 1203 1 5.0 0.19 0.01 12.00 11.50 0.29 0.000 ** SIMULATION NUMBER: 13 ** [I%=20.0:S%= 3.60] ***** CALIB STANDHYD 1201 1 5.0 0.47 0.01 12.00 11.51 0.29 0.000 W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase [I%=20.0:S%= 3.60] ha ' cms hrs min mm cms ADD [1201 + 1202] 0020 3 5.0 0.94 0.03 12.00 11.51 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.03 12.00 11.51 n/a 0.000 READ STORM 15.0 ADD [0020 + 1204] 0020 3 5.0 Ptot= 29.58 mm] 1.33 0.04 12.00 11.51 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\81e6de29-b061-48b SHIFT [2 : 0020] 0114 1 5.0 1.33 0.04 12.67 11.51 n/a 0.000 remark: 2-Year, 24 hour SCS Type II Storm Distribution, Custom Gauge [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.05 12.67 6.43 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.00 12.67 1.65 0.06 0.000 [CN=46.4 ************************* [N = 3.0:Tp 0.64] ** SIMULATION NUMBER: 15 ** ******* CALTE STANDHYD 1202 1 5.0 0.47 0.01 12.00 7.58 0.26 0.000 [I%=20.0:S%= 3.60] HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND ha ' cms hrs min mm cms CALIB STANDHYD 1204 1 5.0 0.20 0.00 12.00 6.46 0.22 0.000 [I%=20.0:S%= 3.60] START @ 0.00 hrs CALIB STANDHYD 1203 1 5.0 0.19 0.00 12.00 6.43 0.22 0.000 READ STORM 15 0 [I%=20.0:S%= 3.60] [Ptot= 46.40 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\a9e5bc93-00b0-CALIB STANDHYD 1201 1 5.0 0.47 0.01 12.00 7.58 0.26 0.000 444 [I%=20.0:S%= 3.60] remark: 10-Year, 24 hour SCS Type II Storm Distribution, Custom Gaug ADD [1201 + 1202] 0020 3 5.0 0.94 0.02 12.00 7.58 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.01 12.58 4.73 0.10 0.000 ADD [0020 + 1203] 0020 1 5.0 1 13 0.02 12.00 7.39 n/a 0.000 [CN=46.4 [N = 3.0:Tp 0.64] ADD [0020 + 1204] 0020 3 5.0 1.33 0.03 12.00 7.25 n/a 0.000 CALIB STANDHYD 1202 1 5.0 0.47 0.02 12.00 14.02 0.30 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.03 12.67 7.25 n/a 0.000 [I%=20.0:S%= 3.60] [SHIFT= 40.0 min] * CALIB STANDHYD 1204 1 5.0 0.20 0.01 12.00 14.00 0.30 0.000 [I%=20.0:S%= 3.60] ADD [1100 + 0114] 1001 3 5.0 3.59 0.03 12.67 3.73 n/a 0.000 ***** * CALIB STANDHYD 1203 1 5.0 0.19 0.01 12.00 14.00 0.30 0.000 ** SIMULATION NUMBER: 14 ** [I%=20.0:S%= 3.60] ***** CALIB STANDHYD 1201 1 5.0 0.47 0.02 12.00 14.02 0.30 0.000 W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase [I%=20.0:S%= 3.60] ha ' cms hrs min mm Cms ADD [1201 + 1202] 0020 3 5.0 0.94 0.03 12.00 14.02 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.04 12.00 14.02 n/a 0.000 READ STORM 15.0 [Ptot= 40.23 mm] ADD [0020 + 1204] 0020 3 5.0 1.33 0.05 12.00 14.02 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\05f9ce32-e231-449 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.05 12.67 14.02 n/a 0.000 remark: 5-Year, 24 hour SCS Type II Storm Distribution, Custom Gauge [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.06 12.67 8.17 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.01 12.58 3.44 0.09 0.000 [CN=46.4 ******* [N = 3.0:Tp 0.64] ** SIMULATION NUMBER: 16 ** ****** + CALIB STANDHYD 1202 1 5.0 0.47 0.01 12.00 11.51 0.29 0.000 [I%=20.0:S%= 3.60] W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase ha cms min hrs mm cms . CALIB STANDHYD 1204 1 5.0 0.20 0.01 12.00 11.50 0.29 0.000 [I%=20.0:S%= 3.60] START @ 0.00 hrs 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt

ADD [0020 + 1203] 0020 1 5.0 1.13 0.09 12.00 28.96 n/a 0.000 READ STORM 15.0 [Ptot= 64.07 mm] ADD [0020 + 1204] 0020 3 5.0 1.33 0.11 12.00 28.96 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\6371fa88-a155-48a SHIFT [2 : 0020] 0114 1 5.0 1.33 0.11 12.67 28.96 n/a 0.000 remark: 25-Year, 24 hour SCS Type II Storm Distribution, Custom Gaug [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.14 12.67 19.45 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.02 12.58 9.38 0.15 0.000 ***** [CN=46.4 [N = 3.0:Tp 0.64] ** SIMULATION NUMBER: 18 ** ***** CALIB STANDHYD 1202 1 5.0 0.47 0.03 12.00 22.03 0.34 0.000 [I%=20.0:S%= 3.60] W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Obase min ha cms hrs mm cms 0.01 12.00 22.01 0.34 0.000 CALTE STANDHYD 1204 1 5.0 0.20 [T%=20.0:S%= 3.60] START @ 0.00 hrs CALIB STANDHYD 1203 1 5.0 0.19 0.01 12.00 22.01 0.34 0.000 READ STORM 15.0 [I%=20.0:S%= 3.60] [Ptot= 91.28 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\30f72e32-8e4e-CALTE STANDHYD 1201 1 5.0 0.47 0.03 12.00 22.03 0.34 0.000 4c1 [I%=20.0:S%= 3.60] remark: 100-Year, 24 hour SCS Type II Storm Distribution, Custom Gau ADD [1201 + 1202] 0020 3 5.0 0.94 0.05 12.00 22.03 n/a 0.000 ** CALIB NASHYD 1100 1 5.0 2.26 0.04 12.58 18.92 0.21 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.07 12.00 22.02 n/a 0.000 [CN=46.4 [N = 3.0:Tp 0.64] ADD [0020 + 1204] 0020 3 5.0 1.33 0.08 12.00 22.02 n/a 0.000 CALIB STANDHYD 1202 1 5.0 0.47 0.05 12.00 36.37 0.40 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.08 12.67 22.02 n/a 0.000 [I%=20.0:S%= 3.60] [SHIFT= 40.0 min] CALIB STANDHYD 1204 1 5.0 0.20 0.02 12.00 36.35 0.40 0.000 ADD [1100 + 0114] 1001 3 5.0 3.59 0.10 12.67 14.07 n/a 0.000 [I%=20.0:S%= 3.60] ***** CALTE STANDHYD 1203 1 5.0 0.19 0.02 12.00 36.35 0.40 0.000 ** SIMULATION NUMBER: 17 ** [I%=20.0:S%= 3.60] ***** CALIB STANDHYD 1201 1 5.0 0.47 0.05 12.00 36.37 0.40 0.000 W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase [I%=20.0:S%= 3.60] ha ' cms hrs min ADD [1201 + 1202] 0020 3 5.0 0.94 0.10 12.00 36.37 n/a 0.000 START @ 0.00 hrs ADD [0020 + 1203] 0020 1 5.0 1.13 0.12 12.00 36.37 n/a 0.000 READ STORM 15.0 [Ptot= 77.75 mm] ADD [0020 + 1204] 0020 3 5.0 1.33 0.14 12.00 36.37 n/a 0.000 fname : C:\Users\rrajachockalingam\AppData\Local\Temp\016ded27-f6e7-4991-ac6b-637813500ba4\c3afdc7c-c334-464 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.14 12.67 36.37 n/a 0.000 remark: 50-Year, 24 hour SCS Type II Storm Distribution, Custom Gaug [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.19 12.67 25.39 n/a 0.000 * * CALIB NASHYD 1100 1 5.0 2.26 0.03 12.58 13.85 0.18 0.000 ------[CN=46.4 [N = 3.0:Tp 0.64] ** SIMULATION NUMBER: 19 ** ****** CALIB STANDHYD 1202 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 [I%=20.0:S%= 3.60] HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND ' cms hrs min ha mm cms CALIB STANDHYD 1204 1 5.0 0.20 0.02 12.00 28.95 0.37 0.000 [I%=20.0:S%= 3.60] START @ 0.00 hrs CALIB STANDHYD 1203 1 5.0 0.19 0.02 12.00 28.95 0.37 0.000 CHIC STORM 10.0 [I%=20.0:S%= 3.60] [Ptot= 28.11 mm] ** CALIB NASHYD CALIB STANDHYD 0.04 12.00 28.97 0.37 0.000 1201 1 5.0 0.47 1100 1 5.0 2.26 0.01 2.17 1.45 0.05 0.000 [I%=20.0:S%= 3.60] [CN=46.4 [N = 3.0:Tp 0.64] ADD [1201 + 1202] 0020 3 5.0 0.94 0.08 12.00 28.97 n/a 0.000 * CALIB STANDHYD 1202 1 5.0 0.47 0.02 1.33 7.09 0.25 0.000 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt

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13/16 [I%=20.0:S%= 3.60] CALIB STANDHYD 1204 1 5.0 0.20 0.01 1.33 7.04 0.25 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1203 1 5.0 0.19 0.01 1.33 7.02 0.25 0.000 [I%=20.0:S%= 3.60] CALTE STANDHYD 1201 1 5.0 0.47 0.02 1.33 7.09 0.25 0.000 [I%=20.0:S%= 3.60] ADD [1201 + 1202] 0020 3 5.0 0.94 0.04 1.33 7.09 n/a 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.05 1.33 7.08 n/a 0.000 ADD [0020 + 1204] 0020 3 5.0 1.33 0.06 1.33 7.07 n/a 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.06 2.00 7.07 n/a 0.000 [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.06 2.00 3.54 n/a 0.000 ***** ** SIMULATION NUMBER: 20 ** W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase min ha ' cms hrs mm CIMS START @ 0.00 hrs CHIC STORM 10.0 [Ptot= 38.49 mm] ** CALIB NASHYD 1100 1 5.0 2.26 0.01 2.17 3.11 0.08 0.000 [CN=46_4 [N = 3.0:Tp 0.64]CALIB STANDHYD 1202 1 5.0 0.47 0.03 1.33 10.84 0.28 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1204 1 5.0 0.20 0.01 1.33 10.83 0.28 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1203 1 5.0 0.19 0.01 1.33 10.83 0.28 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1201 1 5.0 0.47 0.03 1.33 10.84 0.28 0.000 [I%=20.0:S%= 3.60] ADD [1201 + 12021 0020 3 5.0 0.94 0.05 1.33 10.84 n/a 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.06 1.33 10.84 n/a 0.000 ADD [0020 + 1204] 0020 3 5.0 1.33 0.08 1.33 10.84 n/a 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.08 2.00 10.84 n/a 0.000 [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.09 2.00 5.97 n/a 0.000 ***** ** SIMULATION NUMBER: 21 ** ***** W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase . ha cms hrs min mm cms START @ 0.00 hrs 2020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt 2020-06-09 11:41:53 AM

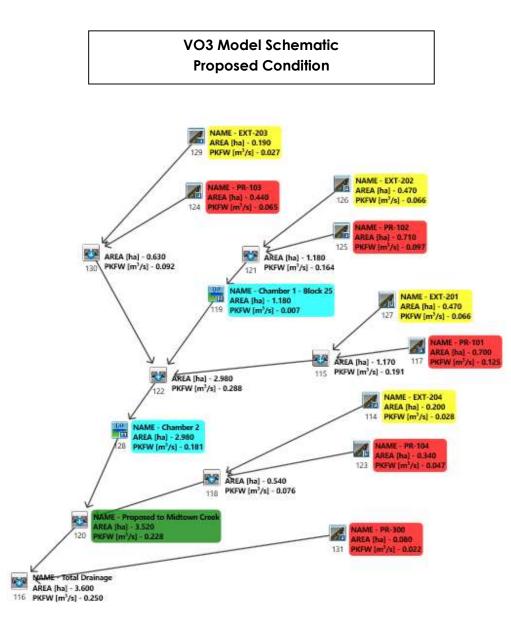
CHIC STORM 10.0 [Ptot= 44.04 mm] ** CALIB NASHYD 1100 1 5.0 2.26 0.02 2.17 4.21 0.10 0.000 [CN=46.4 [N = 3.0:Tp 0.64] CALIB STANDHYD 1202 1 5.0 0.47 0.03 1.33 13.05 0.30 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1204 1 5.0 0.20 0.01 1.33 13.02 0.30 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1203 1 5.0 0.19 0.01 1.33 13.02 0.30 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1201 1 5.0 0.47 0.03 1.33 13.05 0.30 0.000 [I%=20.0:S%= 3.60] ADD [1201 + 1202] 0020 3 5.0 0.94 0.06 1.33 13.05 n/a 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.07 1.33 13.05 n/a 0.000 ADD [0020 + 1204] 0020 3 5.0 1.33 0.09 1.33 13.04 n/a 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.09 2.00 13.04 n/a 0.000 [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.10 2.00 7.49 n/a 0.000 *********************** ** SIMULATION NUMBER: 22 ** ******* HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND ' cms hrs min ha mm cms START @ 0.00 hrs CHIC STORM 10.0 [Ptot= 60.23 mm] ** CALIB NASHYD 1100 1 5.0 2.26 0.03 2.17 8.26 0.14 0.000 [CN=46.4 [N = 3.0:Tp 0.64] CALIB STANDHYD 1202 1 5.0 0.47 0.05 1.33 20.20 0.34 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1204 1 5.0 0.20 0.02 1.33 20.18 0.33 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1203 1 5.0 0.19 0.02 1.33 20.18 0.33 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 1201 1 5.0 0.47 0.05 1.33 20.20 0.34 0.000 [I%=20.0:S%= 3.60] ADD [1201 + 1202] 0020 3 5.0 0.94 0.09 1.33 20.20 n/a 0.000 ADD [0020 + 1203] 0020 1 5.0 1.13 0.11 1.33 20.19 n/a 0.000 ADD [0020 + 1204] 0020 3 5.0 1.33 0.13 1.33 20.19 n/a 0.000 SHIFT [2 : 0020] 0114 1 5.0 1.33 0.13 2.00 20.19 n/a 0.000 [SHIFT= 40.0 min] ADD [1100 + 0114] 1001 3 5.0 3.59 0.16 2.00 12.68 n/a 0.000

10122_VO3 Summary Output - All Storms (Existing).txt

** SIMULATION NUMBER: 23 ** *	0 + 1203] 0020 1 5.0 1.13 0.13 1.33 31.98 n/a 0.000 0 + 1204] 0020 3 5.0 1.33 0.16 1.33 31.98 n/a 0.000 2 : 0020] 0114 1 5.0 1.33 0.16 2.00 31.98 n/a 0.000
*	2 : 0020] 0114 1 5.0 1.33 0.16 2.00 31.98 n/a 0.000
W/E COMMAND HYD ID DT AREA 'Qpeak Tpeak R.V. R.C. Qbase SHIFT [min ha 'cms rms [SHIFT=4]	
	0 + 0114] 1001 3 5.0 3.59 0.21 2.00 21.85 n/a 0.000
* CHIC STORM 10.0 FINISH [Ptot= 71.95 mm]	
** CALIB NASHYD 1100 1 5.0 2.26 0.04 2.17 11.87 0.16 0.000 [CN=46.4] [N = 3.0:Tp 0.64]	
* CALIE STANDHYD 1202 1 5.0 0.47 0.05 1.33 25.95 0.36 0.000 [I%=20.0:S%= 3.60]	
* CALIB STANDHYD 1204 1 5.0 0.20 0.02 1.33 25.94 0.36 0.000 [I%=20.0:S%= 3.60]	
* CALIB STANDHYD 1203 1 5.0 0.19 0.02 1.33 25.94 0.36 0.000 [I%=20.0:3%= 3.60]	
* CALIB STANDHYD 1201 1 5.0 0.47 0.05 1.33 25.95 0.36 0.000 [I%=20.0:S%= 3.60]	
ADD [1201 + 1202] 0020 3 5.0 0.94 0.10 1.33 25.95 n/a 0.000	
ADD [0020 + 1203] 0020 1 5.0 1.13 0.12 1.33 25.95 n/a 0.000	
ADD [0020 + 1204] 0020 3 5.0 1.33 0.14 1.33 25.95 n/a 0.000	
SHIFT [2 : 0020] 0114 1 5.0 1.33 0.14 2.00 25.95 n/a 0.000 [SHIFT= 40.0 min]	
ADD [1100 + 0114] 1001 3 5.0 3.59 0.18 2.00 17.09 n/a 0.000	

W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase min ha ' cms hrs mm cms	
START @ 0.00 hrs	
CHIC STORM 10.0 [Ptot= 83.38 mm]	
** CALIB NASHYD 1100 1 5.0 2.26 0.06 2.17 15.88 0.19 0.000 [CN=46.4] [N = 3.0:Tp 0.64]	
* CALIE STANDHYD 1202 1 5.0 0.47 0.05 1.33 31.98 0.38 0.000 [I%=20.0:S%= 3.60]	
CALIE STANDHYD 1204 1 5.0 0.20 0.02 1.33 31.98 0.38 0.000 [I%=20.0:S%= 3.60]	
* CALIB STANDHYD 1203 1 5.0 0.19 0.02 1.33 31.96 0.38 0.000 [I%=20.0:S%= 3.60]	
* CALIE STANDHYD 1201 1 5.0 0.47 0.05 1.33 31.98 0.38 0.000 [I%=20.0:S%= 3.60]	
ADD [1201 + 1202] 0020 3 5.0 0.94 0.11 1.33 31.98 n/a 0.000	
020-06-09 11:41:53 AM 10122_V03 Summary Output - All Storms (Existing).txt 2020-06-09 11:4	11:53 AM 10122_VO3 Summary Output - All Storms (Existin

Summary Output - All Storm Events Existing Condition



1/23 * CALIB STANDHYD 0125 1 5.0 0.71 0.02 3.00 6.70 0.23 0.000 [I%=18.0:S%= 2.00] CALIB STANDHYD 0126 1 5.0 0.47 0.01 3.00 7.24 0.25 0.000 V I SSSSS U U A L V I v SS U U A A L [I%=20.0:S%= 3.60] V V I SS U U AAAAA L V V I SS U U A A L ADD [0125 + 0126] 0121 3 5.0 1.18 0.03 3.00 6.92 n/a 0.000 vv I SSSSS UUUUU A A LLLLL RESRVR [2 : 0121] 0119 1 5.0 1.18 0.00 6.00 2.16 n/a 0.000 {ST= 0.01 ha.m } OOO TTTTT TTTTT H H Y Y M M OOO TM т н н үү мммм о о о о т 0 О Т т нн үммоо * CALIB STANDHYD 0124 1 5.0 0.44 0.01 3.00 7.24 0.25 0.000 000 [I%=20.0:S%= 2.00] Н Н M M 000 Developed and Distributed by Civica Infrastructure Copyright 2007 - 2013 Civica Infrastructure CALIB STANDHYD 0129 1 5.0 0.19 0.01 3.00 7.20 0.25 0.000 All rights reserved. [I%=20.0:S%= 3.60] ADD [0124 + 0129] 0130 3 5.0 0.63 0.02 3.00 7.23 n/a 0.000 ***** SUMMARY OUTPUT ***** ADD [0115 + 0119] 0122 3 5.0 2.35 0.04 3.00 5.46 n/a 0.000 Input filename: C:\Program Files (x86)\VO Suite 3.0\VO2\voin.dat ADD [0122 + 0130] 0122 1 5.0 2.98 0.06 3.00 5.83 n/a 0.000 Output filename: C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\Scenario. RESRVR [2 : 0122] 0128 1 5.0 2.98 0.00 15.92 0.14 n/a 0.000 {ST= 0.02 ha.m } out Summary filename: C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\Scenario. ADD [0118 + 0128] 0120 3 5.0 3.52 0.01 3.00 1.12 n/a 0.000 sum * CALIB STANDHYD 0131 1 5.0 0.08 0.01 3.00 18.03 0.63 0.000 TIME: 11:38:59 DATE: 06-05-2020 [T%=63.0:S%= 2.00] USER: ADD [0120 + 0131] 0116 3 5.0 3.60 0.02 3.00 1.49 n/a 0.000 ***** COMMENTS: ** SIMULATION NUMBER: 2 ** ***** ***** HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND ** SIMULATION NUMBER: 1 ** ' cms hrs min ha cms mm *********************** START @ 0.00 hrs HYD ID DT AREA 'Qpeak Tpeak R.V. R.C. Qbase min ha 'cms hrs mm cms W/E COMMAND READ STORM 15.0 [Ptot= 39.33 mm] START @ 0.00 hrs fname : C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\3113dc0e-b5d9-435 READ STORM remark: 5-Year, 6 hour SCS Type II Storm Distribution, Custom Gauge: 15.0 [Ptot= 28.55 mm] fname : C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\9a624bb6-1c30-47e * CALIB STANDHYD 0114 1 5.0 0.20 0.01 3.00 11.14 0.28 0.000 remark: 2-Year, 6 hour SCS Type II Storm Distribution, Custom Gauge: [T%=20.0:S%= 3.60] CALIB STANDHYD 0123 1 5.0 0.34 0.01 3.00 9.67 0.25 0.000 * CALIB STANDHYD 0114 1 5.0 0.20 0.01 3.00 7.20 0.25 0.000 [I%=15.0:S%= 2.00] [I%=20.0:S%= 3.60] ADD [0114 + 0123] 0118 3 5.0 0.54 0.02 3.00 10.21 n/a 0.000 CALIB STANDHYD 0123 1 5.0 0.34 0.01 3.00 6.09 0.21 0.000 [I%=15.0:S%= 2.00] CALIB STANDHYD 0117 1 5.0 0.70 0.04 3.00 14.64 0.37 0.000 [I%=30.0:S%= 2.00] ADD [0114 + 0123] 0118 3 5.0 0.54 0.01 3.00 6.50 n/a 0.000 * CALIB STANDHYD 0127 1 5.0 0.47 0.02 3.00 11.17 0.28 0.000 CALIB STANDHYD 0117 1 5.0 0.70 0.03 3.00 9.82 0.34 0.000 [I%=20.0:S%= 3.60] [I%=30.0:S%= 2.00] ADD [0117 + 0127] 0115 3 5.0 1.17 0.06 3.00 13.25 n/a 0.000 CALIB STANDHYD 0127 1 5.0 0.47 0.01 3.00 7.24 0.25 0.000 [I%=20.0:S%= 3.60] . CALIB STANDHYD 0125 1 5.0 0.71 0.03 3.00 10.43 0.27 0.000 [I%=18.0:S%= 2.00] ADD [0117 + 0127] 0115 3 5.0 1.17 0.04 3.00 8.78 n/a 0.000 * CALIB STANDHYD 0126 1 5.0 0.47 0.02 3.00 11.17 0.28 0.000 2020-06-09 11:47:29 AM 10122_V03 Summary Output - All Storms (Proposed).txt 2020-06-09 11:47:29 AM 10122_V03 Summary Output - All Storms (Proposed).txt

	ADD [0125 + 0126]	0121	3	5.0	1.18	0.05	3.00	10.72	n/a	0.000	
	RESRVR [2 : 0121] {ST= 0.01 ha.m }				1.18	0.00	5.17	5.97	n/a	0.000	
	CALIB STANDHYD [1%=20.0:S%= 2.00]	0124	1	5.0	0.44	0.02	3.00	11.17	0.28	0.000	
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0129	1	5.0	0.19	0.01	3.00	11.14	0.28	0.000	
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.03	3.00	11.16	n/a	0.000	
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.06	3.00	9.59	n/a	0.000	
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.09	3.00	9.93	n/a	0.000	
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.01	4.67	4.06	n/a	0.000	
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.02	3.00	5.00	n/a	0.000	
	CALIB STANDHYD [I%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.01	3.00	25.54	0.65	0.000	
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.03	3.00	5.46	n/a	0.000	
/E	COMMAND	HYD	ID	DT	AREA	' Qpeak	Tnesk	R.V.	R.C.	Qbase	
				min		' cms	hrs	mm		cms	
	START @ 0.00 hrs			min							
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r		nock	15.0 alinga	ha m\AppDat	' cms a\Local	hrs \Temp\	mm d329£9c	:9-d88(cms 9-40f9-9f52-81db70dfb595\2a628570-43	1d)
	READ STORM [Ptot= 45.00 mm]		nock	15.0 alinga	ha m\AppDat	' cms a\Local	hrs \Temp\	mm d329£9c	:9-d88(cms 9-40f9-9f52-81db70dfb595\2a628570-43	1dł
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r		nock SCS	15.0 alinga Type	ha m\AppDat	' cms a\Local Distril	hrs \Temp\ oution	mm d329£9c	:9—d880 om Gauq	cms 9-40f9-9f52-81db70dfb595\2a628570-43	1.dł
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r remark: 10-Year, 6 CALLE STANDHYD	hour	nock scs 1	15.0 alinga Type 5.0	ha am\AppDat II Storm	' cms a\Local Distril	hrs \Temp\ oution 3.00	mm d329f9d , Custo	:9-d88(om Gauç 0.30	cms)-40f9-9f52-81db70dfb595\2a628570-4; je	1.dł
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r remark: 10-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD	hour 0114 0123	nock scs 1 1	15.0 alinga Type 5.0 5.0	ha am\AppDat II Storm 0.20	' cms a\Local Distril 0.01	hrs \Temp\ oution 3.00 3.00	mm d329f9c , Custc 13.43	29-d880 om Gauç 0.30 0.26	cms)-40f9-9f52-81db70dfb595\2a628570-4; ge 0.000	1.dł
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r remark: 10-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00]	hour 0114 0123	nock scs 1 1 3	15.0 alinga Type 5.0 5.0	ha um\AppDat II Storm 0.20 0.34	' cms a\Local' Distril 0.01 0.02 0.03	hrs \Temp\ oution 3.00 3.00	mm d329f9c , Custc 13.43 11.78	:9-d880 om Gaug 0.30 0.26 n/a	cms)-40f9-9f52-81db70dfb595\2a628570-4 ge 0.000 0.000	1.dk
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r remark: 10-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD	hour 0114 0123 0118	nock scs 1 1 3 1	15.0 alinga Type 5.0 5.0 5.0	ha um\AppDat II Storm 0.20 0.34 0.54	' cms a\Local' Distril 0.01 0.02 0.03 0.05	hrs \Temp\ oution 3.00 3.00	mm d329f9c , Custc 13.43 11.78 12.39	9-d880 om Gaug 0.30 0.26 n/a 0.39	cms)-40f9-9f52-81db70dfb595\2a628570-4. ge 0.000 0.000	1.dł
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r remark: 10-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [I%=30.0:S%= 2.00] CALIB STANDHYD	hour 0114 0123 0118 0117 0127	nock scs 1 1 3 1	15.0 alinga Type 5.0 5.0 5.0 5.0	ha um\AppDat II Storm 0.20 0.34 0.54 0.70	' cms a\Local' Distril 0.01 0.02 0.03 0.05 0.02	hrs \Temp\ oution 3.00 3.00 3.00 3.00	mm d329f9d , Custo 13.43 11.78 12.39 17.36	9-d880 om Gaug 0.30 0.26 n/a 0.39 0.30	cms)-40f9-9f52-81db70dfb595\2a628570-4 ge 0.000 0.000 0.000 0.000	1.dł
	READ STORM [Ptot= 45.00 mm] fname : C:\Users\r remark: 10-Year, 6 CALIB STANDHYD [T%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [I%=30.0:S%= 2.00] CALIB STANDHYD [I%=20.0:S%= 3.60]	hour 0114 0123 0118 0117 0127	nock scs 1 1 3 1 1 3	15.0 alinga Type 5.0 5.0 5.0 5.0 5.0	ha um\AppDat II Storm 0.20 0.34 0.54 0.70 0.47	' cms a\Local' Distril 0.01 0.02 0.03 0.05 0.02 0.08	hrs \Temp\ oution 3.00 3.00 3.00 3.00	mm d329f9d , Custc 13.43 11.78 12.39 17.36 13.44	:9-d88(m Gaug 0.30 0.26 n/a 0.39 0.30 n/a	cms)-40f9-9f52-81db70dfb595\2a628570-4: ge 0.000 0.000 0.000 0.000 0.000	1.dł
	READ STORM [Ptot= 45.00 mm] fname : C:\USers\r remark: 10-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [I%=20.0:S%= 3.60] ADD [0117 + 0127] CALIB STANDHYD	hour 0114 0123 0118 0117 0127 0115	nock scs 1 1 3 1 1 3 1	15.0 alinga 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	ha m\AppDat II Storm 0.20 0.34 0.54 0.70 0.47 1.17	' cms a\Local' Distril 0.01 0.02 0.03 0.05 0.02 0.08	hrs \\Temp\ oution 3.00 3.00 3.00 3.00 3.00 3.00	mm d329f9c , Custc 13.43 11.78 12.39 17.36 13.44 15.79	-9-d880 0.30 0.26 n/a 0.39 0.30 n/a 0.28	cms)-40f9-9f52-81db70dfb595\2a628570-43 ge 0.000 0.000 0.000 0.000 0.000	1.dl

	RESRVR [2 : 0121] {ST= 0.01 ha.m }	0119	1	5.0	1.18	0.00	5.08	8.18	n/a	0.000	
	CALIB STANDHYD [1%=20.0:S%= 2.00]	0124	1	5.0	0.44	0.02	3.00	13.45	0.30	0.000	
	CALIB STANDHYD [1%=20.0:5%= 3.60]	0129	1	5.0	0.19	0.01	3.00	13.43	0.30	0.000	
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.03	3.00	13.44	n/a	0.000	
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.08	3.00	11.97	n/a	0.000	
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.11	3.00	12.28	n/a	0.000	
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.01	3.75	6.42	n/a	0.000	
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.03	3.00	7.33	n/a	0.000	
	CALIB STANDHYD [I%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.01	3.00	29.58	0.66	0.000	
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.04	3.00	7.83	n/a	0.000	
* 7	SIMULATION NUMBER: ************************************	4 ** ***** HYD	*	DT min		' Qpeak ' cms	Tpeak hrs	R.V. mm	R.C.	Qbase cms	
	START @ 0.00 hrs READ STORM [Ptot= 61.77 mm]			15.0							
	READ STORM [Ptot= 61.77 mm]	rajacl	hock	aling)-40f9-9f52-81db70dfb595\9cef4af(ye	-bb
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r	rajacl	hock scs	aling Type		Distri	bution		m Gau		-bb
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALLB STANDHYD	rajac hour	hock scs 1	Type 5.0	II Storm	Distri 0.02	bution 3.00	, Custo	om Gau	je	-bb
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALLB STANDHYD [1%=20.0:S%= 3.60] CALLB STANDHYD	najacl hour 0114 0123	hock scs 1 1	Type 5.0 5.0	II Storm 0.20	Distri 0.02 0.03	bution 3.00 3.00	, Custo 20.92	om Gau 0.34 0.31	ye 0.000	-bb
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00]	najacl hour 0114 0123	hock scs 1 1 3	aling Type 5.0 5.0 5.0	II Storm 0.20 0.34	Distri 0.02 0.03 0.04	bution 3.00 3.00 3.00	, Custo 20.92 18.85	m Gau 0.34 0.31 n/a	0.000	dd-
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB STANDHYD [I%=15.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD	rajac hour 0114 0123 0118	hock scs 1 1 3 1	saling Type 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54	Distri 0.02 0.03 0.04 0.08	bution 3.00 3.00 3.00 3.00	, Custo 20.92 18.85 19.62	om Gaus 0.34 0.31 n/a 0.42	ye 0.000 0.000	dd-
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [I%=30.0:S%= 2.00] CALIB STANDHYD	rajac hour 0114 0123 0118 0117 0127	hock scs 1 1 3 1	saling: Type 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70	Distri 0.02 0.03 0.04 0.08	bution 3.00 3.00 3.00 3.00 3.00	, Custc 20.92 18.85 19.62 26.06	om Gaus 0.34 0.31 n/a 0.42 0.34	ye 0.000 0.000 0.000 0.000	dd-
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=30.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60]	rajac hour 0114 0123 0118 0117 0127	hock scs 1 1 3 1 1 3	aling Type 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47	Distri 0.02 0.03 0.04 0.08 0.04 0.04 0.12	bution 3.00 3.00 3.00 3.00 3.00 3.00	, Custc 20.92 18.85 19.62 26.06 20.92	m Gau 0.34 0.31 n/a 0.42 0.34 n/a	ye 0.000 0.000 0.000 0.000	-bb
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIB STANDHYD [1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD [1%=20.0:S%= 3.60] ADD [0117 + 0127] CALIB STANDHYD	rajacl hour 0114 0123 0118 0117 0127 0127	hock scs 1 1 1 1 3 1 1	aling Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17	Distri 0.02 0.03 0.04 0.08 0.04 0.12 0.06	bution 3.00 3.00 3.00 3.00 3.00 3.00 3.00	, Custo 20.92 18.85 19.62 26.06 20.92 24.00	m Gau 0.34 0.31 n/a 0.42 0.34 n/a 0.32	ye 0.000 0.000 0.000 0.000 0.000 0.000	-bb
	READ STORM [Ptot= 61.77 mm] fname : C:\Users\r remark: 25-Year, 6 CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=30.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60] ADD [0117 + 0127] CALIE STANDHYD [I%=18.0:S%= 2.00] CALIE STANDHYD	rajacl hour 0114 0123 0118 0117 0127 0125 0125 0126	hock scs 1 1 3 1 1 3 1 1	aling Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17 0.71	Distri 0.02 0.03 0.04 0.08 0.04 0.12 0.06 0.04	bution 3.00 3.00 3.00 3.00 3.00 3.00 3.00	, Custo 20.92 18.85 19.62 26.06 20.92 24.00 19.79	m Gau 0.34 0.31 n/a 0.42 0.34 n/a 0.32 0.34	ye 0.000 0.000 0.000 0.000 0.000 0.000 0.000	dd–
	READ STORM [Ptot= 61.77 mm] fname : C:\USers\r remark: 25-Year, 6 CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=20.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=16.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60]	rajacl hour 0114 0123 0118 0117 0127 0125 0125 0126 0121	hock scs 1 1 3 1 1 3 1 3 3	aling Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17 0.71 0.47	Distri 0.02 0.03 0.04 0.08 0.04 0.12 0.06 0.04 0.10	3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00	, Custc 20.92 18.85 19.62 26.06 20.92 24.00 19.79 20.92	m Gau 0.34 0.31 n/a 0.42 0.34 n/a 0.32 0.34 n/a	ye 0.000 0.000 0.000 0.000 0.000 0.000	-bb

	CALIB STANDHYD	0129	1	5.0	0.19	0.02	3.00	20.92	0.34	0.000
	[I%=20.0:S%= 3.60]	0125	-	5.0	0.15	0.02	5.00	20.52	0.51	0.000
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.06	3.00	20.92	n/a	0.000
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.12	3.00	19.72	n/a	0.000
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.18	3.00	19.98	n/a	0.000
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.06	3.17	14.11	n/a	0.000
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.08	3.08	14.96	n/a	0.000
	CALIB STANDHYD [1%=63.0:5%= 2.00]	0131	1	5.0	0.08	0.02	3.00	41.85	0.68	0.000
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.08	3.08	15.55	n/a	0.000
* **	**************************************	5 **	,	DT min	AREA ha	' Qpeak ' cms	Tpeak hrs	R.V. mm	. R.C.	Qbase cms
	START @ 0.00 hrs									
	[Ptot= 74.28 mm] fname : C:\Users\r	rajach	lock	alinga	am\AppDat	a\Local	\Temp\	d329f9d	:9-d880)-40f9-9f52-81db70dfb595\9ac8a4c3-ed
	fname : C:\Users\r		SCS	Туре		Distri	bution		om Gauç	
	fname : C:\Users\r remark: 50-Year, 6 CALIB STANDHYD	hour 0114 0123	scs 1	Type 5.0	II Storm	Distri	bution 3.00	, Custo	om Gaug 0.37	le
	<pre>fname : C:\Users\r remark: 50-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD</pre>	hour 0114 0123	scs 1 1	Type 5.0 5.0	II Storm 0.20	Distri 0.02 0.04	bution 3.00 3.00	, Custo 27.14	om Gauç 0.37 0.33	0.000
	<pre>fname : C:\Users\r remark: 50-Year, 6 CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00]</pre>	hour 0114 0123 0118 0117	scs 1 1 3	Type 5.0 5.0 5.0	II Storm 0.20 0.34	Distri 0.02 0.04 0.06	bution 3.00 3.00 3.00	, Custo 27.14 24.82	om Gauç 0.37 0.33 n/a	e 0.000 0.000
	<pre>fname : C:\Users\r remark: 50-Year, 6 CALIB STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD</pre>	hour 0114 0123 0118 0117 0127	1 1 3 1	Type 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54	Distri 0.02 0.04 0.06 0.10	bution 3.00 3.00 3.00 3.00	, Custo 27.14 24.82 25.68	om Gauç 0.37 0.33 n/a 0.45	re 0.000 0.000
	<pre>fname : C:\Users\r remark: 50-Year, 6 CALIB STANDHYD [1%=15.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD</pre>	hour 0114 0123 0118 0117 0127	scs 1 1 3 1	Type 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70	Distri 0.02 0.04 0.06 0.10 0.05	bution 3.00 3.00 3.00 3.00 3.00	, Custo 27.14 24.82 25.68 33.12	om Gauç 0.37 0.33 n/a 0.45 0.37	e 0.000 0.000 0.000
	<pre>fname : C:\Users\r remark: 50-Year, 6 CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=30.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60]</pre>	hour 0114 0123 0118 0117 0127 0115 0125	scs 1 1 3 1 1 3	Type 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47	Distrii 0.02 0.04 0.06 0.10 0.05 0.15	bution 3.00 3.00 3.00 3.00 3.00 3.00	, Custo 27.14 24.82 25.68 33.12 27.15	om Gauç 0.37 0.33 n/a 0.45 0.37 n/a	re 0.000 0.000 0.000 0.000
	<pre>fname : C:\Users\r remark: 50-Year, 6 CALLE STANDHYD [1%=20.0:S%= 3.60] CALLE STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALLE STANDHYD [1%=30.0:S%= 2.00] CALLE STANDHYD [1%=20.0:S%= 3.60] ADD [0117 + 0127] CALLE STANDHYD</pre>	hour 0114 0123 0118 0117 0127 0115 0125 0126	scs 1 1 1 1 1 3 1	Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17	Distrii 0.02 0.04 0.06 0.10 0.05 0.15 0.08	bution 3.00 3.00 3.00 3.00 3.00 3.00 3.00	, Custo 27.14 24.82 25.68 33.12 27.15 30.72	om Gauç 0.37 0.33 n/a 0.45 0.37 n/a 0.35	re 0.000 0.000 0.000 0.000 0.000
	fname : C:\Users\r remark: 50-Year, 6 CALIB STANDHYD [I%=20.018%= 3.60] CALIB STANDHYD [I%=15.018%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [I%=30.018%= 2.00] CALIB STANDHYD [I%=18.018%= 2.00] CALIB STANDHYD [I%=18.018%= 2.00] CALIB STANDHYD	hour 0114 0123 0118 0117 0127 0115 0125 0126	scs 1 1 3 1 1 3 1 1	Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17 0.71	Distril 0.02 0.04 0.06 0.10 0.05 0.15 0.08 0.05	bution 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.0	, Custo 27.14 24.82 25.68 33.12 27.15 30.72 25.80	om Gaug 0.37 0.33 n/a 0.45 0.37 n/a 0.35 0.37	ye 0.000 0.000 0.000 0.000 0.000 0.000
	fname : C:\Users\r remark: 50-Year, 6 CALIE STANDHYD [1%=20.0:S%= 3.60] CALIE STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [1%=30.0:S%= 2.00] CALIE STANDHYD [1%=18.0:S%= 2.00] CALIE STANDHYD [1%=20.0:S%= 3.60]	hour 0114 0123 0119 0117 0127 0125 0125 0126	scs 1 1 3 1 1 3 1 1 3 3	Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17 0.71 0.47	Distrii 0.02 0.04 0.06 0.10 0.05 0.15 0.08 0.05 0.13	bution 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.0	, Custo 27.14 24.82 25.68 33.12 27.15 30.72 25.80 27.15	om Gauç 0.37 0.33 n/a 0.45 0.37 n/a 0.35 0.37 n/a	re 0.000 0.000 0.000 0.000 0.000 0.000
	fname : C:\Users\r remark: 50-Year, 6 CALLB STANDHYD [I%=20.0:S%= 3.60] CALLB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALLB STANDHYD [I%=30.0:S%= 2.00] CALLB STANDHYD [I%=20.0:S%= 3.60] ADD [0117 + 0127] CALLB STANDHYD [I%=18.0:S%= 2.00] CALLE STANDHYD [I%=20.0:S%= 3.60] ADD [0125 + 0126] RESRVR [2 : 0121]	hour 0114 0123 0118 0117 0127 0125 0125 0126 0121 0119 0124	scs 1 1 3 1 1 3 1 1 3 1 1 3 1	Type 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	II Storm 0.20 0.34 0.54 0.70 0.47 1.17 0.71 0.47 1.18	Distri: 0.02 0.04 0.06 0.10 0.05 0.15 0.08 0.05 0.13 0.01	bution 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.0	, Custo 27.14 24.82 25.68 33.12 27.15 30.72 25.80 27.15 26.34	m Gaug 0.37 0.33 n/a 0.45 0.37 n/a 0.35 0.37 n/a n/a	re 0.000 0.0

	ADD [0124 + 0129]	0130	3	5.0	0.63	0.07	3.00	27.15	n/a	0.000	
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.16	3.00	26.13	n/a	0.000	
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.23	3.00	26.35	n/a	0.000	
	RESRVR [2 : 0122] {ST= 0.03 ha.m }	0128	1	5.0	2.98	0.13	3.08	20.48	n/a	0.000	
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.16	3.08	21.28	n/a	0.000	
	CALIB STANDHYD [1%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.02	3.00	51.28	0.69	0.000	
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.16	3.08	21.94	n/a	0.000	
;	**************************************	б*	÷								
Е	COMMAND	HYD	ID	DT min	AREA ha	Qpeak cms	Tpeak hrs	R.V. mm	R.C.	Qbase cms	
	START @ 0.00 hrs										
	READ STORM [Ptot= 86.45 mm]			15.0							
	fname : C:\Users\r	rajacl	lock	alinga	um\AppDat	a\Local	\Temp\	d329f9c	:9-d880	-40f9-9f52-81db70dfb595\fbaa91	b3-0
	remark: 100-Year,	6 hou	r SC	s Type	e II Stor	m Distr	ibutio	n, Cust	om Gau	g	
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0114	1	5.0	0.20	0.03	3.00	33.66	0.39	0.000	
		0114 0123			0.20 0.34			33.66 31.14		0.000	
	[1%=20.0:S%= 3.60] CALIB STANDHYD	0123	1	5.0		0.05	3.00		0.36		
	[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123]	0123	1	5.0 5.0	0.34	0.05	3.00 3.00	31.14	0.36 n/a	0.000	
	[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD	0123 0118	1 3 1	5.0 5.0 5.0	0.34	0.05 0.08 0.12	3.00 3.00 3.00	31.14 32.07	0.36 n/a 0.47	0.000	
	<pre>[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD</pre>	0123 0118 0117 0127	1 3 1 1	5.0 5.0 5.0 5.0	0.34 0.54 0.70	0.05 0.08 0.12 0.07	3.00 3.00 3.00 3.00	31.14 32.07 40.40	0.36 n/a 0.47 0.39	0.000 0.000 0.000	
	[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD [1%=20.0:S%= 3.60]	0123 0118 0117 0127	1 3 1 1 3	5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47	0.05 0.08 0.12 0.07 0.19	3.00 3.00 3.00 3.00 3.00	31.14 32.07 40.40 33.67	0.36 n/a 0.47 0.39 n/a	0.000 0.000 0.000	
	[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD [1%=20.0:S%= 3.60] ADD [0117 + 0127] CALIB STANDHYD	0123 0118 0117 0127 0115	1 3 1 3 1	5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17	0.05 0.08 0.12 0.07 0.19 0.10	3.00 3.00 3.00 3.00 3.00 3.00	31.14 32.07 40.40 33.67 37.70	0.36 n/a 0.47 0.39 n/a 0.37	0.000 0.000 0.000 0.000	
	[1%=20.0:S%= 3.60] CALIE STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [1%=20.0:S%= 2.00] CALIE STANDHYD [1%=20.0:S%= 2.00] CALIE STANDHYD [1%=10.0:S%= 2.00] CALIE STANDHYD	0123 0118 0117 0127 0115 0125 0126	1 3 1 3 1 1	5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71	0.05 0.08 0.12 0.07 0.19 0.10 0.07	3.00 3.00 3.00 3.00 3.00 3.00	31.14 32.07 40.40 33.67 37.70 32.14	0.36 n/a 0.47 0.39 n/a 0.37 0.39	0.000 0.000 0.000 0.000 0.000	
	[19=20.0:S9= 3.60] CALIE STANDHYD [19=15.0:S9= 2.00] ADD [0114 + 0123] CALIE STANDHYD [19=30.0:S9= 2.00] CALIE STANDHYD [19=20.0:S9= 3.60] CALIE STANDHYD [19=18.0:S9= 2.00] CALIE STANDHYD [19=20.0:S9= 3.60]	0123 0118 0117 0127 0115 0125 0126 0121	1 3 1 3 1 1 3 3	5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71 0.47	0.05 0.08 0.12 0.07 0.19 0.10 0.07 0.16	3.00 3.00 3.00 3.00 3.00 3.00 3.00	31.14 32.07 40.40 33.67 37.70 32.14 33.67	0.36 n/a 0.47 0.39 n/a 0.37 0.39 n/a	0.000 0.000 0.000 0.000 0.000 0.000	
	[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD [1%=20.0:S%= 3.60] ADD [0117 + 0127] CALIB STANDHYD [1%=20.0:S%= 3.60] ADD [0125 + 0126] RESRVR [2 : 0121]	0123 0118 0117 0127 0115 0125 0126 0121	1 3 1 3 1 1 3 1	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71 0.47 1.18	0.05 0.08 0.12 0.07 0.19 0.10 0.07 0.16	3.00 3.00 3.00 3.00 3.00 3.00 3.00 5.17	31.14 32.07 40.40 33.67 37.70 32.14 33.67 32.75	0.36 n/a 0.47 0.39 n/a 0.37 0.39 n/a n/a	0.000 0.000 0.000 0.000 0.000 0.000	
	[1%=20.0:S%= 3.60] CALIB STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD [1%=30.0:S%= 2.00] CALIB STANDHYD [1%=20.0:S%= 3.60] ADD [0117 + 0127] CALIB STANDHYD [1%=20.0:S%= 3.60] ADD [0125 + 0126] RESRVR [2 : 0121] (ST= 0.03 ha.m] CALIB STANDHYD	0123 0118 0117 0127 0115 0125 0126 0121 0121	1 3 1 3 1 1 3 1 1	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71 0.47 1.18 1.18	0.05 0.08 0.12 0.07 0.19 0.10 0.07 0.16 0.01	3.00 3.00 3.00 3.00 3.00 3.00 3.00 5.17 3.00	31.14 32.07 40.40 33.67 37.70 32.14 33.67 32.75 27.99	0.36 n/a 0.47 0.39 n/a 0.39 n/a 0.39	0.000 0.000 0.000 0.000 0.000 0.000 0.000	
	[1%=20.0:S%= 3.60] CALIE STANDHYD [1%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [1%=20.0:S%= 2.00] CALIE STANDHYD [1%=20.0:S%= 3.60] ADD [0117 + 0127] CALIE STANDHYD [1%=20.0:S%= 3.60] ADD [0125 + 0126] RESRVR [2 : 0121] (ST= 0.03 ha.m.) CALIE STANDHYD [1%=20.0:S%= 2.00] CALIE STANDHYD [1%=20.0:S%= 2.00]	0123 0118 0117 0127 0125 0126 0121 0129 0124 0129	1 3 1 1 3 1 1 1 1	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71 0.47 1.18 1.18 0.44	0.05 0.08 0.12 0.07 0.10 0.07 0.16 0.01 0.06 0.03	3.00 3.00 3.00 3.00 3.00 3.00 3.00 5.17 3.00 3.00	31.14 32.07 40.40 33.67 37.70 32.14 33.67 32.75 27.99 33.67	0.36 n/a 0.47 0.39 n/a 0.37 0.39 n/a 0.39 0.39	0.000 0.000 0.000 0.000 0.000 0.000 0.000	

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> > 10122_V03 Summary Output - All Storms (Proposed).txt

									7/23										
											(cm- 0.02 h-)								
Į	ADD [0122 + 0130]	0122 1	5.0	2.98	0.29	3.00	33.00 n,	′a 0.	0	*	{ST= 0.02 ha.m }								
	RESRVR [2 : 0122] ST= 0.03 ha.m }	0128 1	5.0	2.98	0.18	3.08	27.14 n,	′a 0.	10	*	ADD [0118 + 0128] CALIB STANDHYD	0120 3 5						0.000	
J	ADD [0118 + 0128]	0120 3	5.0	3.52	0.23	3.00	27.89 n,	′a 0.	0	*	[I%=63.0:S%= 2.00] ADD [0120 + 0131]	0116 0 5	0 0 00				o /-		
	CALIB STANDHYD [1%=63.0:S%= 2.00]	0131 1	5.0	0.08	0.02	3.00	60.67 0.′	10 0.	20		*****	*****	.0 3.60	0.0	2 6.00	1.5.	2 n/a	0.000	
J	ADD [0120 + 0131]	0116 3	5.0	3.60	0.25	3.00	28.62 n,	′a 0.	0		SIMULATION NUMBER:								
** s1	MULATION NUMBER:	7 **								W/E	COMMAND		DT AREA in ha		ak Tpea s hrs			Qbase cms	
	*****										START @ 0.00 hrs								
1/E (COMMAND	HYD ID	DT min	AREA ha	Qpeak cms	Tpeak hrs	R.V. R. mm		ise Is		READ STORM [Ptot= 40.10 mm]	15	.0						
	START @ 0.00 hrs	_								41b	fname : C:\Users\r	rajachockal	ingam\AppD	ata\Loc	al\Temp	\d329f	9c9-d88	0-40f9-9f52-	-81db70dfb595\~
F	EAD STORM Ptot= 29.00 mm]		15.0							110	remark: 5-Year, 12	hour SCS T	ype II Sto	cm Dist	ributic	n, Cus	tom Gau	ge	
d i									-9f52-81db70dfb595\f39de83f-402c-	*	CALIB STANDHYD [1%=20.0:S%= 3.60]	0114 1 5	.0 0.20	0.0	1 6.00	11.4	4 0.29	0.000	
	converte a south the	11041 DOI		- OCOLIII	STOCTT		Succoll (Luge		*		0123 1 5	.0 0.34	0.0	1 6.00	9.9	5 0.25	0.000	
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0114 1	5.0	0.20	0.00	6.00	7.37 0.2	25 0.	20	*	[I%=15.0:S%= 2.00]								
	CALIB STANDHYD [1%=15.0:S%= 2.00]	0123 1	5.0	0.34	0.01	6.00	6.22 0.2	21 0.	0	*	ADD [0114 + 0123] CALIB STANDHYD							0.000	
	ADD [0114 + 0123]	0118 3	5.0	0.54	0.01	6.00	6.64 n,	′a 0.	00	*	[1%=30.0:5%= 2.00]								
	CALIB STANDHYD [18=30.0:S%= 2.00]	0117 1	5.0	0.70	0.02	6.00	10.02 0.3	35 0.	10	*	CALIB STANDHYD [I%=20.0:S%= 3.60]	0127 1 5	.0 0.47	0.0	2 6.00	11.4	7 0.29	0.000	
		0127 1	5.0	0.47	0.01	6.00	7.39 0.2	25 0	10	*	ADD [0117 + 0127]	0115 3 5	.0 1.17	0.0	5 6.00	13.5	8 n/a	0.000	
I	[1%=20.0:S%= 3.60]									*	CALIB STANDHYD [1%=18.0:S%= 2.00]	0125 1 5	.0 0.71	0.0	2 6.00	10.7	1 0.27	0.000	
	ADD [0117 + 0127]						8.96 n,			*	CALIB STANDHYD	0126 1 5	.0 0.47	0.0	2 6.00	11.4	7 0.29	0.000	
	CALIB STANDHYD [1%=18.0:S%= 2.00]	0125 1	5.0	0.71	0.02	6.00	6.85 0.2	24 0.	10	*	[I%=20.0:S%= 3.60]								
	CALIB STANDHYD [1%=20.0:5%= 3.60]	0126 1	5.0	0.47	0.01	6.00	7.39 0.2	25 0.	0	*	ADD [0125 + 0126] RESRVR [2 : 0121]							0.000	
J	ADD [0125 + 0126]	0121 3	5.0	1.18	0.03	6.00	7.06 n,	′a 0.	10	*	(ST= 0.01 ha.m)								
	RESRVR [2 : 0121] ST= 0.01 ha.m }	0119 1	5.0	1.18	0.00	10.25	2.31 n,	′a 0.	0	*	CALIB STANDHYD [I%=20.0:S%= 2.00]	0124 1 5	.0 0.44	0.0	2 6.00	11.4	7 0.29	0.000	
* 0	CALIB STANDHYD	0124 1	5.0	0.44	0.01	6.00	7.40 0.2	26 0.	0	*	CALIB STANDHYD [1%=20.0:S%= 3.60]	0129 1 5	.0 0.19	0.0	1 6.00	11.4	4 0.29	0.000	
	[1%=20.0:S%= 2.00]					,				*	ADD [0124 + 0129]	0130 3 5	.0 0.63	0.0	2 6.00	11.4	6 n/a	0.000	
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0129 1	5.0	0.19	0.00	6.00	7.37 0.2	25 0.	20	*	ADD [0115 + 0119]	0122 3 5	.0 2.35	0.0	5 6.00	9.9	l n/a	0.000	
Į	ADD [0124 + 0129]	0130 3	5.0	0.63	0.02	6.00	7.39 n,	′a 0.	0	*	ADD [0122 + 0130]	0122 1 5	.0 2.98	0.0	8 6.00	10.2	4 n/a	0.000	
Ţ	ADD [0115 + 0119]	0122 3	5.0	2.35	0.04	6.00	5.62 n,	′a 0.	0		RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128 1 5	.0 2.98	0.0	1 8.08	4.3	7 n/a	0.000	
	ADD [0122 + 0130]	0122 1	5.0	2.98	0.05	6.00	5.99 n,	′a 0.	0	*	ADD [0118 + 0128]	0120 3 5	.0 3.52	0.0	2 6.00	53	1 n/a	0.000	
J									1 1										

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CALIB STANDHYD 0131 1 5.0 0.08 0.01 6.00 26.09 0.65 0.000 [T%=63.0:S%= 2.00]	*
ADD [0120 + 0131] 0116 3 5.0 3.60 0.03 6.00 5.77 n/a 0.000	** SIMULATION NUMBER: 10 **
* SIMULATION NUMBER: 9 **	W/E COMMAND HYD ID DT AREA 'Qpeak Tpeak R.V. R.C. Qbase min ha ' cms hrs mm cms
*****	START @ 0.00 hrs
'E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase min ha ' cms hrs mm cms	READ STORM 15.0 [Ptot= 63.33 mm]
START 0 0.00 hrs	fname : C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\c9ee0843-f 4b3
READ STORM 15.0 [Ptot= 46.00 mm]	remark: 25-Year, 12 hour SCS Type II Storm Distribution, Custom Gaug
fname : C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\194ced42-6057- remark: 10-Year, 12 hour SCS Type II Storm Distribution, Custom Gaug	* CALIE STANDHYD 0114 1 5.0 0.20 0.01 6.00 21.66 0.34 0.000 [I%=20.0:S%= 3.60]
CALIB STANDHYD 0114 1 5.0 0.20 0.01 6.00 13.84 0.30 0.000	* CALLE STANDHYD 0123 1 5.0 0.34 0.02 6.00 19.56 0.31 0.000 [I%=15.0:S%= 2.00]
[1%=20.0:8%= 3.60] CALIE STANDHYD 0123 1 5.0 0.34 0.01 6.00 12.17 0.26 0.000	ADD [0114 + 0123] 0118 3 5.0 0.54 0.04 6.00 20.34 n/a 0.000
[I%=15.0:S%= 2.00]	* CALLE STANDHYD 0117 1 5.0 0.70 0.07 6.00 26.91 0.43 0.000 [1%=30.0:S%= 2.00]
ADD [0114 + 0123] 0118 3 5.0 0.54 0.02 6.00 12.79 n/a 0.000	* CALIE STANDHYD 0127 1 5.0 0.47 0.03 6.00 21.67 0.34 0.000
CALIB STANDHYD 0117 1 5.0 0.70 0.05 6.00 17.85 0.39 0.000 [I%=30.0:S%= 2.00]	[I%=20.0:S%= 3.60] *
CALIB STANDHYD 0127 1 5.0 0.47 0.02 6.00 13.86 0.30 0.000	ADD [0117 + 0127] 0115 3 5.0 1.17 0.10 6.00 24.81 n/a 0.000
	* CALIE STANDHYD 0125 1 5.0 0.71 0.05 6.00 20.50 0.32 0.000 [I%=18.0:S%= 2.00]
ADD [0117 + 0127] 0115 3 5.0 1.17 0.07 6.00 16.25 n/a 0.000 CALIE STANDHYD 0125 1 5.0 0.71 0.03 6.00 13.00 0.28 0.000	* CALIE STANDHYD 0126 1 5.0 0.47 0.03 6.00 21.67 0.34 0.000 [I%=20.0:S%= 3.60]
[I%=18.0:S%= 2.00]	* ADD [0125 + 0126] 0121 3 5.0 1.18 0.08 6.00 20.97 n/a 0.000
CALIB STANDHYD 0126 1 5.0 0.47 0.02 6.00 13.86 0.30 0.000 [1%=20.0:S%= 3.60]	* RESRVR [2 : 0121] 0119 1 5.0 1.18 0.00 8.08 16.21 n/a 0.000 (ST= 0.02 ha.m)
ADD [0125 + 0126] 0121 3 5.0 1.18 0.05 6.00 13.34 n/a 0.000	* CALIE STANDHYD 0124 1 5.0 0.44 0.03 6.00 21.67 0.34 0.000
RESRVR [2 : 0121] 0119 1 5.0 1.18 0.00 8.08 8.58 n/a 0.000 {ST= 0.01 ha.m }	[I%=20.0:S%= 2.00] *
CALIB STANDHYD 0124 1 5.0 0.44 0.02 6.00 13.86 0.30 0.000 [I%=20.0:8%= 2.00]	* CALIE STANDHYD 0129 1 5.0 0.19 0.01 6.00 21.64 0.34 0.000 [I%=20.0:S%= 3.60] *
CALIB STANDHYD 0129 1 5.0 0.19 0.01 6.00 13.82 0.30 0.000	ADD [0124 + 0129] 0130 3 5.0 0.63 0.05 6.00 21.66 n/a 0.000
[I%=20.0:S%= 3.60]	ADD [0115 + 0119] 0122 3 5.0 2.35 0.10 6.00 20.49 n/a 0.000
ADD [0124 + 0129] 0130 3 5.0 0.63 0.03 6.00 13.85 n/a 0.000	ADD [0122 + 0130] 0122 1 5.0 2.98 0.15 6.00 20.74 n/a 0.000
ADD [0115 + 0119] 0122 3 5.0 2.35 0.07 6.00 12.40 n/a 0.000	RESRVR [2 : 0122] 0128 1 5.0 2.98 0.05 6.17 14.87 n/a 0.000 (ST= 0.02 ha.m)
ADD [0122 + 0130] 0122 1 5.0 2.98 0.10 6.00 12.71 n/a 0.000	* ADD [0118 + 0128] 0120 3 5.0 3.52 0.07 6.17 15.71 n/a 0.000
RESRVR [2 : 0122] 0128 1 5.0 2.98 0.01 7.00 6.84 n/a 0.000 {ST= 0.02 ha.m }	* * CALIB STANDHYD 0131 1 5.0 0.08 0.01 6.00 43.01 0.68 0.000 [1%=63.0:s%= 2.00]
ADD [0118 + 0128] 0120 3 5.0 3.52 0.02 6.00 7.75 n/a 0.000	* * ADD [0120 + 0131] 0116 3 5.0 3.60 0.07 6.17 16.32 n/a 0.000
CALIE STANDHYD 0131 1 5.0 0.08 0.01 6.00 30.30 0.66 0.000 [I%=63.0:S%= 2.00]	ADD [0120 + 0131] 0116 3 5.0 3.60 0.07 c.17 16.32 n/a 0.000
ADD [0120 + 0131] 0116 3 5.0 3.60 0.03 6.00 8.25 n/a 0.000	** SIMULATION NUMBER: 11 ** ********************************

START @ 0.00 hrs HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase W/E COMMAND ha ' cms hrs READ STORM 15.0 min mm cms [Ptot= 89.58 mm] START @ 0.00 hrs fname : C:\Users\rrajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\2dbc5c14-1239-494 READ STORM 15.0 remark: 100-Year, 12 hour SCS Type II Storm Distribution, Custom Gau [Ptot= 76.58 mm] fname : C:\Users\rajachockalingam\AppData\Local\Temp\d329f9c9-d880-40f9-9f52-81db70dfb595\b5edcc6e-e601-4~9 CALIB STANDHYD 0114 1 5.0 0.20 0.03 6.00 35.40 0.40 0.000 remark: 50-Year, 12 hour SCS Type II Storm Distribution, Custom Gaug [I%=20.0:S%= 3.60] CALIB STANDHYD 0123 1 5.0 0.34 0.04 6.00 32.82 0.37 0.000 CALIB STANDHYD 0114 1 5.0 0.20 0.02 6.00 28.33 0.37 0.000 [I%=15.0:S%= 2.00] [I%=20.0:S%= 3.60] ADD [0114 + 0123] 0118 3 5.0 0.54 0.07 6.00 33.78 n/a 0.000 CALTE STANDHYD 0123 1 5.0 0.34 0.03 6.00 25.98 0.34 0.000 [I%=15.0:S%= 2.00] CALIB STANDHYD 0117 1 5.0 0.70 0.11 6.00 42.33 0.47 0.000 [I%=30.0:S%= 2.00] ADD [0114 + 0123] 0118 3 5.0 0.54 0.05 6.00 26.85 n/a 0.000 CALIB STANDHYD 0127 1 5.0 0.47 0.06 6.00 35.42 0.40 0.000 [I%=20.0:S%= 3.60] CALTE STANDHYD 0117 1 5.0 0.70 0.09 6.00 34.47 0.45 0.000 [I%=30.0:S%= 2.00] ADD [0117 + 0127] 0115 3 5.0 1.17 0.17 6.00 39.55 n/a 0.000 CALIB STANDHYD 0127 1 5.0 0.47 0.05 6.00 28.34 0.37 0.000 [I%=20.0:S%= 3.60] CALIB STANDHYD 0125 1 5.0 0.71 0.09 6.00 33.83 0.38 0.000 [I%=18.0:S%= 2.00] ADD [0117 + 0127] 0115 3 5.0 1.17 0.14 6.00 32.01 n/a 0.000 CALIB STANDHYD 0126 1 5.0 0.47 0.06 6.00 35.42 0.40 0.000 CALIB STANDHYD 0125 1 5.0 0.71 0.07 6.00 26.97 0.35 0.000 [T%=20.0:S%= 3.60] [I%=18.0:S%= 2.00] ADD [0125 + 0126] 0121 3 5.0 1.18 0.15 6.00 34.46 n/a 0.000 0.05 6.00 28.34 0.37 0.000 0126 1 5.0 CALIB STANDHYD 0.47 [I%=20.0:S%= 3.60] RESRVR [2 : 0121] 0119 1 5.0 1.18 0.01 8.17 29.71 n/a 0.000 {ST= 0.03 ha.m } ADD [0125 + 0126] 0121 3 5.0 1.18 0.11 6.00 27.52 n/a 0.000 CALIB STANDHYD 0124 1 5.0 0.44 0.06 6.00 35.42 0.40 0.000 RESRVR [2 : 0121] 0119 1 5.0 1.18 0.01 8.08 22.76 n/a 0.000 [1%=20.0:S%= 2.00] {ST= 0.02 ha.m } CALIB STANDHYD 0129 1 5.0 0.19 0.02 6.00 35.40 0.40 0.000 CALIB STANDHYD 0124 1 5.0 0.44 0.05 6.00 28.35 0.37 0.000 [I%=20.0:S%= 3.60] [I%=20.0:S%= 2.00] ADD [0124 + 0129] 0130 3 5.0 0.63 0.08 6.00 35.41 n/a 0.000 CALIB STANDHYD 0129 1 5.0 0.19 0.02 6.00 28.33 0.37 0.000 ADD [0115 + 0119] 0122 3 5.0 [I%=20.0:S%= 3.60] 2.35 0.17 6.00 34.61 n/a 0.000 0.06 6.00 28.34 n/a 0.000 ADD [0124 + 0129] 0130 3 5.0 ADD [0122 + 0130] 0122 1 5.0 0.63 2.98 0.26 6.00 34.78 n/a 0.000 ADD [0115 + 0119] 0122 3 5.0 2.35 0.14 6.00 27.37 n/a 0.000 RESRVR [2 : 0122] 0128 1 5.0 2.98 0.17 6.08 28.92 n/a 0.000 {ST= 0.03 ha.m } ADD [0122 + 0130] 0122 1 5.0 2.98 0.20 6.00 27.57 n/a 0.000 ADD [0118 + 0128] 0120 3 5.0 3.52 0.22 6.00 29.66 n/a 0.000 RESRVR [2 : 0122] 0128 1 5.0 2.98 0.12 6.08 21.71 n/a 0.000 CALIB STANDHYD 0131 1 5.0 0.08 0.02 6.00 63.11 0.70 0.000 (ST= 0.03 ha.m } [I%=63.0:S%= 2.00] ADD [0118 + 0128] 0120 3 5.0 3.52 0.15 6.08 22.50 n/a 0.000 ADD [0120 + 0131] 0116 3 5.0 3.60 0.24 6.00 30.40 n/a 0.000 CALIB STANDHYD 0131 1 5.0 0.08 0.02 6.00 53.04 0.69 0.000 [I%=63.0:S%= 2.00] **** ** SIMULATION NUMBER: 13 ** ADD [0120 + 0131] 0116 3 5.0 3.60 0.15 6.00 23.17 n/a 0.000 ******* ***** HYD ID DT AREA 'Qpeak Tpeak R.V. R.C. Qbase min ha 'cms hrs mm cms W/E COMMAND ** SIMULATION NUMBER: 12 ** ***** START @ 0.00 hrs W/E COMMAND HYD ID DT AREA ' Qpeak Tpeak R.V. R.C. Qbase READ STORM 15.0 min ha cms hrs mm [Ptot= 29.58 mm] 2020-06-09 11:47:29 AM 10122_V03 Summary Output - All Storms (Proposed).txt 2020-06-09 11:47:29 AM 10122_V03 Summary Output - All Storms (Proposed).txt

11/23

									13/23									:
	name : C:\Users\rr	ajachocka	lingam\	AppData	\Local\Te	emp\d32	29f9c9-d880	-40f9-9f52-81db70dfb595	\81e6de29-b061-	*								
b re	emark: 2-Year, 24 1	nour SCS	Type II	Storm	Distribut	ion, (Custom Gaug	e			CALIB STANDHYD [1%=20.0:S%= 3.60]	0114	1 5.0	0.20	0.01 12.00	11.50 0.29	0.000	
	ALIB STANDHYD 1%=20.0:S%= 3.60]	0114 1	5.0	0.20	0.00 12.	.00 (6.46 0.22	0.000		*	CALIB STANDHYD [1%=15.0:S%= 2.00]	0123	1 5.0	0.34	0.01 12.00	9.98 0.25	0.000	
	ALIB STANDHYD 1%=15.0:S%= 2.00]	0123 1	5.0	0.34	0.01 12.	.00 (6.40 0.22	0.000		*	ADD [0114 + 0123] CALIB STANDHYD		3 5.0 1 5.0	0.54		10.55 n/a 15.06 0.37		
	DD [0114 + 0123]	0118 3	5.0	0.54	0.01 12.	.00 (6.42 n/a	0.000		*	[I%=30.0:S%= 2.00]							
	ALIB STANDHYD 1%=30.0:S%= 2.00]	0117 1	5.0	0.70	0.02 12.	00 10	0.26 0.35	0.000		*	[1%=20.0:5%= 3.60]		1 5.0		0.01 12.00	11.51 0.29	0.000	
	ALIB STANDHYD 1%=20.0:S%= 3.60]	0127 1	5.0	0.47	0.01 12.	.00 -	7.58 0.26	0.000		*	ADD [0117 + 0127] CALIB STANDHYD		3 5.0 1 5.0			13.64 n/a 10.76 0.27		
	DD [0117 + 0127]	0115 3	5.0	1.17	0.03 12.	.00 9	9.18 n/a	0.000		*	[I%=18.0:S%= 2.00]							
	ALIB STANDHYD 1%=18.0:S%= 2.00]	0125 1	5.0	0.71	0.01 12.	00 '	7.03 0.24	0.000			CALIB STANDHYD [1%=20.0:S%= 3.60]	0126	1 5.0	0.47	0.01 12.00	11.51 0.29	0.000	
CF	ALIB STANDHYD	0126 1	5.0	0.47	0.01 12.	.00 -	7.58 0.26	0.000		*	ADD [0125 + 0126]					11.06 n/a		
	I%=20.0:S%= 3.60] DD [0125 + 0126]	0121 3	5.0	1.18	0.02 12.	.00 ,	7.25 n/a	0.000			RESRVR [2 : 0121] {ST= 0.01 ha.m }	0119	1 5.0	1.18	0.00 14.42	6.30 n/a	0.000	
	ESRVR [2 : 0121] ST= 0.01 ha.m }	0119 1	5.0	1.18	0.00 16.	42 2	2.49 n/a	0.000			CALIB STANDHYD [1%=20.0:S%= 2.00]	0124	1 5.0	0.44	0.01 12.00	11.52 0.29	0.000	
CF	ALIB STANDHYD 1%=20.0:S%= 2.00]	0124 1	5.0	0.44	0.01 12.	.00	7.59 0.26	0.000			CALIB STANDHYD [I%=20.0:S%= 3.60]	0129	1 5.0	0.19	0.01 12.00	11.50 0.29	0.000	
CF	ALIB STANDHYD	0129 1	5.0	0.19	0.00 12.	.00 (6.43 0.22	0.000		*	ADD [0124 + 0129]					11.51 n/a		
	I%=20.0:S%= 3.60] DD [0124 + 0129]	1130 3	5.0	0.63	0 01 12	00 '	7.24 n/a	0.000		*	ADD [0115 + 0119] ADD [0122 + 0130]			2.35		9.95 n/a 10.28 n/a		
	DD [0115 + 0119]			2.35				0.000		*	RESRVR [2 : 0122]					4.42 n/a		
AI	DD [0122 + 0130]	0122 1	5.0	2.98	0.04 12.	.00 (6.12 n/a	0.000		*	{ST= 0.02 ha.m } ADD [0118 + 0128]	0120	2 5 0	2 52	0 02 12 00	5.36 n/a	0.000	
	ESRVR [2 : 0122] ST= 0.02 ha.m }	0128 1	5.0	2.98	0.00 29.	.58 (0.26 n/a	0.000		*	CALIB STANDHYD		1 5.0			24.76 0.62		
AI	DD [0118 + 0128]	0120 3	5.0	3.52	0.01 12.	.00	1.21 n/a	0.000		*	[I%=63.0:S%= 2.00]							
	ALIB STANDHYD I%=63.0:S%= 2.00]	0131 1	5.0	0.08	0.00 12.	.00 14	6.28 0.55	0.000		*	ADD [0120 + 0131]	*****	3 5.0	3.60	0.02 12.00	5.79 n/a	0.000	
AI	DD [0120 + 0131]	0116 3	5.0	3.60	0.01 12.	00 3	1.54 n/a	0.000			IMULATION NUMBER:							
* SIN	**************************************	14 **								W/E	COMMAND	HYD I	D DT min		Qpeak Tpea cms hrs		. Qbase cms	
	ommand	HYD ID	ידים	ARFA '	Oneak Tr	heak	R.V. R.C.	Obase			START @ 0.00 hrs							
	TART @ 0.00 hrs			ha '	cms h	irs	mm	cms			READ STORM [Ptot= 46.40 mm] fname : C:\Users\ry	raiachc	15.0 ckaling	am\AppDat	a\Local\Temp	\d329f9c9_d8	80-40f9-9f52-81db'	70dfb595\a9e5bc93-00
	EAD STORM		5.0							444	remark: 10-Year, 24		-					
[fr	Ptot= 40.23 mm]			AppData	\Local\Te	emp\d32	29f9c9-d880	-40f9-9f52-81db70dfb595	\05f9ce32-e231-	*								
re	emark: 5-Year, 24 1	nour SCS	Type II	Storm	Distribut	ion, (Custom Gauç	e			CALIB STANDHYD [1%=20.0:S%= 3.60]	0114	1 5.0	0.20	0.01 12.00	14.00 0.30	0.000	
20-06-	-09 11:47:29 AM					10)122_V03 Su	nmary Output - All Stor	ns (Proposed).txt	2020-0	06-09 11:47:29 AM					10122_V03 :	ummary Output - A	11 Storms (Proposed)

										1
	CALIB STANDHYD [1%=15.0:s%= 2.00]	0123	1	5.0	0.34	0.01 1	L2.00	12.33	0.27	0.000
	ADD [0114 + 0123]	0118	3	5.0	0.54	0.02 1	12.00	12.95	n/a	0.000
	CALIB STANDHYD [1%=30.0:S%= 2.00]	0117	1	5.0	0.70	0.04 1	12.00	18.05	0.39	0.000
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0127	1	5.0	0.47	0.02	L2.00	14.02	0.30	0.000
	ADD [0117 + 0127]	0115	3	5.0	1.17	0.05 1	L2.00	16.43	n/a	0.000
	CALIB STANDHYD [I%=18.0:S%= 2.00]	0125	1	5.0	0.71	0.02 1	L2.00	13.16	0.28	0.000
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0126	1	5.0	0.47	0.02 1	.2.00	14.02	0.30	0.000
	ADD [0125 + 0126]	0121	3	5.0	1.18	0.04 1	L2.00	13.50	n/a	0.000
	RESRVR [2 : 0121] {ST= 0.01 ha.m }	0119	1	5.0	1.18	0.00 1	.4.25	8.74	n/a	0.000
	CALIB STANDHYD [1%=20.0:S%= 2.00]	0124	1	5.0	0.44	0.02 1	.2.00	14.03	0.30	0.000
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0129	1	5.0	0.19	0.01 1	.2.00	14.00	0.30	0.000
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.03 1	L2.00	14.02	n/a	0.000
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.05 1	L2.00	12.57	n/a	0.000
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.08 1	L2.00	12.88	n/a	0.000
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.01 1	.4.08	7.01	n/a	0.000
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.02 1	L2.00	7.92	n/a	0.000
	CALIB STANDHYD [I%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.01 1	12.00	28.87	0.62	0.000
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.03 1	L2.00	8.39	n/a	0.000
- 2	TMULATION NUMBER:	16 **								
Έ	COMMAND	HYD	ID	DT min	AREA ha	Qpeak cms	Tpeak hrs	R.V. mm	R.C.	Qbase cms
	START @ 0.00 hrs									
	READ STORM [Ptot= 64.07 mm]			15.0) Dee Data	.).T.===1)	(II)	122040-	-0 -1000	4050 DEE2 014570485505162716-00 -15
	remark: 25-Year, 2									−40f9−9f52−81db70dfb595\6371fa88−a15 g
	CALIB STANDHYD [I%=20.0:S%= 3.60]	0114	1	5.0	0.20	0.01 1	L2.00	22.01	0.34	0.000
	CALIB STANDHYD [I%=15.0:S%= 2.00]	0123	1	5.0	0.34	0.02	L2.00	19.90	0.31	0.000

	CALIB STANDHYD [1%=30.0:S%= 2.00]	0117	1	5.0	0.70	0.06 12.00	27.33	0.43	0.000
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0127	1	5.0	0.47	0.03 12.00	22.03	0.34	0.000
	ADD [0117 + 0127]	0115	3	5.0	1.17	0.09 12.00	25.20	n/a	0.000
	CALIB STANDHYD [I%=18.0:S%= 2.00]	0125	1	5.0	0.71	0.04 12.00	20.86	0.33	0.000
	CALIB STANDHYD [I%=20.0:S%= 3.60]	0126	1	5.0	0.47	0.03 12.00	22.03	0.34	0.000
	ADD [0125 + 0126]	0121	3	5.0	1.18	0.07 12.00	21.32	n/a	0.000
	RESRVR [2 : 0121] {ST= 0.02 ha.m }	0119	1	5.0	1.18	0.00 14.17	16.57	n/a	0.000
	CALIB STANDHYD [I%=20.0:S%= 2.00]	0124	1	5.0	0.44	0.03 12.00	22.03	0.34	0.000
	CALIB STANDHYD [1%=20.0:S%= 3.60]	0129	1	5.0	0.19	0.01 12.00	22.01	0.34	0.000
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.04 12.00	22.03	n/a	0.000
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.09 12.00	20.86	n/a	0.000
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.13 12.00	21.11	n/a	0.000
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.04 12.25	15.24	n/a	0.000
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.05 12.17	16.08	n/a	0.000
	CALIB STANDHYD [I%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.01 12.00	43.57	0.68	0.000
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.05 12.17	16.69	n/a	0.000
	ADD [0120 + 0131]	***** 17 *	*	5.0	3.60	0.05 12.17	16.69	n/a	0.000
- ; c*:	**************************************	***** 17 * ****	* *	5.0 DT min	AREA '	0.05 12.17 Qpeak Tpeak cms hrs	R.V.		0.000 Qbase cms
- ; c*:	SIMULATION NUMBER: COMMAND	***** 17 * ***** HYD	* *	DT	AREA '	Qpeak Tpeak	R.V.		Çbase
*	COMMAND START @ 0.00 hrs READ STORM (Ptot= 7.75 mm)	***** 17 * ***** HYD	* * ID	DT min 15.0	AREA ' ha '	Qpeak Tpeak cms hrs	R.V. mm	R.C.	Çbase cms
*	COMMAND START @ 0.00 hrs READ STORM (Ptot= 7.75 mm)	***** 17 * ***** HYD rajacl	* * ID	DT min 15.0 alingan	AREA ' ha '	Qpeak Tpeak cms hrs NLocal\Temp\	: R.V. mm d329f9c	R.C. 9-d880	Qbase cms -40f9-9f52-81db70dfb595\c3afdc7c-c3
*	COMMAND START @ 0.00 hrs READ STORM [Ptot= 77.75 mm] fname : C:\Users\r	***** 17 * ***** HYD rajacl	* * ID hock	DT min 15.0 alingan S Type	AREA ' ha '	Qpeak Tpeak cms hrs NLocal\Temp\	: R.V. mm d329f9c n, Cust	R.C. 9-d880 om Gau	Qbase cms -40f9-9f52-81db70dfb595\c3afdc7c-c3
*	COMMAND START @ 0.00 hrs READ STORM [Ptot= 77.75 mm] fname : C:\Users\r remark: 50-Year, 2 CALIE STANDHYD	***** 17 * ***** HYD rajacl 4 hou.	* * ID hock r SC	DT min 15.0 alingan S Type 5.0	AREA ' ha ' NAppData II Storm	Opeak Tpeak cms hrs AlLocal\Temp\ a Distributic	: R.V. mm d329f9c n, Cust 28.95	R.C. 9-d880 om Gau 0.37	Cbase cms -40f9-9f52-81db70dfb595\c3afdc7c-c33 g
*	COMMAND START @ 0.00 hrs READ STORM [Ptot= 77.75 mm] fname : C:\Users\r remark: 50-Year, 2 CALLE STANDHYD [I%=20.0:S%= 3.60] CALLE STANDHYD	****** 17 * ***** HYD rajacl 4 hou. 0114 0123	* * ID hock r SC 1 1	DT min 15.0 alingan S Type 5.0 5.0	AREA ' ha ' n\AppData II Storm 0.20	Qpeak Tpeak cms hrs AllocallTempl n Distributic 0.02 12.00	: R.V. mm d329f9c n, Cust 28.95 26.58	R.C. 9-d880 om Gau 0.37 0.34	Qbase cms -40f9-9f52-81db70dfb595\c3afdc7c-c33 g 0.000

					17/23							
	1 5.0	0.47	0.04 12.00	28.97 0.37	0.000	*	STANDUYD (125 1 5 0	0.71	0 07 12 00	34 76 0 38	0.000
	3 5.0	1.17	0.11 12.00	32.67 n/a	0.000			120 1 0.0	0.71	0.07 12.00	51.70 0.50	
0125 OHYD						* CALIB [I%=2	8 STANDHYD (20.0:S%= 3.60]	126 1 5.0	0.47	0.05 12.00	36.37 0.40	0.000
			0 04 30 00	~ ~ ~ ~ ~ ~		* ADD [0125 + 0126] 0	121 3 5.0	1.18	0.12 12.00	35.40 n/a	0.000
	1 5.0	0.4/	0.04 12.00	28.97 0.37	0.000			119 1 5.0	1.18	0.01 14.17	30.65 n/a	0.000
0126] 0121	3 5.0	1.18	0.10 12.00	28.12 n/a	0.000	*		124 1 5.0	0.44	0.05 12.00	36.37 0.40	0.000
	1 5.0	1.18	0.01 14.17	23.37 n/a	0.000	(I%=2	20.0:5%= 2.00]					
	1 5.0	0.44	0.04 12.00	28.97 0.37	0.000			129 1 5.0	0.19	0.02 12.00	36.35 0.40	0.000
	1 5 0	0.19	0 02 12 00	29 65 0 27	0.000	ADD [0124 + 0129] 0	130 3 5.0	0.63	0.07 12.00	36.37 n/a	0.000
	1 5.0	0.19	0.02 12.00	20.95 0.57	0.000	ADD [0115 + 0119] 0	122 3 5.0	2.35	0.15 12.00	35.59 n/a	0.000
0129] 0130	3 5.0	0.63	0.05 12.00	28.96 n/a	0.000	ADD [0122 + 0130] 0	122 1 5.0	2.98	0.22 12.00	35.75 n/a	0.000
0119] 0122	3 5.0	2.35	0.12 12.00	28.00 n/a	0.000			128 1 5.0	2.98	0.15 12.08	29.89 n/a	0.000
- 0130] 0122	1 5.0	2.98	0.17 12.00	28.20 n/a	0.000	* ADD [0118 + 0128] (120 3 5.0	3.52	0.20 12.00	30.63 n/a	0.000
	1 5.0	2.98	0.10 12.08	22.34 n/a	0.000			131 1 5.0	0.08	0.02 12.00	64.44 0.71	0.000
0128] 0120	3 5.0	3.52	0.12 12.08	23.12 n/a	0.000	*		116 0 5 0	2 60	0 01 10 00	21 20	0.000
	1 5.0	0.08	0.01 12.00	53.94 0.69	0.000	*			3.60	0.21 12.00	31.38 n/a	0.000
	3 5.0	3.60	0.13 12.00	23.81 n/a	0.000							
						W/E COMMA	AND					Qbase
						Carba	. 0 00 hre	min	na	cms nrs	mm	CMS
HYD I	D DT min			R.V. R.C. mm	Qbase cms	CHIC	STORM	10.0				
						*		0114 1 5 0	0.20	0 01 1 33	7 04 0 25	0 000
28 mm]	15.0								0.20	0.01 1.00		
								0123 1 5.0	0.34	0.01 1.33	5.96 0.21	0.000
)-Year, 24 hour	SCS Typ	e II Sto	m Distributio	n, Custom Ga	1	* ADD [0114 + 0123] 0	118 3 5.0	0.54	0.02 1.33	6.36 n/a	0.000
								117 1 5.0	0.70	0.05 1.33	9.64 0.34	0.000
0114 0114 = 3.60]	1 5.0	0.20	0.02 12.00	36.35 0.40	0.000		30.0:S%= 2.00]					
3.60]	1 5.0 1 5.0		0.02 12.00			* CALIB		127 1 5.0	0.47	0.02 1.33	7.09 0.25	0.000
= 3.60] DHYD 0123	1 5.0	0.34		33.76 0.37		* CALIB [I%=2	B STANDHYD (0.02 1.33		0.000
S= 3.60] DHYD 0123 S= 2.00]	1 5.0 3 5.0	0.34 0.54	0.04 12.00	33.76 0.37 34.72 n/a	0.000	* CALIB [1%=2 * ADD [* CALIB	8 STANDHYD (0 20.0:S%= 3.60] 20117 + 0127] (0		1.17	0.07 1.33		0.000
 3.60] 0123 0123 0123 0123 0118 0HYD 0117 	1 5.0 3 5.0 1 5.0	0.34 0.54 0.70	0.04 12.00 0.06 12.00	33.76 0.37 34.72 n/a 43.39 0.48	0.000 0.000	* CALIE (I%=2 * ADD (* CALIE (I%=1 * CALIE	8 STANDHYD (20.0:S%= 3.60) 20.0:S%= 3.60] 20117 + 0127] (0 8 STANDHYD (0 88.0:S%= 2.00]	0115 3 5.0	1.17 0.71	0.07 1.33	8.62 n/a 6.56 0.23	0.000
	<pre>%= 3.60] + 0127] 0115 DHYD 0125 %= 2.00] OHYD 0126 %= 3.60] + 0126] 0121 : 0121] 0119 ha.m } DHYD 0124 %= 2.00] OHYD 0129 * 0129] 0130 + 0129] 0130 + 0129] 0130 + 0129] 0122 : 0122] 0128 ha.m } + 0128] 0120 OHYD 0131 %= 2.00] + 0131] 0116 ***********************************</pre>	<pre>%= 3.60] + 0127] 0115 3 5.0 DHYD 0125 1 5.0 %= 2.00] 0125 1 5.0 %= 3.60] 0126 1 5.0 .: 0121] 0119 1 5.0 %= 2.00] 0124 1 5.0 %= 2.00] 0124 1 5.0 %= 2.00] 0129 1 5.0 %+ 0129] 0130 3 5.0 + 0129] 0130 3 5.0 + 0130] 0122 1 5.0 %= 10120] 0120 3 5.0 H 0131] 0120 3 5.0 H 0131] 0120 3 5.0 H 0131] 0116 3 5.0 HYD ID DT min .00 hrs .28 mm] VUSers\rrajachockalingan </pre>	h= 3.60] + 0127] 0115 3 5.0 1.17 DHYD 0125 1 5.0 0.71 b= 2.00] 0125 1 5.0 0.71 bHYD 0126 1 5.0 0.47 h= 3.60] 0121 3 5.0 1.18 : 0121] 0119 1 5.0 0.44 *: 0121] 0124 1 5.0 0.44 b= 2.00] 0124 1 5.0 0.44 b= 2.00] 0129 1 5.0 0.44 b= 3.60] 0129 1 5.0 0.44 b= 3.60] 0122 3 5.0 2.35 + 0130] 0122 1 5.0 2.98 : 0122] 0120 3 5.0 3.60 : 0123] 0120 3 5.0 3.60 : 0121] 0116 3 5.0 3.60 : 0131] 0116 3 5.0 3.60 : 0131] 0116 5.0 3.60	<pre>%= 3.60] + 0127] 0115 3 5.0 1.17 0.11 12.00 DHYD 0125 1 5.0 0.71 0.06 12.00 %= 2.00] 0126 1 5.0 0.47 0.04 12.00 %= 3.60] 0121 3 5.0 1.18 0.10 12.00 : 0121] 0119 1 5.0 1.18 0.01 14.17 ha.m } DHYD 0124 1 5.0 0.44 0.04 12.00 %= 2.00] 0129 1 5.0 0.19 0.02 12.00 + 0129] 0130 3 5.0 0.63 0.05 12.00 + 0119] 0122 3 5.0 2.35 0.12 12.00 + 0130] 0122 1 5.0 2.98 0.10 12.00 + 0130] 0122 1 5.0 2.98 0.10 12.08 ha.m } + 0128] 0120 3 5.0 3.52 0.12 12.00 + 0131] 0116 3 5.0 3.60 0.13 12.00 ***********************************</pre>	<pre>%= 3.60] + 0127] 0115 3 5.0 1.17 0.11 12.00 32.67 n/a DHYD 0125 1 5.0 0.71 0.06 12.00 27.57 0.35 %= 2.00] 0126 1 5.0 0.47 0.04 12.00 28.97 0.37 %= 3.60] + 0126] 0121 3 5.0 1.18 0.10 12.00 28.12 n/a i: 0121] 0119 1 5.0 1.18 0.01 14.17 23.37 n/a ha.m } DHYD 0124 1 5.0 0.44 0.04 12.00 28.97 0.37 %= 2.00] DHYD 0129 1 5.0 0.19 0.02 12.00 28.95 0.37 %= 3.60] 0129 1 5.0 0.19 0.02 12.00 28.96 n/a + 0129] 0130 3 5.0 0.63 0.05 12.00 28.96 n/a + 0119] 0122 3 5.0 2.35 0.12 12.00 28.00 n/a + 0130] 0122 1 5.0 2.98 0.17 12.00 28.20 n/a : 0122] 0128 1 5.0 2.98 0.10 12.08 22.34 n/a ha.m } + 0128] 0120 3 5.0 3.52 0.12 12.00 23.91 n/a : 0122] 0128 1 5.0 2.98 0.10 12.08 23.12 n/a ha.m } + 0131] 0116 3 5.0 3.60 0.13 12.00 23.81 n/a ha.m } + 0131] 0116 3 5.0 3.60 0.13 12.00 23.81 n/a ************************************</pre>	DHYD 0127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0127 0115 3 5.0 1.17 0.11 12.00 32.67 n/a 0.000 DHYD 0125 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 = 2.001 0125 1 5.0 0.47 0.04 12.00 28.12 n/a 0.000 + 0126 0121 3 5.0 1.18 0.10 12.00 28.12 n/a 0.000 + 0126 0121 3 5.0 1.18 0.01 14.17 23.37 n/a 0.000 = 2.001 0124 1 5.0 0.44 0.04 12.00 28.97 0.37 0.000 = 2.001 0124 1 5.0 0.44 0.04 12.00 28.95 0.37 0.000 = 3.601 0129 1 5.0 0.19 0.02 12.00 28.95 0.37 0.000 = 3.601 0129 1 5.0 0.19 0.02 12.00 28.95 0.37 0.000 = 4.0129 0130 3 5.0 0.63 0.05 12.00 28.96 n/a 0.000 + 0129 0130 3 5.0 0.63 0.05 12.00 28.96 n/a 0.000 + 0129 0120 3 5.0 2.35 0.12 12.00 28.00 n/a 0.000 + 0130 0122 1 5.0 2.98 0.17 12.00 28.12 n/a 0.000 + 0130 0122 1 5.0 3.60 0.13 12.00 28.12 n/a 0.000 + 0131 0116 3 5.0 3.60 0.13 12.00 23.81 n/a 0.000 + 0131 0116 3 5.0 3.60 0.13 12.00 23.81 n/a 0.000 + 0131 0116 3 5.0 3.60 0.13 12.00 23.81 n/a 0.000 + 0131 0116 3 5.0 3.60 0.13 12.00 23.81 n/a 0.000 + 0131 0116 3 5.0 3.60 0.13 12.00 23.81 n/a 0.000 + 0131 0116 3 5.0 3.60 0.13 12.00 23.81 n/a 0.000 + 0131 0116 3 5.0 3.60 0.01 12.00 53.94 0.69 0.000 = 2.000 = 2.000 0121 1 5.0 0.088 0.01 12.00 23.81 n/a 0.000 = 2.000 0121 1 5.0 0.088 0.01 12.00 23.81 n/a 0.000 = 0122 102 3 5.0 0.008 0.01 12.00 23.81 n/a 0.000 = 0123 012 0 0 0.08 0.01 0.00 0.000 = 0123 012 0 0 0.08 0.01 0.00 0.000 = 0120 012 0 0 0.08 0.01 0.00 0.000 = 0120 012 0 0.00 0.008 0.01 0.00 0.000 = 0101 0.00 0.008 0.01 0.000 0.000 = 0101 0.000 0.000 0.008 0.01 0.000 0.000 = 0101 0.000 0.000 0.000 0.000 0.000 0.000 = 0101 0.000 0.000 0.000 0.000 0.000 0.000 0.000 = 0100 0.000 0.000 0.000 0.000 0.0000 0.000 0.000 0.0	DHYD 0.127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0.127 1 5.0 0.17 0.11 12.00 32.67 n/a 0.000 DHYD 0125 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 is 3.60] 0126 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 is 3.60] 0126 1 5.0 0.44 0.04 12.00 28.12 n/a 0.000 is 3.60] 0126 1 5.0 0.44 0.04 12.00 28.97 0.37 0.000 is 2.00] 0124 1 5.0 0.14 0.04 12.00 28.97 0.37 0.000 is 2.00] 0129 1 5.0 0.19 0.02 12.00 28.97 0.37 0.000 is 2.00] 0120 1 5.0 0.19 0.02 12.00 28.97 0.37 0.000 is 2.00] 0.120 <td>HYD 0127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0127 0115 3 5.0 1.17 0.11 12.00 32.67 n/a 0.000 HYD 0125 1 5.0 0.71 0.06 12.00 27.37 0.35 0.000 HYD 0126 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0126 0121 3 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0126 0121 3 5.0 0.44 0.01 14.17 23.37 n/a 0.000 + 0129 0130 5.0 0.18 0.01 2.001 0.02 1.18 0.000 + 0130 0122 1 5.0 0.19 0.02 12.00 28.96 n/a 0.000 + 0130 0122 1 5.0 0.29 0.117 12.00 28.96 n/a 0.000 + 0130 0122 1 5.0<td>NHTD 0127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 0127 0115 3 5.0 1.17 0.11 12.00 27.57 0.35 0.000 0125 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 DHTD 0126 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 Store 0.126 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 Store 0.126 1 5.0 0.44 0.014.17 23.37 n/a 0.000 Store 0.124 1 5.0 0.44 0.04 12.00 28.95 0.37 0.000 Store 0.126 1 5.0 0.44 0.04 2.00 0.000 0.000 0.0115 0.012 1.0 Store 0.120 1.5 0.12 1.2.00 28.96 0.000 0.011 1.0 0.000 0.011 1.0 0.000</td><td>AND 0127 1 5.0 0.47 0.04 12.00 20.97 0.37 0.000 A (22) 0115 3 5.0 1.17 0.11 12.0 22.67 n/a 0.000 A (22) 0125 1 5.0 0.47 0.041 20.00 25.0 1 5.0 0.47 A (22) 0126 1 5.0 0.47 0.041 20.00 25.0 1 5.0 0.47 A (22) 0121 5 0.47 0.041 20.00 25.1 1 5.0 0.47 A (22) 0121 5 0.47 0.401 0.00 20.00 <</td><td>NHTD 0127 1 0.0 0.447 0.0412.00 28.97 0.37 0.000 - 0121 0125 1 0.0 0.11 0.001 2.00 0.071 0.061 0.071</td><td>NYD 0127 1 5.0 0.47 0.44 20.97 0.37 0.000 + 0.27 1 5.0 0.17 0.11 2.0 21.7 0.000 + 0.27 0.125 1 5.0 0.17 0.11 2.0 21.7 0.10 21.0 2.0.7 0.000 NOTD 0.125 1 5.0 0.47 0.44 2.0.00 0.000 0.000 11.1 0.000 11.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.000 1.11 0.000 0.000 0.000 0.000 0.014 1.0 0.012 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0</td></td>	HYD 0127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0127 0115 3 5.0 1.17 0.11 12.00 32.67 n/a 0.000 HYD 0125 1 5.0 0.71 0.06 12.00 27.37 0.35 0.000 HYD 0126 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0126 0121 3 5.0 0.47 0.04 12.00 28.97 0.37 0.000 + 0126 0121 3 5.0 0.44 0.01 14.17 23.37 n/a 0.000 + 0129 0130 5.0 0.18 0.01 2.001 0.02 1.18 0.000 + 0130 0122 1 5.0 0.19 0.02 12.00 28.96 n/a 0.000 + 0130 0122 1 5.0 0.29 0.117 12.00 28.96 n/a 0.000 + 0130 0122 1 5.0 <td>NHTD 0127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 0127 0115 3 5.0 1.17 0.11 12.00 27.57 0.35 0.000 0125 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 DHTD 0126 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 Store 0.126 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 Store 0.126 1 5.0 0.44 0.014.17 23.37 n/a 0.000 Store 0.124 1 5.0 0.44 0.04 12.00 28.95 0.37 0.000 Store 0.126 1 5.0 0.44 0.04 2.00 0.000 0.000 0.0115 0.012 1.0 Store 0.120 1.5 0.12 1.2.00 28.96 0.000 0.011 1.0 0.000 0.011 1.0 0.000</td> <td>AND 0127 1 5.0 0.47 0.04 12.00 20.97 0.37 0.000 A (22) 0115 3 5.0 1.17 0.11 12.0 22.67 n/a 0.000 A (22) 0125 1 5.0 0.47 0.041 20.00 25.0 1 5.0 0.47 A (22) 0126 1 5.0 0.47 0.041 20.00 25.0 1 5.0 0.47 A (22) 0121 5 0.47 0.041 20.00 25.1 1 5.0 0.47 A (22) 0121 5 0.47 0.401 0.00 20.00 <</td> <td>NHTD 0127 1 0.0 0.447 0.0412.00 28.97 0.37 0.000 - 0121 0125 1 0.0 0.11 0.001 2.00 0.071 0.061 0.071</td> <td>NYD 0127 1 5.0 0.47 0.44 20.97 0.37 0.000 + 0.27 1 5.0 0.17 0.11 2.0 21.7 0.000 + 0.27 0.125 1 5.0 0.17 0.11 2.0 21.7 0.10 21.0 2.0.7 0.000 NOTD 0.125 1 5.0 0.47 0.44 2.0.00 0.000 0.000 11.1 0.000 11.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.000 1.11 0.000 0.000 0.000 0.000 0.014 1.0 0.012 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0</td>	NHTD 0127 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 0127 0115 3 5.0 1.17 0.11 12.00 27.57 0.35 0.000 0125 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 DHTD 0126 1 5.0 0.71 0.06 12.00 27.57 0.35 0.000 Store 0.126 1 5.0 0.47 0.04 12.00 28.97 0.37 0.000 Store 0.126 1 5.0 0.44 0.014.17 23.37 n/a 0.000 Store 0.124 1 5.0 0.44 0.04 12.00 28.95 0.37 0.000 Store 0.126 1 5.0 0.44 0.04 2.00 0.000 0.000 0.0115 0.012 1.0 Store 0.120 1.5 0.12 1.2.00 28.96 0.000 0.011 1.0 0.000 0.011 1.0 0.000	AND 0127 1 5.0 0.47 0.04 12.00 20.97 0.37 0.000 A (22) 0115 3 5.0 1.17 0.11 12.0 22.67 n/a 0.000 A (22) 0125 1 5.0 0.47 0.041 20.00 25.0 1 5.0 0.47 A (22) 0126 1 5.0 0.47 0.041 20.00 25.0 1 5.0 0.47 A (22) 0121 5 0.47 0.041 20.00 25.1 1 5.0 0.47 A (22) 0121 5 0.47 0.401 0.00 20.00 <	NHTD 0127 1 0.0 0.447 0.0412.00 28.97 0.37 0.000 - 0121 0125 1 0.0 0.11 0.001 2.00 0.071 0.061 0.071	NYD 0127 1 5.0 0.47 0.44 20.97 0.37 0.000 + 0.27 1 5.0 0.17 0.11 2.0 21.7 0.000 + 0.27 0.125 1 5.0 0.17 0.11 2.0 21.7 0.10 21.0 2.0.7 0.000 NOTD 0.125 1 5.0 0.47 0.44 2.0.00 0.000 0.000 11.1 0.000 11.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.12 1.0 0.000 1.11 0.000 0.000 0.000 0.000 0.014 1.0 0.012 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0 0.02 1.0

	RESRVR [2 : 0121] {ST= 0.01 ha.m }	0119	1	5.0	1.18	0.00	3.17	2.02 n/	a 0.000	
k	CALIB STANDHYD [1%=20.0:5%= 2.00]	0124	1	5.0	0.44	0.02	1.33	7.10 0.2	5 0.000	
*	CALIB STANDHYD [1%=20.0:S%= 3.60]	0129	1	5.0	0.19	0.01	1.33	7.02 0.2	5 0.000	
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.03	1.33	7.07 n/	a 0.000	
	ADD [0115 + 0119]	0122	з	5.0	2.35	0.07	1.33	5.30 n/	a 0.000	
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.10	1.33	5.68 n/	a 0.000	
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.00	13.50	0.13 n/	a 0.000	
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.02	1.33	1.09 n/	a 0.000	
*	CALIB STANDHYD [1%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.01	1.33	17.47 0.6	0.000	
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.03	1.33	1.45 n/	a 0.000	
** :	**************************************	20 **	r.							
W/E	COMMAND	HYD	ID	DT min	AREA ha	' Qpeak ' cms	Tpeak hrs	R.V.R. mm	C. Qbase cms	
	START @ 0.00 hrs									
	CHIC STORM [Ptot= 38.49 mm]			10.0						
*	[Ptot= 38.49 mm]	0114			0.20	0.01	1.33	10.83 0.2	.8 0.000	
*	[Ptot= 38.49 mm] CALIB STANDHYD		1	5.0	0.20		1.33 1.33	10.83 0.2 9.37 0.2		
*	[Ptot= 38.49 mm] CALIB STANDHYD [1%=20.0:5%= 3.60] CALIB STANDHYD	0114 0123	1	5.0 5.0			1.33		.4 0.000	
* *	[Ptot= 38.49 mm] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00]	0114 0123	1 1 3	5.0 5.0 5.0	0.34	0.02	1.33 1.33	9.37 0.2	:4 0.000 'a 0.000	
* * *	[Ptot= 38.49 mm] CALIB STANDHYD [I%=20.0:S%= 3.60] CALIB STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIB STANDHYD	0114 0123 0118	1 1 3 1	5.0 5.0 5.0 5.0	0.34 0.54	0.02 0.03 0.06	1.33 1.33 1.33	9.37 0.2 9.91 n/	4 0.000 a 0.000 17 0.000	
* * *	<pre>[Ptot= 38.49 mm] CALIE STANDHYD [I%=20.0:5%= 3.60] CALIE STANDHYD [I%=15.0:5%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=30.0:5%= 2.00] CALIE STANDHYD</pre>	0114 0123 0118 0117 0127	1 1 3 1	5.0 5.0 5.0 5.0	0.34 0.54 0.70	0.02 0.03 0.06 0.03	1.33 1.33 1.33 1.33	9.37 0.2 9.91 n/ 14.25 0.3	 4 0.000 a 0.000 37 0.000 18 0.000 	
* * *	<pre>[Ptot= 38.49 mm] CALIB STANDHYD [I%=20.0:5%= 3.60] CALIB STANDHYD [I%=15.0:5%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=30.0:5%= 2.00] CALIE STANDHYD [I%=20.0:5%= 3.60]</pre>	0114 0123 0118 0117 0127	1 1 1 1 3	5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47	0.02 0.03 0.06 0.03 0.09	1.33 1.33 1.33 1.33 1.33	9.37 0.2 9.91 n/ 14.25 0.3 10.84 0.2	 4 0.000 a 0.000 57 0.000 8 0.000 a 0.000 	
* * * *	[Ptot= 38.49 mm] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=30.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60] ADD [0117 + 0127] CALIE STANDHYD	0114 0123 0118 0117 0127 0115	1 1 1 1 3 1	5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17	0.02 0.03 0.06 0.03 0.09 0.04	1.33 1.33 1.33 1.33 1.33 1.33	9.37 0.2 9.91 n/ 14.25 0.3 10.84 0.2 12.88 n/	14 0.000 1a 0.000 37 0.000 18 0.000 1a 0.000 1a 0.000 1a 0.000	
* * * *	<pre>[Ptot= 38.49 mm] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=20.0:S%= 3.60] ADD [0117 + 0127] CALIE STANDHYD [I%=18.0:S%= 2.00] CALIE STANDHYD</pre>	0114 0123 0118 0117 0127 0115 0125 0126	1 1 1 1 1 1	5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71	0.02 0.03 0.03 0.09 0.04 0.03	1.33 1.33 1.33 1.33 1.33 1.33 1.33	9.37 0.2 9.91 n/ 14.25 0.3 10.84 0.2 12.88 n/ 10.12 0.2	:4 0.000 :a 0.000 :7 0.000 :8 0.000 :a 0.000 :a 0.000 :a 0.000 :a 0.000 :a 0.000	
* * * * *	[Ptot= 38.49 mm] CALIE STANDHYD [I%=20.015%= 3.60] CALIE STANDHYD [I%=15.015%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=20.015%= 3.60] ADD [0117 + 0127] CALIE STANDHYD [I%=18.015%= 2.00] CALIE STANDHYD [I%=20.015%= 3.60]	0114 0123 0118 0117 0127 0125 0125 0126	1 1 1 1 1 1 1 3	5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71 0.47	0.02 0.03 0.06 0.03 0.09 0.04 0.03 0.06	1.33 1.33 1.33 1.33 1.33 1.33 1.33	9.37 0.2 9.91 n/ 14.25 0.3 10.84 0.2 12.88 n/ 10.12 0.2	 4 0.000 a 0.000 7 0.000 8 0.000 a 0.000 8 0.000 9 0.000 9 0.000 	
* * * * * *	<pre>[Ptot= 38.49 mm] CALIE STANDHYD [I%=20.0:S%= 3.60] CALIE STANDHYD [I%=15.0:S%= 2.00] ADD [0114 + 0123] CALIE STANDHYD [I%=20.0:S%= 3.60] ADD [0117 + 0127] CALIE STANDHYD [I%=18.0:S%= 2.00] CALIE STANDHYD [I%=20.0:S%= 3.60] ADD [0125 + 0126] RESRVR [2 : 0121]</pre>	0114 0123 0118 0117 0127 0125 0125 0126	1 1 1 1 1 1 3 1	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	0.34 0.54 0.70 0.47 1.17 0.71 0.47 1.18	0.02 0.03 0.06 0.09 0.04 0.03 0.06 0.00	1.33 1.33 1.33 1.33 1.33 1.33 1.33 1.33	9.37 0.2 9.91 n/ 14.25 0.3 10.84 0.2 12.88 n/ 10.12 0.2 10.84 0.2	:4 0.000 :a 0.000 :7 0.000 :8 0.000 :a 0.000 :8 0.000 :8 0.000 :8 0.000 :8 0.000 :8 0.000 :8 0.000	

	[I%=20.0:S%= 3.60]												
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.04	1.33	10.84	n/a	0.000			
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.09	1.33	9.25	n/a	0.000			
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.13	1.33	9.59	n/a	0.000			
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128	1	5.0	2.98	0.01	2.50	3.72	n/a	0.000			
	ADD [0118 + 0128]	0120	3	5.0	3.52	0.03	1.33	4.67	n/a	0.000			
*	CALIB STANDHYD [I%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.01	1.33	24.88	0.65	0.000			
	ADD [0120 + 0131]	0116	3	5.0	3.60	0.04	1.33	5.12	n/a	0.000			
* *	** SIMULATION NUMBER: 21 **												
W/E	COMMAND	HYD	ID	DT min	AREA ha	Qpeak cms	Tpeak hrs	R.V. mm	. R.C.	Qbase cms			
	START @ 0.00 hrs												
	CHIC STORM [Ptot= 44.04 mm]			10.0									
*	CALIB STANDHYD [I%=20.0:S%= 3.60]	0114	1	5.0	0.20	0.01	1.33	13.02	0.30	0.000			
*	CALIB STANDHYD [I%=15.0:S%= 2.00]	0123	1	5.0	0.34	0.02	1.33	11.42	0.26	0.000			
	ADD [0114 + 0123]	0118	3	5.0	0.54	0.03	1.33	12.01	n/a	0.000			
*	CALIB STANDHYD [I%=30.0:S%= 2.00]	0117	1	5.0	0.70	0.07	1.33	16.89	0.38	0.000			
*	CALIB STANDHYD [I%=20.0:S%= 3.60]	0127	1	5.0	0.47	0.03	1.33	13.05	0.30	0.000			
	ADD [0117 + 0127]	0115	3	5.0	1.17	0.10	1.33	15.35	n/a	0.000			
*	CALIB STANDHYD [I%=18.0:S%= 2.00]	0125	1	5.0	0.71	0.05	1.33	12.22	0.28	0.000			
*	CALIB STANDHYD [I%=20.0:S%= 3.60]	0126	1	5.0	0.47	0.03	1.33	13.05	0.30	0.000			
	ADD [0125 + 0126]	0121	3	5.0	1.18	0.08	1.33	12.55	n/a	0.000			
	RESRVR [2 : 0121] {ST= 0.01 ha.m }	0119	1	5.0	1.18	0.00	2.75	7.80	n/a	0.000			
*	CALIB STANDHYD [I%=20.0:S%= 2.00]	0124	1	5.0	0.44	0.03	1.33	13.06	0.30	0.000			
*	CALIB STANDHYD [I%=20.0:S%= 3.60]	0129	1	5.0	0.19	0.01	1.33	13.02	0.30	0.000			
	ADD [0124 + 0129]	0130	3	5.0	0.63	0.05	1.33	13.05	n/a	0.000			
	ADD [0115 + 0119]	0122	3	5.0	2.35	0.10	1.33	11.56	n/a	0.000			
	ADD [0122 + 0130]	0122	1	5.0	2.98	0.15	1.33	11.87	n/a	0.000			

2020-06-09 11:47:29 AM

10122_V03 Summary Output - All Storms (Proposed).txt

*	CALIB STANDHYD	0131 1	5.0	0.08	0.02	1.33	28.89 0.66	0.000	**************************************	******* HYD ID	pm	ADEB	1 0		R.V. R.C	
	[I%=63.0:S%= 2.00] ADD [0120 + 0131]	0116 3	5.0	3,60	0.05	1.33	7.42 n/a	0.000	W/E COMMAND	HYD ID	min				R.V. R.C mm	•
**	simulation number:	22 **							CHIC STORM [Ptot= 71.95 mm		10.0					
W/E	COMMAND	HYD ID	DT min		' Qpeak ' cms		R.V. R.C mm	. Qbase cms	* CALLE STANDHYD [1%=20.0:S%= 3.60	0114 1	5.0	0.20	0.02	1.33	25.94 0.36)
	START @ 0.00 hrs								* * CALIB STANDHYD [1%=15.0:S%= 2.00	0123 1	5.0	0.34	0.03	1.33	23.67 0.33	
	CHIC STORM [Ptot= 60.23 mm]		10.0						* ADD [0114 + 0123]	0118 3	5.0	0.54	0.05	1.33	24.51 n/a	
*	CALIB STANDHYD [I%=20.0:S%= 3.60]	0114 1	5.0	0.20	0.02	1.33	20.18 0.33	0.000	* CALIB STANDHYD [I%=30.0:S%= 2.00	0117 1]	5.0	0.70	0.10	1.33	31.77 0.44	
*	CALIB STANDHYD [1%=15.0:5%= 2.00]	0123 1	5.0	0.34	0.03	1.33	18.16 0.30	0.000	* CALIB STANDHYD [1%=20.0:S%= 3.60	0127 1]	5.0	0.47	0.05	1.33	25.95 0.36	
	ADD [0114 + 0123]	0118 3	5.0	0.54	0.05	1.33	18.91 n/a	0.000	ADD [0117 + 0127]	0115 3	5.0	1.17	0.15	1.33	29.44 n/a	
*	CALIB STANDHYD [1%=30.0:S%= 2.00]	0117 1	5.0	0.70	0.10	1.33	25.23 0.42	0.000	* CALIB STANDHYD [I%=18.0:S%= 2.00	0125 1]	5.0	0.71	0.07	1.33	24.64 0.34	
*	CALIB STANDHYD [1%=20.0:S%= 3.60]	0127 1	5.0	0.47	0.05	1.33	20.20 0.34	0.000	* CALIB STANDHYD [1%=20.0:S%= 3.60	0126 1]	5.0	0.47	0.05	1.33	25.95 0.36	
	ADD [0117 + 0127]	0115 3	5.0	1.17	0.14	1.33	23.21 n/a	0.000	ADD [0125 + 0126]	0121 3	5.0	1.18	0.12	1.33	25.17 n/a	L.
*	CALIB STANDHYD [I%=18.0:S%= 2.00]	0125 1	5.0	0.71	0.07	1.33	19.09 0.32	0.000	RESRVR [2 : 0121 (ST= 0.03 ha.m)] 0119 1	5.0	1.18	0.01	3.08	20.41 n/a	ł
*	CALIB STANDHYD [1%=20.0:S%= 3.60]	0126 1	5.0	0.47	0.05	1.33	20.20 0.34	0.000	* CALIB STANDHYD [I%=20.0:S%= 2.00	0124 1]	5.0	0.44	0.05	1.33	25.95 0.36	
	ADD [0125 + 0126]	0121 3	5.0	1.18	0.11	1.33	19.53 n/a	0.000	* CALIB STANDHYD [1%=20.0:S%= 3.60	0129 1	5.0	0.19	0.02	1.33	25.94 0.36	
	RESRVR [2 : 0121] {ST= 0.02 ha.m }	0119 1	5.0	1.18	0.00	2.83	14.77 n/a	0.000	* ADD [0124 + 0129]	0130 3	5.0	0.63	0.07	1.33	25.95 n/a	ł
*	CALIB STANDHYD [1%=20.0:S%= 2.00]	0124 1	5.0	0.44	0.05	1.33	20.20 0.34	0.000	* ADD [0115 + 0119]	0122 3	5.0	2.35	0.15	1.33	24.90 n/a	ı
*	CALIB STANDHYD [1%=20.0:5%= 3.60]	0129 1	5.0	0.19	0.02	1.33	20.18 0.33	0.000	ADD [0122 + 0130] * RESRVR [2 : 0122			2.98 2.98			25.13 n/a 19.26 n/a	
	ADD [0124 + 0129]	0130 3	5.0	0.63	0.06	1.33	20.19 n/a	0.000	(ST= 0.03 ha.m) *							
	ADD [0115 + 0119]	0122 3	5.0	2.35	0.15	1.33	18.97 n/a	0.000	ADD [0118 + 0128] *			3.52			20.06 n/a	
	ADD [0122 + 0130]	0122 1	5.0	2.98	0.21	1.33	19.23 n/a	0.000	* CALIB STANDHYD [I%=63.0:S%= 2.00		5.0	0.08	0.02	1.33	49.51 0.69	
	RESRVR [2 : 0122] {ST= 0.02 ha.m }	0128 1	5.0	2.98	0.07	1.67	13.36 n/a	0.000	* ADD [0120 + 0131] *	0116 3	5.0	3.60	0.14	1.58	20.72 n/a	
	ADD [0118 + 0128]	0120 3	5.0	3.52	0.09	1.67	14.21 n/a	0.000	**************************************	24 **						
*	CALIB STANDHYD [1%=63.0:S%= 2.00]	0131 1	5.0	0.08	0.02	1.33	40.71 0.68	0.000	**************************************	HYD ID					R.V. R.C	

10122_V03 Summary Output - All Storms (Proposed).txt

CHIC STORM [Ptot= 83.38 mm]			10.0					
CALIB STANDHYD [1%=20.0:S%= 3.60]	0114	1	5.0	0.20	0.02	1.33	31.98 0.38	0.00
CALIB STANDHYD [I%=15.0:S%= 2.00]	0123	1	5.0	0.34	0.04	1.33	29.50 0.35	0.00
ADD [0114 + 0123]	0118	з	5.0	0.54	0.06	1.33	30.42 n/a	0.00
CALIB STANDHYD [I%=30.0:S%= 2.00]	0117	1	5.0	0.70	0.11	1.33	38.53 0.46	0.00
CALIB STANDHYD [1%=20.0:S%= 3.60]	0127	1	5.0	0.47	0.05	1.33	31.98 0.38	0.00
ADD [0117 + 0127]	0115	з	5.0	1.17	0.17	1.33	35.90 n/a	0.00
CALIB STANDHYD [I%=18.0:S%= 2.00]	0125	1	5.0	0.71	0.08	1.33	30.50 0.37	0.00
CALIB STANDHYD [I%=20.0:S%= 3.60]	0126	1	5.0	0.47	0.05	1.33	31.98 0.38	0.00
ADD [0125 + 0126]	0121	3	5.0	1.18	0.14	1.33	31.09 n/a	0.00
RESRVR [2 : 0121] (ST= 0.03 ha.m }	0119	1	5.0	1.18	0.01	3.25	26.33 n/a	0.00
CALIB STANDHYD [I%=20.0:S%= 2.00]	0124	1	5.0	0.44	0.05	1.33	31.99 0.38	0.00
CALIB STANDHYD [1%=20.0:S%= 3.60]	0129	1	5.0	0.19	0.02	1.33	31.96 0.38	0.00
ADD [0124 + 0129]	0130	3	5.0	0.63	0.08	1.33	31.98 n/a	0.00
ADD [0115 + 0119]	0122	3	5.0	2.35	0.17	1.33	31.10 n/a	0.00
ADD [0122 + 0130]	0122	1	5.0	2.98	0.25	1.33	31.28 n/a	0.00
RESRVR [2 : 0122] {ST= 0.03 ha.m }	0128	1	5.0	2.98	0.14	1.58	25.42 n/a	0.00
ADD [0118 + 0128]	0120	3	5.0	3.52	0.18	1.58	26.18 n/a	0.00
CALIB STANDHYD [I%=63.0:S%= 2.00]	0131	1	5.0	0.08	0.02	1.33	58.28 0.70	0.00
ADD [0120 + 0131]	0116	3	5.0	3.60	0.19	1.58	26.90 n/a	0.00

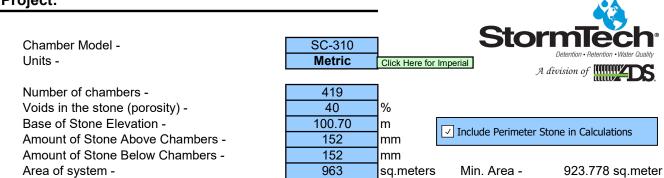
Appendix C

Quantity Control Calculations

			Stage-Storage-Discharge: Cham	ber System 1			
	5					Checked By:	10122 Nickerson Woods CS / RC/CPB June 5, 2020
		-					
	Top of [Storage Storage:	Summary 100.83 m			Discharge	Summary Invert Elev Diameter / Wid
	•	rage Volume:	50.1 m ³	Stage	T	/pe	(m) (mm) (m
		rage Volume:	329.1 m ³	1	Orifice Plate:	Vertical	100.83 75
-							
-	Turne	Outlet Capac Diameter Sk					
-	Туре	Diameter Si	ope Peak Flow % Full				
L							
		Stage 1	Stage-Storage-Discharge	Summary Table			
Elevation	Stage	Orifice Plate			Total Storage	Total Discharge	Notes
m	m		m³/s		ha*m	m³/s	
100.83	0.00	0.000			0.0050	0.000	
100.84	0.01	0.000			0.0054	0.000	
100.85	0.02	0.000			0.0058	0.000	(= 05 mm; 04 m3 (400 00m)
100.86 100.87	0.03 0.04	0.001			0.0065 0.0073	0.001 0.001	<= 25 mm: 64 m ³ (100.86m)
100.88	0.05	0.001			0.0080	0.001	<= 2 Yr: 74 m³ (100.88m)
100.89	0.06	0.002			0.0088	0.002	
100.90	0.07	0.002			0.0096	0.002	
100.91	0.08	0.002			0.0104	0.002	$z = 5 Vr; 104.1 m^3 (100.02m)$
100.92 100.93	0.09 0.10	0.003			0.0111 0.0119	0.003 0.003	<= 5 Yr: 104.1 m ³ (100.92m)
100.94	0.10	0.003			0.0127	0.003	<= 10 Yr: 123 m ³ (100.94m)
100.95	0.12	0.003			0.0134	0.003	
100.96	0.13	0.004			0.0142	0.004	
100.97 100.98	0.14 0.15	0.004 0.004			0.0149	0.004 0.004	
100.98	0.15	0.004			0.0157 0.0164	0.004	
101.00	0.17	0.004			0.0171	0.004	
101.01	0.18	0.004			0.0178	0.004	
101.02	0.19	0.005			0.0185	0.005	
101.03	0.20	0.005			0.0192	0.005 0.005	<= 25 Yr: 191 m ³ (101.03m)
101.04 101.05	0.21 0.22	0.005			0.0199 0.0206	0.005	
101.06	0.23	0.005			0.0213	0.005	
101.07	0.24	0.005			0.0220	0.005	
101.08	0.25	0.005			0.0226	0.005	
101.09 101.10	0.26 0.27	0.006			0.0233 0.0239	0.006 0.006	
101.10	0.27	0.006			0.0235	0.006	
101.12	0.29	0.006			0.0252	0.006	<= 50 Yr: 249 m ³ (101.12m)
101.13	0.30	0.006			0.0258	0.006	
101.14	0.31	0.006			0.0264	0.006	
101.15 101.16	0.32 0.33	0.006 0.006			0.0270 0.0276	0.006 0.006	
101.17	0.34	0.006			0.0281	0.006	
101.18	0.35	0.007			0.0286	0.007	
101.19	0.36	0.007			0.0291	0.007	
101.20	0.37 0.38	0.007 0.007			0.0296 0.0300	0.007 0.007	
101.21 101.22	0.38	0.007			0.0300	0.007	
101.22	0.40	0.007			0.0309	0.007	
101.24	0.41	0.007			0.0313	0.007	<= 100 Yr: 311 m³ (101.24m)
101.25	0.42	0.007			0.0317	0.007	
101.26	0.43 0.44	0.007 0.007			0.0321	0.007 0.007	
101.27 101.28	0.44	0.007			0.0325 0.0329	0.007	
101.20	0.46	0.008			0.0332	0.008	
101.30	0.47	0.008			0.0336	0.008	
101.31	0.48	0.008			0.0340	0.008	

	Stage-Storage-Discharge Summary Table											
Elevation	Stage	Stage 1 Orifice Plate				Total Storage	Total Discharge	Notes				
m	m		m	³ /s		ha*m	m³/s					
101.32	0.49	0.008				0.0344	0.008					
101.33	0.50	0.008				0.0348	0.008					
101.34	0.51	0.008				0.0352	0.008					
101.35	0.52	0.008				0.0356	0.008					
101.36	0.53	0.008				0.0359	0.008					
101.37	0.54	0.008				0.0363	0.008					
101.38	0.55	0.008				0.0367	0.008					
101.39	0.56	0.008				0.0371	0.008					
101.40	0.57	0.009				0.0375	0.009					
101.41	0.58	0.009				0.0379	0.009					
101.41	0.58	0.009				0.0379	0.009					

Project:



	StormTech SC-310 Cumulative Storage Volumes									
Height of	Incremental Single	Incremental	Incremental	Incremental Ch	Cumulative					
System	Chamber	Total Chamber	Stone	& St	Chamber	Elevation				
(<i>mm</i>)	(cubic meters)	(cubic meters)	(cubic meters)	(cubic meters)	(cubic meters)	(meters)				
711	0.00	0.00	9.79	9.79	379.180	101.41				
686	0.00	0.00	9.79	9.79	369.394	101.39				
660	0.00	0.00	9.79	9.79	359.607	101.36				
635	0.00	0.00	9.79	9.79	349.821	101.34				
610	0.00	0.00	9.79	9.79	340.034	101.31				
584	0.00	0.00	9.79	9.79	330.247	101.28				
559	0.00	0.70	9.51	10.21	320.461	101.26				
533	0.00	1.84	9.05	10.89	310.255	101.23				
508	0.01	3.16	8.52	11.68	299.366	101.21				
483	0.02	6.47	7.20	13.67	287.686	101.18				
457	0.02	8.36	6.44	14.80	274.018	101.16				
432	0.02	9.79	5.87	15.66	259.215	101.13				
406	0.03	10.98	5.40	16.37	243.555	101.11				
381	0.03	12.05	4.97	17.02	227.181	101.08				
356	0.03	13.00	4.59	17.58	210.163	101.06				
330	0.03	13.71	4.30	18.01	192.579	101.03				
305	0.03	14.43	4.02	18.44	174.569	101.00				
279	0.04	15.14	3.73	18.87	156.127	100.98				
254	0.04	15.73	3.50	19.22	137.257	100.95				
229	0.04	16.21	3.30	19.51	118.034	100.93				
203	0.04	16.68	3.11	19.80	98.523	100.90				
178	0.04	17.03	2.97	20.01	78.727	100.88				
152	0.00	0.00	9.79	9.79	58.720	100.85				
127	0.00	0.00	9.79	9.79	48.933	100.83				
102	0.00	0.00	9.79	9.79	39.146	100.80				
76	0.00	0.00	9.79	9.79	29.360	100.78				
51	0.00	0.00	9.79	9.79	19.573	100.75				
25	0.00	0.00	9.79	9.79	9.787	100.73				

Stage-Storage-Discharge: Chamber System 2



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / RC/CPB Date: =TODAY(

Г		Stor	rage Summar	v		Г			Discharge	Summary	
ŀ	Top of I	Dead Storage:	rage ourningr	y 100.02	m	ł				Invert Elev	Diameter / Widt
		brage Volume:			m ³		Stage	Ту	/pe	(m)	(mm) (m)
		brage Volume:		131.6	m³	ŀ	1	Orifice Plate:	Vertical	100.02	390
L	Active St	age volume.		101.0			'	Jinice Field.	v cruodi	100.02	330
[Capacity Sum								
	Туре	Diameter	Slope	Peak Flow	% Full						
L						L					
		Stage 1		Sta	ge-Storage-I	ischarge Sun	nmary Tabl			1	
Elevation	Stage	Orifice						Total Storage	Total Discharge		Notes
	m	Plate		m	3/0			ha*m	m³/s	-	Notes
m 100.02	<u>m</u> 0.00	0.000		m	/5			0.0173	0.000	<= 2 Yr: 170 r	$n^{3}(100.01m)$
100.02	0.00	0.000						0.0176	0.000	~ 2 11. 1701	11 (100.0111)
100.04	0.02	0.001						0.0179	0.000		
100.05	0.03	0.001						0.0182	0.001		
100.06	0.04	0.002						0.0186	0.002		
100.07	0.05	0.004						0.0189	0.004		
100.08	0.06	0.005						0.0192	0.005		
100.09	0.07	0.007						0.0195	0.007	<= 5 Yr: 194.1	m³ (100.09m)
100.10	0.08	0.009						0.0198	0.009		
100.11	0.09	0.012						0.0201	0.012		
100.12	0.10	0.014						0.0204	0.014	<= 10 Yr: 204	m³ (100.12m)
100.13	0.11	0.017						0.0207	0.017		()
100.14	0.12	0.020						0.0211	0.020		
100.15	0.12	0.024						0.0214	0.024		
100.15											
	0.14	0.027						0.0217	0.027		
100.17	0.15	0.031						0.0219	0.031		
100.18	0.16	0.035						0.0222	0.035		
100.19	0.17	0.039						0.0225	0.039		
100.20	0.18	0.043						0.0228	0.043		
100.21	0.19	0.047						0.0231	0.047		
100.22	0.20	0.052						0.0234	0.052		
100.23	0.21	0.056						0.0237	0.056		
100.24	0.22	0.061						0.0239	0.061	<= 25 Yr: 239	m³ (100.24m)
100.25	0.23	0.066						0.0242	0.066		(
100.26	0.24	0.071						0.0245	0.071		
								1			
100.27	0.25	0.076						0.0247	0.076		
100.28	0.26	0.081						0.0250	0.081		
100.29	0.27	0.086						0.0252	0.086		
100.30	0.28	0.091						0.0255	0.091		
100.31	0.29	0.096						0.0257	0.096	1	
100.32	0.30	0.101						0.0260	0.101		
100.33	0.31	0.107						0.0262	0.107		
100.34	0.32	0.112						0.0264	0.112		
100.35	0.33	0.116						0.0266	0.116		
100.36	0.34	0.121						0.0268	0.121	1	
								1		1	
100.37	0.35	0.126						0.0270	0.126	- 50 1/- 071	m3 (100 20)
100.38	0.36	0.130						0.0272	0.130	- 50 YF: 2/1	m³ (100.38m)
100.39	0.37	0.134						0.0274	0.134		
100.40	0.38	0.137						0.0275	0.137		
100.41	0.39	0.140						0.0277	0.140		
100.42	0.40	0.144						0.0279	0.144	1	
100.43	0.41	0.147						0.0281	0.147	1	
100.44	0.42	0.151						0.0282	0.151		
100.45	0.43	0.154						0.0284	0.154		
100.46	0.44	0.157						0.0286	0.157		
100.47	0.45	0.160						0.0287	0.160		
								1			
100.48	0.46	0.163						0.0289	0.163		
100.49	0.47	0.166						0.0291	0.166	1	
100.50	0.48	0.169						0.0292	0.169		

			Sta	ge-Storage-I	Discharge Sun	nmary Table	1		
Elevation	Stage	Stage 1 Orifice Plate					Total Storage	Total Discharge	Notes
m	m		m³	/s			ha*m	m³/s	
100.51	0.49	0.172					0.0294	0.172	
100.52	0.50	0.175					0.0296	0.175	
100.53	0.51	0.178					0.0298	0.178	
100.54	0.52	0.181					0.0299	0.181	
100.55	0.53	0.184					0.0301	0.184	
100.56	0.54	0.186					0.0303	0.186	
100.57	0.55	0.189					0.0304	0.189	<= 100 Yr: 303 m ³ (100.57m)

Project:

Storm Chamber Model -SC-740 Units -Metric Click Here for Imperial A division of 5 Number of chambers -134 Voids in the stone (porosity) -% 40 Base of Stone Elevation -99.40 m ✓ Include Perimeter Stone in Calculations Amount of Stone Above Chambers -152 mm 250 427 Amount of Stone Below Chambers mm Area of system -420.759 sq.meters sq.meters Min. Area -

StormTe	ch SC-740 Cu			mes		
Height of	Incremental Single	Incremental	Incremental	Incremental Ch	Cumulative	
System	Chamber	Total Chamber	Stone	& St	Chamber	Elevation
(<i>mm</i>)	(cubic meters)	(cubic meters)	(cubic meters)	(cubic meters)	(cubic meters)	(meters)
1168	0.00	0.00	4.34	4.34	304.170	100.57
1143	0.00	0.00	4.34	4.34	299.831	100.54
1118	0.00	0.00	4.34	4.34	295.493	100.52
1092	0.00	0.00	4.34	4.34	291.155	100.49
1067	0.00	0.00	4.34	4.34	286.817	100.47
1041	0.00	0.00	4.34	4.34	282.479	100.44
1016	0.00	0.21	4.25	4.46	278.141	100.42
991	0.00	0.62	4.09	4.71	273.677	100.39
965	0.01	1.07	3.91	4.98	268.968	100.37
940	0.02	2.29	3.42	5.71	263.988	100.34
914	0.02	3.04	3.12	6.16	258.275	100.31
889	0.03	3.61	2.90	6.50	252.112	100.29
864	0.03	4.08	2.71	6.78	245.609	100.26
838	0.03	4.48	2.55	7.03	238.825	100.24
813	0.04	4.80	2.42	7.22	231.799	100.21
787	0.04	5.14	2.28	7.42	224.579	100.19
762	0.04	5.52	2.13	7.65	217.156	100.16
737	0.04	5.79	2.02	7.81	209.508	100.14
711	0.04	6.00	1.94	7.94	201.698	100.11
686	0.05	6.23	1.85	8.08	193.758	100.09
660	0.05	6.45	1.76	8.21	185.681	100.06
635	0.05	6.65	1.68	8.33	177.473	100.04
610	0.05	6.84	1.60	8.44	169.144	100.01
584	0.05	7.04	1.52	8.56	160.702	99.98
559	0.05	7.18	1.46	8.65	152.140	99.96
533	0.05	7.34	1.40	8.74	143.492	99.93
508	0.06	7.49	1.34	8.83	134.751	99.91
483	0.06	7.63	1.29	8.91	125.916	99.88
457	0.06	7.76	1.23	8.99	117.002	99.86
432	0.06	7.87	1.19	9.06	108.008	99.83
406	0.06	7.99	1.14	9.13	98.946	99.81
381	0.06	8.09	1.10	9.19	89.816	99.78
356	0.06	8.17	1.07	9.24	80.624	99.76
330	0.06	8.26	1.03	9.29	71.383	99.73
305	0.06	8.34	1.00	9.34	62.088	99.70
279	0.06	8.38	0.99	9.36	52.745	99.68
254	0.00	0.00	4.34	4.34	43.381	99.65
229	0.00	0.00	4.34	4.34	39.043	99.63
203	0.00	0.00	4.34	4.34	34.705	99.60
178	0.00	0.00	4.34	4.34	30.367	99.58
152	0.00	0.00	4.34	4.34	26.029	99.55
127	0.00	0.00	4.34	4.34	21.691	99.53
102	0.00	0.00	4.34	4.34	17.353	99.50
76	0.00	0.00	4.34	4.34	13.014	99.48
51	0.00	0.00	4.34	4.34	8.676	99.45
25	0.00	0.00	4.34	4.34	4.338	99.43

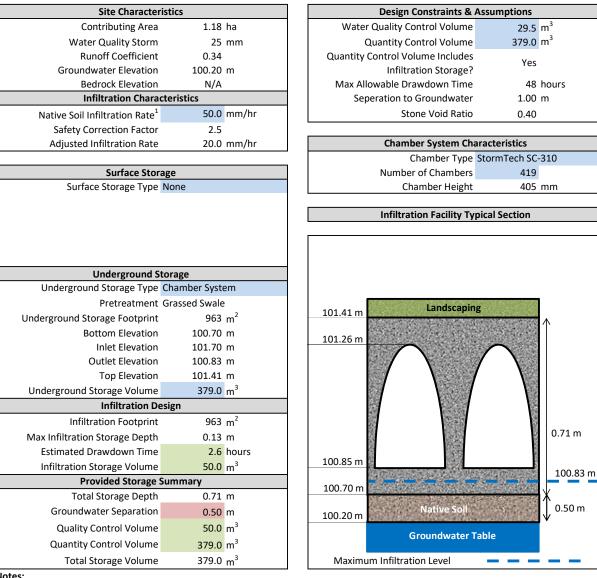
Appendix D

Quality Control Calculations

Infiltration Facility Design - Chamber System 1



Project No: 10-10122 Project Name: Nickerson Woods Designed/Checked By: CPB / MH/RC Date: 5-Jun-20



Notes:

1. Runoff Coefficient determined based on the Hydrologic Parameters of the contributing drainage area Water Quality Control Volume based on MOE Table 3.2 for Infiltration Facilities

2. Native soil infiltration rate incorporates a safety correction factor in accordance with the method outlined in the LID Design Manual Appendix C, Table C2

3. Infiltration Storage Drawdown Time calculated using the following equation:

$$t_d = \frac{d_i}{i}$$
 t_d = Drawdown Time (hours)
 d_i = Max infiltration storage of

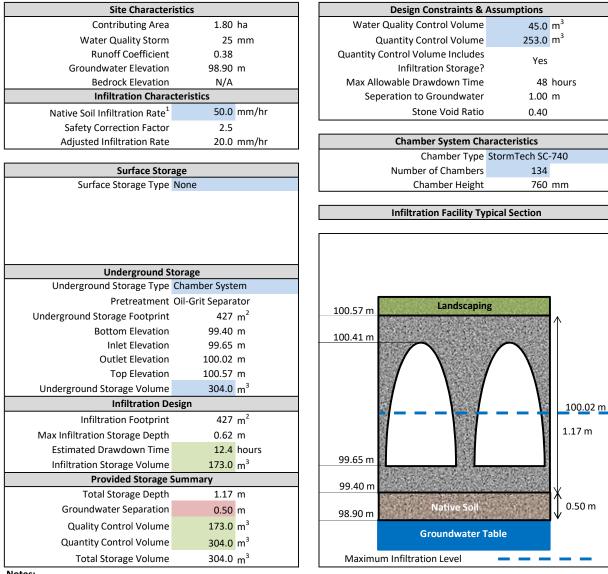
= Max infiltration storage depth (m)

i = Adjusted Infiltration Rate (mm/hr)

Infiltration Facility Design - Chamber System 2



Project No: 10-10122 Project Name: Nickerson Woods Designed/Checked By: CPB / MH/RC Date: 5-Jun-20



Notes:

1. Runoff Coefficient determined based on the Hydrologic Parameters of the contributing drainage area Water Quality Control Volume based on MOE Table 3.2 for Infiltration Facilities

2. Native soil infiltration rate incorporates a safety correction factor in accordance with the method outlined in the LID Design Manual Appendix C, Table C2

3. Infiltration Storage Drawdown Time calculated using the following equation:

$$t_d = \frac{d_i}{i}$$
 $t_d = \text{Drawdown Time (hours)}$
 $d_i = \text{Max infiltration storage of }$

Max infiltration storage depth (m)

i = Adjusted Infiltration Rate (mm/hr)

Province:	Ontario		Project Name:	Nickerson Wood	s
City:	Cobourg		Project Number:	10-10122	
Nearest Rainfall Station:	PETERBOROUGH AP		Designer Name:	Christopher Sok	bl
NCDC Rainfall Station Id:	6418		Designer Company:	D.M. Wills	
Years of Rainfall Data:	32		Designer Email/Phone:	csokol@dmwills	.com
Site Name:	Nickerson Woods		EOR Name:		
			EOR Company:		
Drainage Area (ha):	1.17		EOR Email/Phone:		
% Imperviousness:	36.00				
Runoff Co	efficient 'c': 0.51				I Sediment
Particle Size Distribution:	Fine				l Reduction Summary
Target TSS Removal (%):	60.0			Stormceptor	TSS Removal
		l		Model	Provided (%)
Require Hydrocarbon Spill Ca	pture?	No		EF4	75
Upstream Flow Control?		No		EF6	83
Required Water Quality Runo		90.00		EF8	86
Estimated Water Quality Flow		21.15		EF10	89
Peak Conveyance (maximum)	Flow Rate (L/s):			EF12	90
	Estima		Recommended Si Annual Sediment (TSS Water Quality Runoff) Load Reduct	ion (%):





THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor® EF and Stormceptor® EFO are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

PERFORMANCE

► Stormceptor® EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patentpending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including highintensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

► The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle	Percent Less	Particle Size	Dorsont
Size (µm)	Than	Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5







Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1	50.7	50.7	1.68	101.0	84.0	89	45.1	45.1
2	9.4	60.1	3.36	201.0	168.0	80	7.6	52.7
3	6.0	66.1	5.04	302.0	252.0	72	4.3	57.0
4	4.4	70.5	6.71	403.0	336.0	64	2.8	59.8
5	3.8	74.3	8.39	504.0	420.0	58	2.2	62.0
6	2.8	77.1	10.07	604.0	504.0	57	1.6	63.6
7	2.5	79.6	11.75	705.0	587.0	56	1.4	65.0
8	2.6	82.2	13.43	806.0	671.0	56	1.4	66.4
9	2.0	84.2	15.11	906.0	755.0	55	1.1	67.5
10	1.9	86.1	16.78	1007.0	839.0	55	1.0	68.6
11	1.8	87.9	18.46	1108.0	923.0	54	1.0	69.6
12	1.5	89.4	20.14	1208.0	1007.0	54	0.8	70.4
13	1.0	90.4	21.82	1309.0	1091.0	55	0.6	70.9
14	1.0	91.4	23.50	1410.0	1175.0	56	0.6	71.5
15	0.9	92.3	25.18	1511.0	1259.0	57	0.5	72.0
16	0.7	93.0	26.85	1611.0	1343.0	58	0.4	72.4
17	0.6	93.6	28.53	1712.0	1427.0	58	0.3	72.8
18	1.0	94.6	30.21	1813.0	1511.0	55	0.5	73.3
19	0.6	95.2	31.89	1913.0	1594.0	52	0.3	73.6
20	0.4	95.6	33.57	2014.0	1678.0	49	0.2	73.8
21	0.3	95.9	35.25	2115.0	1762.0	47	0.1	74.0
22	0.6	96.5	36.92	2215.0	1846.0	45	0.3	74.2
23	0.3	96.8	38.60	2316.0	1930.0	43	0.1	74.4
24	0.4	97.2	40.28	2417.0	2014.0	41	0.2	74.5
25	0.3	97.5	41.96	2518.0	2098.0	40	0.1	74.6





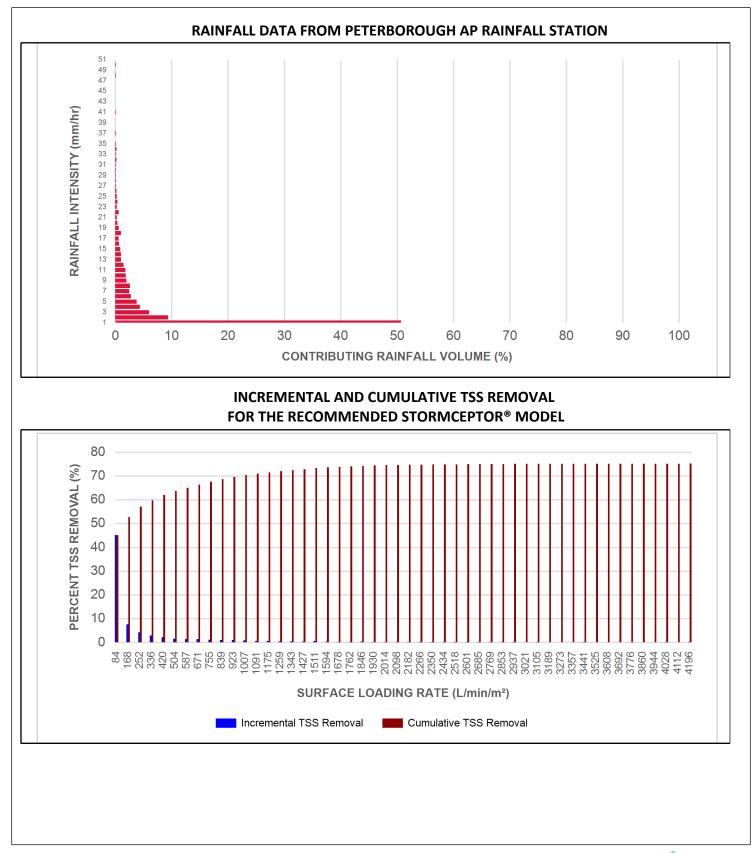


Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
26	0.2	97.7	43.64	2618.0	2182.0	38	0.1	74.7
27	0.1	97.8	45.32	2719.0	2266.0	37	0.0	74.7
28	0.1	97.9	46.99	2820.0	2350.0	35	0.0	74.8
29	0.1	98.0	48.67	2920.0	2434.0	34	0.0	74.8
30	0.1	98.1	50.35	3021.0	2518.0	33	0.0	74.8
31	0.1	98.2	52.03	3122.0	2601.0	32	0.0	74.9
32	0.2	98.4	53.71	3222.0	2685.0	32	0.1	74.9
33	0.1	98.5	55.39	3323.0	2769.0	31	0.0	75.0
34	0.2	98.7	57.06	3424.0	2853.0	30	0.1	75.0
35	0.1	98.8	58.74	3525.0	2937.0	28	0.0	75.1
36	0.0	98.8	60.42	3625.0	3021.0	28	0.0	75.1
37	0.1	98.9	62.10	3726.0	3105.0	27	0.0	75.1
38	0.0	98.9	63.78	3827.0	3189.0	27	0.0	75.1
39	0.0	98.9	65.46	3927.0	3273.0	26	0.0	75.1
40	0.0	98.9	67.13	4028.0	3357.0	25	0.0	75.1
41	0.1	99.0	68.81	4129.0	3441.0	24	0.0	75.1
42	0.0	99.0	70.49	4229.0	3525.0	24	0.0	75.1
43	0.0	99.0	72.17	4330.0	3608.0	23	0.0	75.1
44	0.0	99.0	73.85	4431.0	3692.0	23	0.0	75.1
45	0.0	99.0	75.53	4532.0	3776.0	22	0.0	75.1
46	0.0	99.0	77.20	4632.0	3860.0	22	0.0	75.1
47	0.0	99.0	78.88	4733.0	3944.0	21	0.0	75.1
48	0.1	99.1	80.56	4834.0	4028.0	21	0.0	75.1
49	0.0	99.1	82.24	4934.0	4112.0	20	0.0	75.1
50	0.1	99.2	83.92	5035.0	4196.0	20	0.0	75.2
	-	-	•	Estimated Net	Annual Sedim	ent (TSS) Loa	d Reduction =	75 %



Stormceptor[®]







FORTERRA





	Maximum Pipe Diameter / Peak Conveyance											
Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inle Diame	•	•		Peak Conveyance Flow Rate				
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)			
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15			
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35			
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60			
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100			
EF12 / EF012	3.6	12	90	1828	72	1828	72	2830	100			

SCOUR PREVENTION AND ONLINE CONFIGURATION

Stormceptor® EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

► Stormceptor[®] EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid reentrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



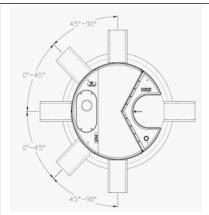












INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Foliutant Capacity											
		Pipe In	vert to	Oil Vo	lume	Sediment Sediment Volume * Sedimen		Sediment Volume * *		Maxin Sediment	-
(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
1.2	4	1.52	5.0	197	52	203	8	1190	42	1904	5250
1.8	6	1.93	6.3	348	92	305	12	3470	123	5552	15375
2.4	8	2.59	8.5	545	144	610	24	8780	310	14048	38750
3.0	10	3.25	10.7	874	231	610	24	17790	628	28464	78500
3.6	12	3.89	12.8	1219	322	610	24	31220	1103	49952	137875
	Diam (m) 1.2 1.8 2.4 3.0	1.2 4 1.8 6 2.4 8 3.0 10	Model Diameter Pipe In Sump (m) (ft) (m) 1.2 4 1.52 1.8 6 1.93 2.4 8 2.59 3.0 10 3.25	Diameter Pipe Invert to Sump Floor) (m) (ft) (m) (ft) 1.2 4 1.52 5.0 1.8 6 1.93 6.3 2.4 8 2.59 8.5 3.0 10 3.25 10.7	Model Diameter Depth (Outlet Pipe Invert to Sump Floor) Oil Vo (m) (ft) (m) (ft) (L) 1.2 4 1.52 5.0 197 1.8 6 1.93 6.3 348 2.4 8 2.59 8.5 545 3.0 10 3.25 10.7 874	Model Diameter Depth (Outlet Pipe Invert to Sump Floor) Oil Volume (m) (ft) (m) (ft) (Gal) 1.2 4 1.52 5.0 197 52 1.8 6 1.93 6.3 348 92 2.4 8 2.59 8.5 545 144 3.0 10 3.25 10.7 874 231	Model Diameter Depth (Outlet Pipe Invert to Sump Floor) Oil Volume Recomm Sedin Maintenar (m) (ft) (m) (ft) (L) (Gal) (mm) 1.2 4 1.52 5.0 197 52 203 1.8 6 1.93 6.3 348 92 305 2.4 8 2.59 8.5 545 144 610 3.0 10 3.25 10.7 874 231 610	Model Diameter Depth (Outlet Pipe Invert to Sump Floor) Oil Volume Recommended Sediment Maintenance Depth * (m) (ft) (m) (ft) (Gal) (mm) (in) 1.2 4 1.52 5.0 197 52 203 8 1.8 6 1.93 6.3 348 92 305 12 2.4 8 2.59 8.5 545 144 610 24 3.0 10 3.25 10.7 874 231 610 24	Model Diameter Depth (Outlet Pipe Invert to Sump Floor) Oil Volume Recommended Sediment Maintenance Depth * Maxin Sediment Maintenance Depth * (m) (ft) ((m) (ft) (L) (Gal) (mm) (in) (L) 1.2 4 1.52 5.0 197 52 203 8 1190 1.8 6 1.93 6.3 348 92 305 12 3470 2.4 8 2.59 8.5 545 144 610 24 8780 3.0 10 3.25 10.7 874 231 610 24 17790	Model DiameterDepth (Outlet Pipe Invert to Sump Floor)Oil VolumeRecommended Sediment Maintenance Depth *Maximum Sediment Volume *(m)(ft)(m)(ft)(L)(Gal)(mm)(in)(L)(ft³)1.241.525.01975220381190421.861.936.3348923051234701232.482.598.55451446102487803103.0103.2510.78742316102417790628	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $

Pollutant Capacity

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To		
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer		
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner		
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer		
Minimal drop between inlet and outlet	Site installation ease	Contractor		
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner		

STANDARD STORMCEPTOR EF/EFO DRAWINGS

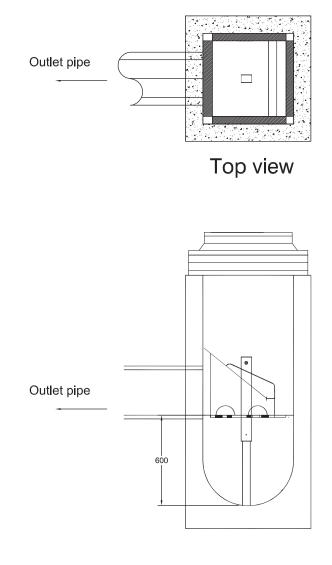
For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef



Notes

- 1. CB Shield can be installed at any time. In a non frozen condition.
- 2. The frame and cover should be well aligned with the catchbasin for proper installation
- 3. The catchbasin sump must be clean before installation
- 4. The grate should be at the same level as the standing water in the sump.

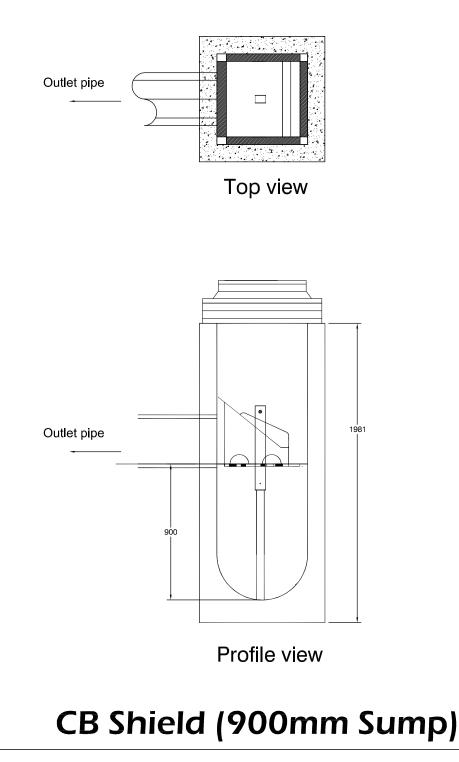


Profile view

CB Shield (600mm Sump)

Notes

- 1. CB Shield can be installed at any time. In a non frozen condition.
- 2. The frame and cover should be well aligned with the catchbasin for proper installation
- 3. The catchbasin sump must be clean before installation
- 4. The grate should be at the same level as the standing water in the sump.



Average Annual Sediment Removal Rates (%) using a CB Shield (based on ETV Sediment - 1 to 1000 micron Particle Size Distribution)

Area to CB	Imperviousness ¹ (%)										
(ha)	20%	35%	50%	65%	80%	100%					
0.02	57%	57%	57%	57%	56%	56%					
0.05	56%	56%	56%	55%	55%	54%					
0.10	56%	55%	54%	53%	52%	51%					
0.20	54%	53%	51%	49%	48%	46%					
0.30	53%	50%	48%	46%	45%	43%					
0.40	51%	48%	46%	44%	42%	40%					
0.50	50%	47%	44%	42%	40%	38%					
0.60	49%	45%	43%	40%	39%	36%					

Notes:

1. Runoff Coefficient 'C' is approximately equal to 0.05 + 0.9*Impervious Fraction.

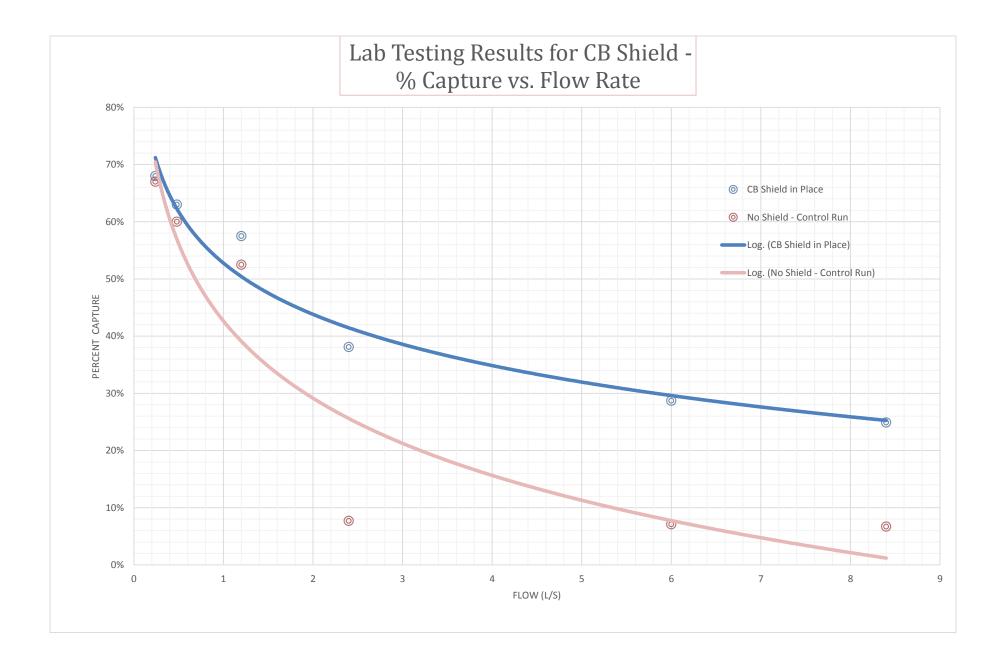
2. Above chart is based on long term continuous hydrologic analysis of Toronto, Ontario (Bloor St) rainfall data.

3. Assumes 0.6 m sump in CB and that maintenance is performed (i.e. CB cleaning) when required by sediment/pollutant build-up or otherwise.

4. See accompanying chart for suggested maintenance scheduling - AND - get CB Shield Inc. to monitor it for you in field.

5. Sediment/Pollutant removal rates based on third party certified laboratory testing using ETV sediment (PSD analysis available on request).

6. See additional discussion regarding scour protection from CB Shield during more infrequent runoff events.



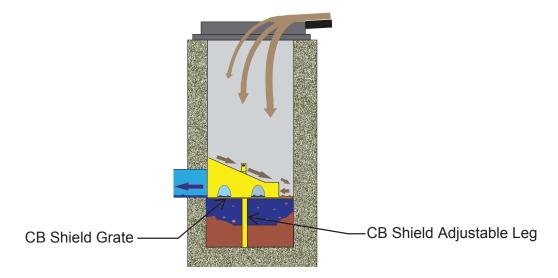
CB Shield Operations Manual

Installing CB Shield

It is important the catch basin frame and cover is aligned properly with the catch basin below

If it is misaligned it may be difficult to install the CB Shield insert

Determine the depth of the sump (i.e. the distance from the invert of the outlet pipe to the bottom of the catch basin). If the catch basin is in service the sump depth will be the depth of the water. The grate section of the CB Shield insert should be the same elevation as the water depth in the sump.



Adjust the leg of the CB Shield to achieve the appropriate elevation

The CB Shield is lowered into place with the rope attached to the top of the leg. The high side of the sloped plate should face the wall with the outlet pipe. (The incoming water should be directed to the wall furthest from the outlet)

The flexible plastic skirt around the outer edges of the CB Shield insert may interfere with some misaligned frame and grates. If so a slice can be cut into the skirt with a utility knife at the point of interference. Make sure the grate is at the desired level or remove CB Shield and re-adjust the leg length.

Inspecting a CB Shield Enhanced Catch Basin

Open grate

A lifting rope is attached to the top of the centered leg of the CB Shield insert. Lift and remove the insert. Inspect CB Shield for any possible damage. Quite often leaves will accumulate on the grate. This can actually improve the Shield's ability to capture sediment and assist in preventing leave litter from being washed down stream.

Use a Sludge Judge to measure the sediment depth in 4 - 6 locations of the sump.

If the sediment depth is 300mm – 600mm deep it is recommended that the unit be cleaned.

Cleaning a CB Shield Enhanced Catch Basin

Open grate and remove CB Shield with lift rope.

Clean catch basin as usual with a Vacuum truck.

Clean CB Shield (if needed) and re-install into catch basin.

If there is any significant damage to a CB Shield please send a picture and its location to CB Shield Inc. (info@cbshield.com).

Appendix E

Water Balance Calculations

Monthly Water Budget Calculations							Sheet 1 of 4		
WILL	Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 4-Jun-20								
	С	ANADIAN CLIM	ATE NORMAL	S FOR 'COBO	URG STP (49	05)' (1981-2010))		
	Climate ID = 6151689								
	Latitude =	43.97							
	Longitude =	78.18							
	Thornthwaite	(1948) Inputs			Monthly	/Water Budget	Analysis		
Month	Mean Temperature (°C) ¹	Total Precipitation (mm) ¹	Heat Index	PET (mm)	Daylight Correction Factor	Adjusted PET (mm)	Surplus (mm)	Deficit (mm)	
January	-5.6	66.7	0.00	0.0	0.78	0.0	66.7	0.0	
February	-4.3	54.1	0.00	0.0	0.87	0.0	54.1	0.0	
March	-0.5	56.8	0.00	0.0	0.99	0.0	56.8	0.0	
April	5.9	76.2	1.28	27.3	1.12	30.6	48.9	0.0	
May	11.7	81.2	3.62	58.5	1.23	71.9	22.7	0.0	
June	16.9	80.5	6.32	83.8	1.29	107.6	0.0	27.1	
July	19.9	64.8	8.10	103.0	1.26	129.6	0.0	64.8	
August	19.4	71.7	7.79	100.2	1.16	116.7	0.0	45.0	
September	15.4	93.2	5.49	75.9	1.04	79.1	17.3	0.0	
October	9.0	76.3	2.43	44.3	0.92	40.6	32.0	0.0	
November	3.7	93.2	0.63	16.6	0.81	13.4	76.6	0.0	
December	-2.0	75.8	0.00	0.0	0.75	0.0	75.8	0.0	
Totals		890.5	35.67			589.6	450.9	136.9	
	Thornthwaite Coefficient (α) 1.064 Total Water Surplus (mm) 300.9							300.9	

Notes:

1. Temperature and Precipitation are taken from Canadian Climate Normals 1981-2010

2. Water budget adjusted for latitude and length of daylight

3. Potential Evapotranspiration (PET) is calculated based on the Thornthwaite 1948 equation

4. Total Water Surplus (Thornthwaite, 1948) is calculated as total precipitation minus adjusted evapotranspiration

Water Balance Calculations	for Existing Condition	ons
----------------------------	------------------------	-----



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 4-Jun-20

Catchment Parameters	Internal	External	Total
Drainage Area (m ²)	22600	13400	36000
Pervious Area (m ²)	22600	9400	32000
Impervious Area (m ²)	0	4000	4000
Evapotranspiration Factors	, , , , , , , , , , , , , , , , , , ,	1000	
Pervious PET Ratio	0.66	0.66	0.66
Impervious Evapotranspiration ³	0.20	0.20	0.20
Infiltration Factors	0.20	0.20	0.20
Topography Infiltration Factor	0.15	0.10	0.14
Soil Infiltration Factor	0.35	0.35	0.35
Land Cover Infiltration Factor	0.13	0.10	0.12
MOE Infiltration Factor	0.63	0.55	0.61
Actual Infiltration Factor	0.63	0.55	0.61
Run-Off Coefficient	0.03	0.55	0.39
	0.80	0.45	0.80
Runoff from Impervious Surfaces	0.00	0.00	0.80
Inputs (mm/yr)	890.5	890.5	890.5
Precipitation Run-On	890.5 0.0	0.0	0.0
Other Inputs	0.0	0.0	0.0
Total Inputs	890.5	890.5	890.5
Outputs (mm/yr)	690.5	690.5	890.5
Precipitation Surplus	300.9	423.8	346.7
Net Surplus	300.9	423.8	346.7
Evapotranspiration	589.6	423.0	543.8
Infiltration	190.6	116.1	162.8
	0.0	0.0	0.0
Infiltration Features ⁴ Total Infiltration	190.6	116.1	162.8
Runoff Pervious Areas	110.4	135.4	117.7
	0.0	712.4	712.4
Runoff Impervious Areas Total Unadjusted Runoff	110.4	307.7	183.8
	110.4 110.4	307.7 307.7	183.8
Total Adjusted Runoff⁵ Total Outputs	890.5	890.5	890.5
Inputs (m ³ /yr)	890.5	090.5	030.3
Precipitation	20125	11933	32058
Run-On	0	0	0
Other Inputs	0	0	0
Total Inputs	20125	11933	32058
Outputs (m ³ /yr)			
Precipitation Surplus	6801	5678	12480
Net Surplus	6801	5678	12480
Evapotranspiration	13324	6254	19578
Infiltration	4307	1556	5862
Infiltration Features ⁴	0	0	0
Total Infiltration	4307	1556	5862
Runoff Pervious Areas	2495	1273	3768
Runoff Impervious Areas	0	2850	2850
Total Unadjusted Runoff	2495	4123	6617
Total Adjusted Runoff⁵	2495	4123	6617
,	20125	11933	32058

Notes:

1. Water Balance Calculations area in based on methodology described in the Conservation Authority Guidelines for Hydrogeological Assessments

2. Annual Precipitation and Evapotranspiration values were determined using the Thornthwaite (1948) method for monthly water budget calculations

3. Evaporation from impervious areas was assumed to be 20% of Precipitation

4. Infiltration Features are calculated using daily Precipitation data and averaged over the number of years of available data. The entire Catchment is assumed to contribute with no infiltration occuring during months with a negative average temperature.

5. Total Adjusted Runoff is calculated as (Pervious Runoff + Impervious Runoff) - (Infiltration Features)

Water Balance Calculations for Proposed Conditions



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 4-Jun-20

Catchment Parameters	Chamber 1	Chamber 2	Uncontrolled			Total
Drainage Area (m ²)	11800	18000	6200			36000
Pervious Area (m ²)	8500	11800	4100			24400
Impervious Area (m ²)	3300	6200.0	2100			11600
Evapotranspiration Factors					I	
Pervious PET Ratio	0.66	0.66	0.66			0.66
Impervious Evapotranspiration ³	0.20	0.20	0.20			0.20
Infiltration Factors	0.20	0.20	0.20		I	
Topography Infiltration Factor	0.15	0.15	0.15			0.15
Soil Infiltration Factor	0.35	0.35	0.35			0.35
Land Cover Infiltration Factor	0.10	0.10	0.10			0.10
MOE Infiltration Factor	0.60	0.60	0.60			0.60
Actual Infiltration Factor	0.60	0.60	0.60			0.60
Run-Off Coefficient	0.40	0.40	0.40			0.40
Runoff from Impervious Surfaces	0.80	0.80	0.80			0.80
Inputs (mm/yr)		1 0.00	0.00			
Precipitation	890.5	890.5	890.5			890.5
Run-On	0.0	0.0	0.0			0.0
Other Inputs	0.0	0.0	0.0			0.0
Total Inputs	890.5	890.5	890.5			890.5
Outputs (mm/yr)				I	IIIIIII	
Precipitation Surplus	416.0	442.7	440.3			433.5
Net Surplus	416.0	442.7	440.3			433.5
Evapotranspiration	474.5	447.8	450.2			457.0
Infiltration	130.1	118.4	119.4			122.4
Infiltration Features⁴	174.6	258.9	0.0			186.7
Total Infiltration	304.7	377.3	119.4			309.1
Runoff Pervious Areas	120.4	120.4	120.4			120.4
Runoff Impervious Areas	712.4	712.4	712.4			712.4
Total Unadjusted Runoff	285.9	324.3	320.9			311.1
Total Adjusted Runoff ⁵	111.3	65.4	320.9			124.5
Total Outputs	890.5	890.5	890.5			890.5
Inputs (m ³ /yr)			•		•	
Precipitation	10508	16029	5521			32058
Run-On	0	0	0			0
Other Inputs	0	0	0			0
Total Inputs	10508	16029	5521			32058
Outputs (m³/yr)						
Precipitation Surplus	4909	7968	2730			15607
Net Surplus	4909	7968	2730			15607
Evapotranspiration	5599	8061	2791			16451
Infiltration	1535	2131	740			4406
Infiltration Features ⁴	2061	4660	0			6721
Total Infiltration	3596	6791	740			11127
Runoff Pervious Areas	1023	1420	494			2937
Runoff Impervious Areas	2351	4417	1496			8264
Total Unadjusted Runoff	3374	5837	1990			11201
Total Adjusted Runoff⁵	1313	1177	1990			4480
Total Outputs	10508	16029	5521			32058

Notes:

1. Water Balance Calculations area in based on methodology described in the Conservation Authority Guidelines for Hydrogeological Assessments

2. Annual Precipitation and Evapotranspiration values were determined using the Thornthwaite (1948) method for monthly water budget calculations

3. Evaporation from impervious areas was assumed to be 20% of Precipitation

4. Infiltration Features are calculated using daily Precipitation data and averaged over the number of years of available data. The entire Catchment is assumed to contribute with no infiltration occuring during months with a negative average temperature.

5. Total Adjusted Runoff is calculated as (Pervious Runoff + Impervious Runoff) - (Infiltration Features)

Water Balance Assessment



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 4-Jun-20

Characteristic	Existing	Proposed No Mitigation	Change	Proposed With Mitigation	Change
Inputs (m ³ /yr)					
Precipitation	32058	32058	0.0%	32058	0.0%
Run-On	0	0	0.0%	0	0.0%
Other Inputs	0	0	0.0%	0	0.0%
Total Inputs	32058	32058	0.0%	32058	0.0%
Outputs (m³/yr)	-				
Precipitation Surplus Net Surplus	12480 12480	15607 15607	25.1% 25.1%	15607 15607	25.1% 25.1%
Evapotranspiration Infiltration	19578 5862	16451 4406	-16.0% -24.8%	16451 4406	-16.0% -24.8%
Infiltration Features	0	0	0.0%	6721	0.0%
Total Infiltration	5862	4406	-24.8%	11127	89.8%
Runoff Pervious Areas	3768	2937	-22.0%	2937	-22.0%
Runoff Impervious Areas	2850	8264	190.0%	8264	190.0%
Total Runoff	6617	11201	69.3%	4480	-32.3%
Total Outputs	32058	32058	0.0%	32058	0.0%

Infiltration Factor Calculations for Internal



Project No:10122Project Name:Nickerson WoodsDesigned/Checked By:CS / CPBDate:4-Jun-20

Topography						
Average Slope	0.91%					
Slope Description	Rolling/Hilly Land					
Topography Infiltration Factor	0.15					

Soils							
Hydrologic Soil Group ²	AB						
Soil Type	Tecumseth Sandy Loam	Total					
Area (ha)	2.26	2.26					
Soil Infiltration Factor	0.35	0.35					

Cover						
Land Use	Area (ha)	Cover Infiltration Factor				
Agriculture						
Range						
Grass	1.51	0.10				
Woods	0.75	0.20				
Wetland						
Bare Earth (>70% Rock)						
Impervious						
Total ³	2.26	0.13				

MOE Infiltration Factor	0.63
Actual Infiltration Factor	0.63

Notes:

1. Infiltration Factors are derived from Table 3.1, MOE SWM Design Manual 2003

2. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

Infiltration Factor Calculations for External



Project No:10122Project Name:Nickerson WoodsDesigned/Checked By:CS / CPBDate:4-Jun-20

Topography						
Average Slope	3.60%					
Slope Description	Hilly Land					
Topography Infiltration Factor	0.10					

Soils	EXT-201	EXT-301	EXT-302	EXT-302	
Hydrologic Soil Group ²	AB	AB	AB	AB	
Soil Type	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Total
Area (ha)	0.20	0.48	0.47	0.19	1.34
Soil Infiltration Factor	0.35	0.35	0.35	0.35	0.35

Cover						
Land Use	Area (ha)	Cover Infiltration Factor				
Agriculture						
Range						
Grass	0.94	0.10				
Woods						
Wetland						
Bare Earth (>70% Rock)						
Impervious	0.40					
Total ³	0.94	0.10				

MOE Infiltration Factor	0.55
Actual Infiltration Factor	0.55

Notes:

1. Infiltration Factors are derived from Table 3.1, MOE SWM Design Manual 2003

2. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

Infiltration Factor Calculations for Chamber 1

Sheet 1 of 2



Project No:10122Project Name:Nickerson WoodsDesigned/Checked By:CS / CPBDate:4-Jun-20

Topography		
Average Slope	2.50%	
Slope Description	Rolling/Hilly Land	
Topography Infiltration Factor	0.15	

Soils	PR-102	EXT-302	
Hydrologic Soil Group ²	AB	AB	
Soil Type	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Total
Area (ha)	0.71	0.47	1.18
Soil Infiltration Factor	0.35	0.35	0.35

Cover		
Land Use	Area (ha)	Cover Infiltration Factor
Agriculture		
Range		
Grass	0.85	0.10
Woods		
Wetland		
Bare Earth (>70% Rock)		
Impervious	0.33	
Total ³	0.85	0.10

MOE Infiltration Factor	0.60
Actual Infiltration Factor	0.60

Notes:

1. Infiltration Factors are derived from Table 3.1, MOE SWM Design Manual 2003

2. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

Infiltration Features for Chamber 1



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 4-Jun-20 Sheet 2 of 2

Infiltration Features Summary			
Total Storage Volume ¹	50.0 m ³		
Contributing Area ²	11800 m ²		
Pervious Area	8500 m ²		
Impervious Area	3300 m ²		
Maximum Drawdown	24 hrs		
Average Infiltration	2061 m³/yr		
Volume ³	174.6 mm/yr		

Notes:

1. Total Storage Volume from all Infiltration Features in the catchment

2. The entire catchment contributes flow to the Infiltration Features

3. Average Infiltration Volume is calculated using daily climate data and averaged over the number of years of available data. No benefit is assumed for Infiltration Features during months with a negative average temperature.

4. Daily climate data is taken from Environment Canada Station 'COBOURG STP' from 1981-2006

Infiltration Factor Calculations for Chamber 2



Project No:10122Project Name:Nickerson WoodsDesigned/Checked By:CS / CPBDate:4-Jun-20

Topography	
Average Slope	2.50%
Slope Description	Rolling/Hilly Land
Topography Infiltration Factor	0.15

Soils	PR-101	EXT-201	PR-103	PR-103	
Hydrologic Soil Group ²	AB	AB	AB	AB	
Soil Type	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Total
Area (ha)	0.70	0.47	0.44	0.19	1.80
Soil Infiltration Factor	0.35	0.35	0.35	0.35	0.35

Cover		
Land Use	Area (ha)	Cover Infiltration Factor
Agriculture		
Range		
Grass	1.18	0.10
Woods		
Wetland		
Bare Earth (>70% Rock)		
Impervious	0.62	
Total ³	1.18	0.10

MOE Infiltration Factor	0.60
Actual Infiltration Factor	0.60

Notes:

1. Infiltration Factors are derived from Table 3.1, MOE SWM Design Manual 2003

2. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.

Infiltration Features for Chamber 2



Project No: 10122 Project Name: Nickerson Woods Designed/Checked By: CS / CPB Date: 4-Jun-20 Sheet 2 of 2

Infiltration Features Summary		
Total Storage Volume ¹	173.0 m ³	
Contributing Area ²	18000 m ²	
Pervious Area	11800 m ²	
Impervious Area	6200 m ²	
Maximum Drawdown	24 hrs	
Average Infiltration	4660 m³/yr	
Volume ³	258.9 mm/yr	

Notes:

1. Total Storage Volume from all Infiltration Features in the catchment

2. The entire catchment contributes flow to the Infiltration Features

3. Average Infiltration Volume is calculated using daily climate data and averaged over the number of years of available data. No benefit is assumed for Infiltration Features during months with a negative average temperature.

4. Daily climate data is taken from Environment Canada Station 'COBOURG STP' from 1981-2006

Infiltration Factor Calculations for Uncontrolled



Project No:10122Project Name:Nickerson WoodsDesigned/Checked By:CS / CPBDate:4-Jun-20

Topography		
Average Slope	2.00%	
Slope Description	Rolling/Hilly Land	
Topography Infiltration Factor	0.15	

Soils	PR-104	EXT-201	PR-400	
Hydrologic Soil Group ²	AB	AB	AB	
Soil Type	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Tecumseth Sandy Loam	Total
Area (ha)	0.34	0.20	0.08	0.62
Soil Infiltration Factor	0.35	0.35	0.35	0.35

Cov	er			
Land Use	Area (ha)	Cover Infiltration Factor		
Agriculture				
Range				
Grass	0.41	0.10		
Woods				
Wetland				
Bare Earth (>70% Rock)				
Impervious	0.21			
Total ³	0.41	0.10		

MOE Infiltration Factor	0.60
Actual Infiltration Factor	0.60

Notes:

1. Infiltration Factors are derived from Table 3.1, MOE SWM Design Manual 2003

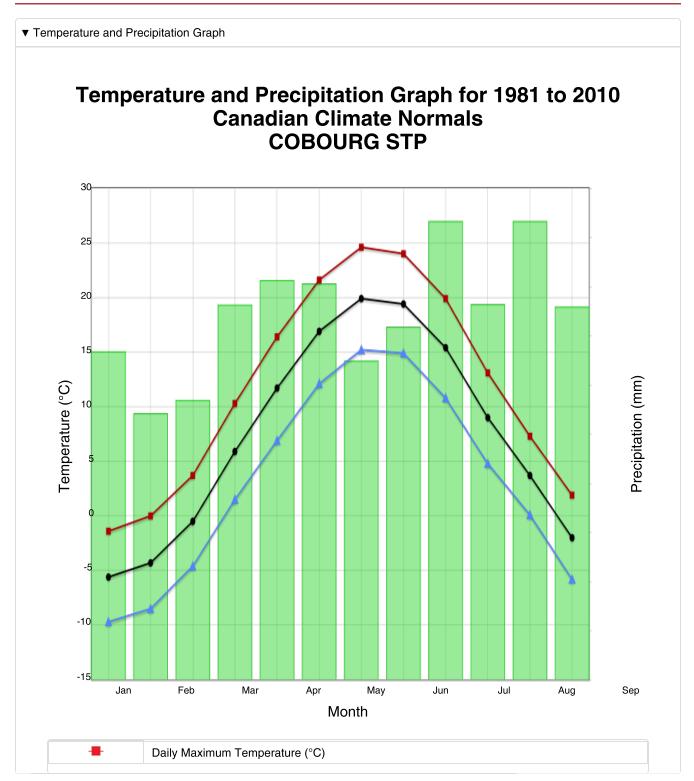
2. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.



Gouvernement du Canada

<u>Home</u> → <u>Environment and natural resources</u> → <u>Weather, Climate and Hazard</u> → <u>Past weather and climate</u> → <u>Climate Normals & Averages</u>

Canadian Climate Normals 1981-2010 Station Data



•	Daily Average Temperature (°C)
	Daily Minimum Temperature (°C)
di l	Precipitation (mm)

▼ Normals Data

The minimum number of years used to calculate these Normals is indicated by a <u>code</u> for each element. A "+" beside an extreme date indicates that this date is the first occurrence of the extreme value. Values and dates in bold indicate all-time extremes for the location.

Data used in the calculation of these Normals may be subject to further quality assurance checks. This may result in minor changes to some values presented here.

	<u>COBOURG STP</u> ONTARIO Current <u>Station Operator</u> : CCN	
Latitude:	43°58'00.000" N	
Longitude:	78°11'00.000" W	
Elevation:	79.20 m	
Climate ID:	6151689	
WMO ID:		

<u>TC ID</u>:

						<u>Temp</u>	<u>erature</u>							
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Co
Daily Average (°C)	-5.6	-4.3	-0.5	5.9	11.7	16.9	19.9	19.4	15.4	9.0	3.7	-2.0	7.5	
Standard Deviation	3.2	2.1	1.5	1.3	1.6	1.4	1.2	1.3	1.3	1.0	1.2	2.6	1.0	
Daily Maximum (°C)	-1.4	0.0	3.7	10.3	16.4	21.6	24.6	24.0	19.9	13.1	7.3	1.9	11.8	

						<u>Temp</u>	perature	<u>)</u>						
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Code
Daily Minimum (°C)	-9.7	-8.5	-4.6	1.5	6.9	12.1	15.2	14.9	10.8	4.8	0.1	-5.8	3.1	<u>(</u>
Extreme Maximum (°C)	13.0	13.0	20.0	26.0	29.0	31.5	36.0	34.0	30.0	24.0	18.0	15.5		
Date	1995/	1994/	1998/	1990/	1977/	2005/	1988/	2001/	1973/	1997/	1977/	1982/		
(yyyy/dd)	14	19	31	28	28	25	08	07	04	06	04	03		
Extreme Minimum (°C)	-39.0	-27.8	-26.0	-12.0	-5.0	-1.0	5.0	1.0	-5.0	-10.0	-16.0	-29.0		
Date	1981/	1976/	2003/	1982/	1978/	1983/	1988/	1986/	1990/	1978/	1978/	1980/		
(yyyy/dd)	04	02	03	05	01	08	03	30	18	09	27	25		

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Precipitation

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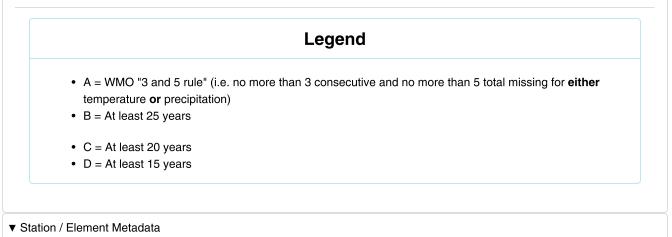
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	34.0	32.9	42.7	74.3	81.2	80.5	64.8	71.7	93.2	76.3	89.2	53.1	793.9
Snowfall (cm)	32.7	21.2	14.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	4.0	22.7	96.5
Precipitation (mm)	66.7	54.1	56.8	76.2	81.2	80.5	64.8	71.7	93.2	76.3	93.2	75.8	890.4
Extreme Daily Rainfall (mm)	65.0	31.0	49.5	46.1	53.0	52.5	62.5	70.0	73.4	51.0	54.8	40.0	
Date (yyyy/dd)	1979/ 24	1998/ 17	1980/ 21	1992/ 16	1989/ 31	1998/ 25	1992/ 17	1998/ 23	1986/ 10	1980/ 25	1985/ 03	1990/ 03	
Extreme Daily Snowfall (cm)	20.0	35.6	17.0	17.3	0.0	0.0	0.0	0.0	0.0	0.0	13.2	25.4	
Date	1997/	1971/	1980/	1975/	1971/	1971/	1970/	1970/	1970/	1970/	1991/	1975/	
(yyyy/dd)	10	13	13	03	01	01	01	01	01	01	28	09	
Extreme Daily Precipitation (mm)	65.0	35.6	49.5	46.1	53.0	52.5	62.5	70.0	73.4	51.0	54.8	44.0	

		Precipitation												
	Jan	Feb	Mar	Apr	Мау	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year	Сс
Date	1979/	1971/	1980/	1992/	1989/	1998/	1992/	1998/	1986/	1980/	1985/	1990/		
(yyyy/dd)	24	13	21	16	31	25	17	23	10	25	03	03		
Extreme Snow Depth (cm)	44	35	22	3	0	0	0	0	0	0	12	25		
Date	1999/	1993/	1993/	2003/	1983/	1983/	1983/	1983/	1983/	1983/	1995/	2005/		
(yyyy/dd)	13	23	01	07	01	01	01	01	01	01	15	17		

>

<

- ► Days with Maximum Temperature
- ► Days with Minimum Temperature
- ► Days with Rainfall
- ► Days With Snowfall
- ► Days with Precipitation
- ► Degree Days
- ► Frost-Free



Statistics listed below are provided as a guide to determine the validity of Normals and Extremes calculations. For example, a station with 30 years of record between 1981 and 2010 with no missing years would be a more reliable normal than a station with 15 years of record and 2 missing years. Less than 100% possible observations indicates that out of the total number of observations used, some records were missing.

	COBOURG STP
Province	ON
<u>Latitude (dd mm)</u> :	43 58 N
Country	CAN
Longitude (ddd mm):	78 11 W
Time Zone	EST
Latitude (decimal degrees):	43.97 N
Climate ID:	6151689
Longitude (decimal degrees):	78.18 W
WMO ID:	
<u>Elevation (m)</u> :	79.2
<u>TC ID</u> :	

▼ Temperature

Temperature											
	Begin Year	End Year	Total Number of Years	Missing Years	Total Count of Observations	% of Possible Observations					
Daily Average (°C)	1981	2006	26	1	9332	98.6					
Standard Deviation	1981	2006	26	1	9332	98.6					
Daily Maximum (°C)	1981	2006	26	1	9338	98.7					
Daily Minimum (°C)	1981	2006	26	1	9337	98.7					
Extreme Maximum (°C)	1972	2006			12397	99.6					

	Begin Year	End To Year	tal Number of Years	Missing Years	Total Count of Observations	% of Possibl Observation
Extreme Minimum (°C)	1972	2006			12454	99.
Precipitation						
			Precipita	ation		
	Beg Yea		Total Number of Years	Missing Years	Total Count of Observations	% of Possibl Observation
Rainfall (mm)	198	31 2006	26	1	9376	9
Snowfall (cm)	198	2006	26	1	9376	9
Precipitation (mm)	198	2006	26	1	9376	9
Extreme Daily Rainfall (mm)	197	0 2006			13045	99.
Extreme Daily Snowfall (cm)	197	0 2006			13068	99.
Extreme Daily Precipitation (mm)	197	0 2006			13035	99.
Extreme Snow Depth (cm)	198	3 2006			4942	78.
Days with Maximum T Days with Minimum Te						
Days with Rainfall						
Days With Snowfall						
Days with Precipitatior	ı					
Degree Days						

Appendix F

Conveyance Calculations

STORM SEWER DESIGN SHEET

Rain Station:	Co	bourg																			
Design Storm:	5	Year								Project In	nformation									D.M. Wills A	Associates Ltd.
Intensity-Duration-	. a =	530.0			Pro	ject Name	Nickerson						Р	roject No.	10	122				150 Jameso	on Drive
Frequency	b =	3.300			Project	Location	Town of C	obourg					De	signed by	М	BJ				Peterborou	gh, ON ·K9J 0B9
Parameters	c =	0.74			Мι	inicipality	Town of C	obourg					C	hecked by	А	H		WIL PARTNE ENGINE		Tel: (705) 74	I2-2297
Max. Allowable	Pipe Capacity:	85%			Design \$	Standards	Ganarask	a						Date	July 8	, 2019		ENGINE	exing	Fax: (705) 7	41-3568
Minimum Time of		15	min																		
	LOCAT	FION			E OF TRATION	÷		Ę			SN (NS NS			PIPE PRO	PERTIES			∣≽		
					IRATION IN)	(mm/hr)		E E		0		щÓ	(m³/s)	F			Ê	3/s)	0C		
STREET	CATCHMENT ID	FROM	то	TO UPPER END	IN REACH	INTENSITY (m	AREA (ha)	RUNOFF COEFFICIENT, C	AC	CUMUL AC	EXTRANEOUS FLOWS (m ³ /s) (OPTIONAL)	CUMULATIVE EXTRANEOUS FLOWS (m ³ /s)	RUNOFF (m	PIPE MATERIAL	LENGTH (m)	GRADE (%)	PIPE DIA. (mm)	CAPACITY (m³/s)	FULL FLOW VELOCITY	% EULL	NOTES
Street 'A'		Chamber 1	MH 13	15.0	0.1	61.7	0.00	0.00	0.00	0.00	0.03	0.03	0.026	PVC	5.2	1.00	300	0.10	1.37	26.9	
Street 'A'		MH 13	CBMH 14	15.1	0.6	61.4	0.20	0.60	0.12	0.12	0.00	0.03	0.046	PVC	47.2	1.00	300	0.10	1.37	48.1	
Street 'A'		CBMH 14	CBMH 15	15.7	0.2	60.0	0.07	0.60	0.04	0.16	0.00	0.03	0.053	PVC	19.5	1.00	300	0.10	1.37	54.8	
Street 'A'		CBMH 15	OGS 16	15.9	0.3	59.5	0.07	0.60	0.04	0.20	0.00	0.03	0.060	PVC	23.0	0.70	300	0.08	1.14	73.8	
Street 'A'		CB 18	OGS 16	15.0	0.6	61.7	0.15	0.70	0.11	0.11	0.00	0.00	0.018	PVC	36.0	0.50	300	0.07	0.97	26.3	
Street 'A'		AD 9	CB 10	15.0	0.8	61.7	0.08	0.10	0.01	0.01	0.00	0.00	0.001	PVC	35.5	0.50	200	0.02	0.74	5.9	
Street 'A'		CB 10	OGS 16	15.8	0.4	59.7	0.77	0.60	0.46	0.47	0.00	0.00	0.078	PVC	31.5	0.80	375	0.16	1.42	49.7	
Street 'A'		OGS 16	Chamber 2	16.2	0.1	58.8	0.00	0.00	0.00	0.78	0.00	0.03	0.153	PVC	7.5	0.50	450	0.20	1.27	76.0	
																					ļ
D'Arcy Street		CB 102	CBMH 101	15.0	0.1	61.7	0.01	0.80	0.01	0.01	0.00	0.00	0.001	PVC	10.5	1.00	300	0.10	1.37	1.4	
D'Arcy Street		CBMH 101	EX MH 100	15.1	0.2	61.4	0.05	0.80	0.04	0.05	0.00	0.00	0.008	PVC	12.5	1.00	300	0.10	1.37	8.5	ļ

Input Column

Formulated Column

U/S End of Pipe Run

D/S End of Pipe Run

Pipe Run

Exceeds Max Capacity

city

 $Q = V \times A$ $V = (1/n) \times R^{2/3} \times S^{1/2}$

Flow Calculations

 Manning's n Values

 HDPE
 0.010

 PVC
 0.013

 Concrete
 0.013

 Clay
 0.014

 Brick
 0.015

Enhanced Grass Swale Sizing for Eastern Swale (PR-102)



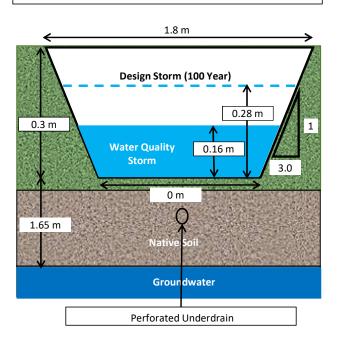
Project No: 10-10122 Project Name: Nickerson Woods Designed/Checked By: CPB / RC Date: 5-Jun-20

Site Characteristics	i de la companya de l
Catchment Area	1.18 ha
Water Quality Storm	25 mm
Runoff Coefficient	0.34
Water Quality Control Volume	100.3 m ³
Water Quality Peak Flow Rate	0.035 m ³ /s
100 Year Storm Peak Flow Rate	0.164 m ³ /s
Proposed Surface Elevation	102.15 m
Groundwater Elevation	100.20 m
Design Constraints	

Design Constraints	
Check Dams Required	No
Max Water Quality Flow Depth	0.1 m
Max Water Quality Velocity	0.5 m/s
Max Design Storm Velocity	1.5 m/s
Min Depth to Groundwater	1.0 m

Design Calcula	itions	
Pretreatment Utilized	No	ne
Check Dams Included	No	
Longitudinal Slope	0.5	%
Manning's n	0.027	
Maximum Swale Capacity	0.19	m³/s
Under-drain Capaciy	0.013	m³/s
Under-drain Storage	4.68	m³
Water Quality Depth	0.16	m
Water Quality Velocity	0.47	m/s
Design Storm Velocity	0.69	m/s

Enhanced Grassed Swale Proposed Cross-Section



Notes:

- 1. Flow Depth and Velocity were determined using Manning's Equation for the proposed swale cross-section.
- 2. Design Constraints were determined from CVC/TRCA Low Impact Development Stormwater Management Planning and Design Guide

Enhanced Grass Swale Sizing for Rear Yard Swale (PR-103)



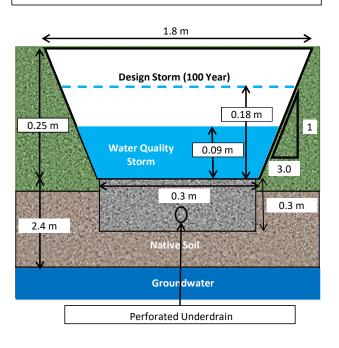
Project No: 10-10122 Project Name: Nickerson Woods Designed/Checked By: CPB / RC Date: 5-Jun-20

Site Characteristics	5				
Catchment Area	0.63 ha				
Water Quality Storm	25 mm				
Runoff Coefficient	0.35				
Water Quality Control Volume	55.1 m ³				
Water Quality Peak Flow Rate	0.020 m ³ /s				
100 Year Storm Peak Flow Rate	0.092 m ³ /s				
Proposed Surface Elevation	101.55 m				
Groundwater Elevation	98.90 m				
Design Constraints					
Charle Dame Dequired	No				

Check Dams Required	No
Max Water Quality Flow Depth	0.1 m
Max Water Quality Velocity	0.5 m/s
Max Design Storm Velocity	1.5 m/s
Min Depth to Groundwater	1.0 m

Design Calcula	itions
Pretreatment Utilized	None
Check Dams Included	No
Longitudinal Slope	0.5 %
Manning's n	0.027
Maximum Swale Capacity	0.18 m ³ /s
Under-drain Capacity	0.013 m ³ /s
Under-drain Storage	14.21 m ³
Water Quality Depth	0.090 m
Water Quality Velocity	0.40 m/s
Design Storm Velocity	0.59 m/s

Enhanced Grassed Swale Proposed Cross-Section



Notes:

- 1. Flow Depth and Velocity were determined using Manning's Equation for the proposed swale cross-section.
- 2. Design Constraints were determined from CVC/TRCA Low Impact Development Stormwater Management Planning and Design Guide

Emergency Spill Ditch-100 Year Storm Event

Solve For	Manning Formula	
	Normal Depth	
Input Data		
Roughness Coefficient	0.030	
Channel Slope	0.02000	m/m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Bottom Width	0.30	m
Discharge	0.29	m³/s
Results		
Normal Depth	0.23	m
Flow Area	0.23	m²
Wetted Perimeter	1.78	m
Hydraulic Radius	0.13	m
Top Width	1.70	m
Critical Depth	0.24	m
Critical Slope	0.01801	m/m
Velocity	1.22	m/s
Velocity Head	0.08	m
Specific Energy	0.31	m
Froude Number	1.05	
Flow Type	Supercritical	
GVF Input Data		
Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	
GVF Output Data		
Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.23	m
Critical Depth	0.24	m
Channel Slope	0.02000	m/m

Bentley Systems, Inc. Haestad Methods Sol Reintlege Fitew Master V8i (SELECTseries 1) [08.11.01.03]

2020-04-02 10:33:06 AM

27 Siemons Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666 Page 1 of 2

Emergency Spill Ditch-100 Year Storm Event

GVF Output Data

Critical Slope

0.01801 m/m

	Emergency Spill Ch	annel
Project Description		
Friction Method	Manning Formula	
Solve For	Discharge	
Input Data		
Roughness Coefficient	0.030	
Channel Slope	0.02000	m/m
Normal Depth	0.30	m
Left Side Slope	3.00	m/m (H:V)
Right Side Slope	3.00	m/m (H:V)
Bottom Width	0.30	m
Results		
Discharge	0.51	m³/s
Flow Area	0.36	m²
Wetted Perimeter	2.20	m
Hydraulic Radius	0.16	m
Top Width	2.10	m
Critical Depth	0.31	m
Critical Slope	0.01669	m/m
Velocity	1.41	m/s
Velocity Head	0.10	m
Specific Energy	0.40	m
Froude Number	1.09	
Flow Type	Supercritical	
GVF Input Data		
Downstream Depth	0.00	m
Length	0.00	m
Number Of Steps	0	
GVF Output Data		
Upstream Depth	0.00	m
Profile Description		
Profile Headloss	0.00	m
Downstream Velocity	Infinity	m/s
Upstream Velocity	Infinity	m/s
Normal Depth	0.30	m
Critical Depth	0.31	m
Channel Slope	0.02000	m/m

Bentley Systems, Inc. Haestad Methods Solictional Quefiter Master V8i (SELECTseries 1) [08.11.01.03]

2020-04-02 10:31:33 AM

27 Siemons Company Drive Suite 200 W Watertown, CT 06795 USA +1-203-755-1666

Emergency Spill Channel

GVF Output Data

Critical Slope

0.01669 m/m

Emergency Walkway Weir

Project Description			
Solve For	Discharge		
Input Data			
Headwater Elevation	10	0.80	m
Crest Elevation		0.69	m
Tailwater Elevation		0.62	m
Weir Coefficient		1.62	SI
Crest Length		5.80	m
Number Of Contractions	0		
Results			
Discharge		0.34	m³/s
Headwater Height Above Crest		0.11	m
Tailwater Height Above Crest	-	0.07	m
Flow Area		0.64	m²
Velocity		0.54	m/s
Wetted Perimeter		6.02	m
Top Width		5.80	m

Appendix G

Soil Investigation Summary Report



member of Inspec-Sol Inc.

25 May 2015

LeBlanc Enterprises 1035416 Ontario Ltd., P.O. Box 216 Cobourg, ON K9A 4K5

Attention: Mr. Al LeBlanc

Re:	Soil Infiltration Rate for Storm Water Management
	Nickerson Woods Subdivision,
	Cobourg, ON
	Our Project № G030232B1

Dear Mr. Leblanc:

Further to your request, Geo-Logic carried out a subsurface investigation at the proposed Nickerson Woods Subdivision development located north of Nickerson Dr. on the continuation of D'Arcy Street in the Municipality of Cobourg. It is proposed to determine the soil conditions present and based on the findings determine the feasibility of infiltration method for storm water management techniques and the relevant soil parameters to aid in the design.

The field work consisted of subsurface exploration by means of excavating three (3) testholes to depths ranging from 1.5 to 2.0 metres below existing grade (mbeg) on May 12, 2015. A detailed log of the testhole was maintained and is attached to this letter along with a test hole location plan. Representative soil samples of the materials encountered in the testhole were obtained and inspected in the field immediately upon retrieval for type, texture, and colour. All samples were sealed in clean plastic bags and transported to the Geo-Logic laboratory for further visual-tactile examination and for laboratory testing including moisture content, gradation and specific gravity. The soil percolation rate was measured in the testholes, using the methodology described in section 6.3.4 Falling Head Percolation Test of the MOE Manual of Policy, Procedures and Guidelines for Private Sewage Dispoal Systems. The depth the test occurred in each test hole is shown on the logs.



Groundwater observations were made during the excavation and on completion of the test holes and the depth groundwater was encountered was recorded on the testhole logs.

The general area of the site is north of Nickerson Drive on the continuation of D'Arcy Street in the Municipality of Cobourg. This portion of Cobourg lies within the physiographic region known as Lake Iroquois Plain according to Chapman and Putnam in "Physiography of Southern Ontario (2nd Edition 1984). During the Pleistocene, the Iroquois Plain formed when the Lake Ontario basin was flooded with glacial melt water. The glaciers had previously deposited the underlying till soil found at depth, and created the drumlin hill to the west of the site area. The surficial sand soils found on site were deposited in a near shore environment of glacial Lake Iroquois and alluvial soils deposited from the river that eventually became the Creek flowing west of the site.

The topography of the site generally slopes downward from Nickerson Drive to the creek which flows from northeast to southwest.

Details of the subsurface conditions encountered at the site are presented graphically on the test hole logs. It should be noted that the boundary between the topsoil and underlying silts and sands have been inferred from the test hole observations. They generally represent a transition from one soil type to another, and should not be inferred to represent an exact plane of geological change. Further, conditions will vary beyond the test hole.

This investigation was performed to provide geotechnical engineering parameters to aid in the design of the stormwater management for the site including the possibility of infiltration techniques on site as part of the stormwater management.

The test holes advanced on site indicated the soil profile would consist of 0.30 m of surficial topsoil followed by fine sand to silty sand to well below the water table to the termination of the test holes. Based on the observed soil conditions in the test pit, the soil gradation and the percolation tests the infiltration rate for the sand is 50 to 75 mm/hr for water at 20 degrees Celsius. The testing was carried out in spring conditions with the water table at1.15 m to 1.6 m depth. It was concluded that the site soils are conducive to infiltration techniques for storm water management provided some grade raise over the site area occurs.

Should you require any additional information, or have questions, please contact our office at



your convenience.

A. F. FAWCETT

Yours very truly, **Geo-Logic Inc**. GEOTECHNICAL ENGINEERS AND HYDROGEOLOGISTS

Havet

Andy Fawcett, P. Eng. Senior Engineer

GEO-LOGIC member of Inspec-Sol Inc. 347 Pido Road, Unit 29, Peterborough (Ontario) K9J 6X7 T 705 749-3317 F 705 749-9248 QMS ISO 9001 : 2008

AF/

STATEMENT OF LIMITATIONS

The report is intended for the guidance of the stormwater engineer. From a construction standpoint, contractors must make their own assessments of the groundwater and soil conditions at the site and how these will affect their proposed construction methods, techniques and schedules.

The conclusions and recommendations in this report are based on information determined at the test hole locations and on geological data of a general nature which may be available for the area investigated. Soil and groundwater conditions beyond the test hole may differ from those encountered at the test hole location and conditions may become apparent during construction which could not be detected or anticipated at the time of the investigation.

This report is applicable only to the project described in the introduction, constructed substantially in accordance with details of alignment and elevations quoted in the text. This report has been prepared for the sole use of Leblanc Enterprises and Greenland Consulting Engineers. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Geo-Logic accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

APPENDIX A

TESTHOLE LOGS AND LOCATION PLAN



member of inspec-Sol Inc.

TEST PIT 1

Location: N43.98106, W078.16400

Soil Type	
Topsoil	
ght brown Fine sand few silt	Moist, compact
	Topsoil ght brown Fine sand few silt

Test pit terminated at 2.0 m depth, Static water level at 1.6 m depth

TEST PIT 2

Location: N43.98161, W078.16296

Depth (m)	Soil Type	Remarks
0 to 0.3	Topsoil	
0.3 to 1.5	Light brown Fine sand few silt	Moist, compact

Test pit terminated at 1.5 m depth, Static water level at 1.15 m depth

TEST PIT 3

Location: N43.98316, W078.16171

Depth (m)	Soil Type	Remarks
0 to 0.4	Topsoil	
0.4 to 1.7	Light brown Fine sand few silt	Moist, compact

Test pit terminated at 1.7 m depth, Static water level at 1.4 m depth



NOTES:

Original document: Development Site Plan, by RFA Planning Consultant Inc.

Test Pits located with hand held GPS during testing.

Testing locations shown on this drawing are approximate. Specific locations of test pits are as follows:

TP-1: N43.98106, W078.16400

TP-2: N43.98161, W078.16296

TP-3: N43.98316, W078.16171

PERCOLATION TEST LOCATION PLAN NICKERSON WOODS SUBDIVISION COBOURG ONTARIO

GEO-LOGIC INC.

PROJECT NUMBER:	PROJECT DATE:							
G030232-B3	MAY 2015							
SCALE:	DRAWN BY:							
NOT SCALED	SS							
ENCLOSURE NUMBER:	APPROVED BY:							
01	AF							
DRAWING NUMBER:	APPROVED DATE:							
A101	19/05/2015							
C GEO-L	OGIC INC.							
A member of the	INSPEC-SOL group							
347 PIDO RO	DAD, UNIT 31							
PETERBOROU	JGH, ON K9J 6X7							
(705) 749-3317 FAX (705) 749-9248	E-MAIL: peterborough@geo-logic.ca							



member of inspec-Sol inc.

APPENDIX B

GRADATION TESTS

GEO-LOGIC member of Inspec-Sol Inc. 347 Pido Road, Unit 29, Peterborough (Ontario) K9J 6X7 T 705 749-3317 F 705 749-9248 QMS ISO 9001 : 2008

WWW.GEO-LOGIC.CA

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	2700						

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Member of the INSPEC-S	Leblanc Enterpris	L	AB No.:	S	(ASTI S-15-44	
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ERFORMED BY:	Jan Sales		DATE:	Ma	y 15, 2015	

IENT:	Leblanc Enter	S	LAB No.:		SS-15-44		
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	TP3-B	0	68		32		
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ERFORMED BY	:		DATE:	101	ay 10, 2010		



July 7, 2016

Reference No. G030232-B3

Mr. Al LeBlanc LeBlanc Enterprises 1035416 Ontario Ltd. P.O. Box 216 Cobourg, Ontario K9A 4K5

> Re: Supplementary Hydrogeologic Testing Proposed Storm Water Management Facility Nickerson Woods Subdivision, Cobourg

Dear Mr. LeBlanc:

In response to an e-mail from Ms. Christie Peacock, P.Eng. from the Ganaraska Region Conservation Authority (GRCA) dated May 10, 2016, the following report presents the results of added hydrogeologic testing that has been completed at the above captioned site. Reference is made to our previous letter-report dated May 25, 2015 for details of a subsurface investigation that was completed for a planned residential development in the Town of Cobourg. The site is situated northwest of Nickerson Drive and extends from the northern end of D'Arcy Street. The location of the site with respect to neighbouring roads and water courses is illustrated on the Vicinity Plan, Figure 1. A more detailed depiction of the ground surface topography is presented on the Site Plan, Figure 2. The layout of the proposed residential development is illustrated on the Hydraulic Conductivity Test Location plan, Figure 3.

The purpose of the supplementary testing was to further evaluate the existing hydraulic conductivity of the existing native soil to determine if it is suitable for the proposed storm water management facility. The following scope of work was performed to accomplish the foregoing purposes.

- 1. A walkover inspection was conducted to review surficial ground characteristics. Buried services were located at this time in advance of the drilling operations.
- 2. The subsurface conditions were explored by advancing, sampling and logging two (2) supplemental boreholes to a target depth of 4.6m. The subsurface conditions were recorded and are summarized in detail in Appendix A. A monitoring well was installed in each borehole to facilitate water level measurements.
- 3. Raising head and falling head slug testing was completed within each monitoring well.
- 4. The slug tests were complimented by conducting in-situ constant head permeameter tests in the vicinity of the monitoring wells to further assess the hydraulic conductivity of the soil in the vadose zone. The testing was conducted in accordance with protocol outlined in "Low Impact Development Stormwater Management Planning and Design Guide", Version 1.0 dated 2010 prepared by Credit Valley Conservation and Toronto and Region Conservation Authority.

5. Prepared the following report which presents the results of the supplementary testing and our opinion of the in-situ hydraulic conductivity.

The supplementary subsurface exploration investigation was conducted on June 1, 2016. Borehole records are provided in Appendix A. The site is within the physiographic region known as the Lake Iroquois Plain (Chapman and Putnam, 1984). The local topography gently slopes toward the northwest in the direction of Midtown Creek situated approximately 35m from the site. The boreholes encountered a surficial (0.15m thick) layer of topsoil underlain by brown fine grained sand. The sand extended to the full depth of borehole BH-101 and to a depth of 1.5m in BH-102. At BH-102, the fine sand was found to be underlain by a layer of grey silty sand. At both locations, the fine sand was moist and became visibly wet at approximate depths of 1.5m (BH-102) to 1.8m (BH-101). The subsurface conditions were similar to what was documented in our previous report.

Groundwater seepage or accumulation was observed in both boreholes. Water level measurements were conducted within the monitoring wells upon completion of drilling and then ten (10) days thereafter. Based on this information, the groundwater existed at a depth of 1.6m below the ground surface at the time of the supplemental investigation. The measured groundwater corresponds to elevations 98.9m and 99.9m in boreholes BH-101 and BH-102, respectively. Based on the water level data collected and the surrounding topography, the shallow groundwater flow direction is expected to be northwestward in the direction of Midtown Creek.

Hydraulic conductivity (K) testing was completed in the monitoring wells at the supplementary boreholes on June 10, 2016. The testing consisted of rising and falling head testing and was completed using a one-metre long slug. The water levels were measured using data loggers programmed at five (5) second intervals. The data was analyzed using AQTESOLV and the Bouwer-Rice solution for each rising and falling head test (see Appendix B for solution data). The K values for the hydraulic conductivity testing are on the order of 10^{-2} (BH-102) to 10^{-4} cm/sec (BH-101). The K values from the slug test completed at BH-102 did not correspond to typical values that would be expected for fine sand. As such, additional testing (described below) was conducted on the same date.

In-situ constant head permeameter tests were completed at two (2) locations close to the monitoring wells to evaluate hydraulic conductivity of the shallow soil zone. The testing was conducted in accordance with protocol presented in the aforementioned Guide prepared by Credit Valley Conservation and Toronto and Region Conservation Authority. The testing utilized an ETC Pask (constant head well) permeameter. The results are graphically presented in Appendix B. In general, the testing indicated that the fine sand soil exhibits a field saturated hydraulic conductivity that ranged from 2.8 x 10^{-3} cm/sec (BH-101) to 1.6 x 10^{-4} cm/sec (BH-102). The corresponding percolation rate (T-time) is 10min/cm (60mm/hour).

Conclusion

Based on the results of the supplementary hydrogeologic testing, it is our professional opinion that the site is suitable for the proposed residential development and storm water facility. The storm water facility should be designed based on an in-situ percolation rate of 60mm/hour. It is our professional opinion that there is low potential for groundwater and surface water impact as a result of developing the site. Of the two (2) areas tested, it is our opinion that the area corresponding to BH-101 is more suitable for constructing the proposed storm water facility.

We trust that this report meets with your immediate requirements. Should you have any questions, please contact our office.

Sincerely,

GHD Limited

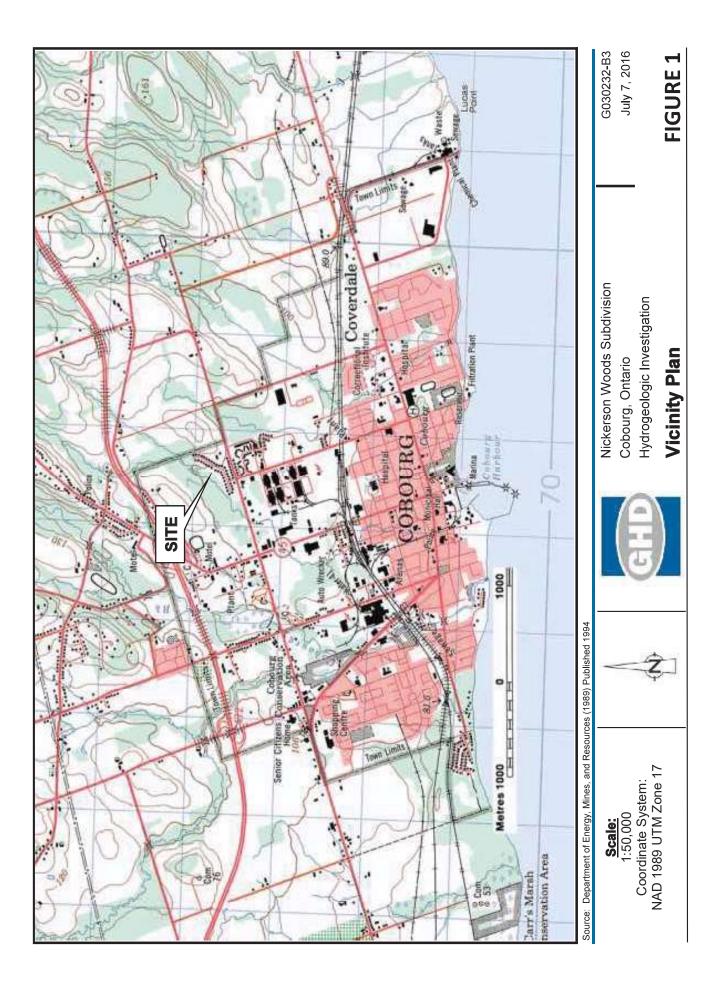
David Workman, P.Geo.

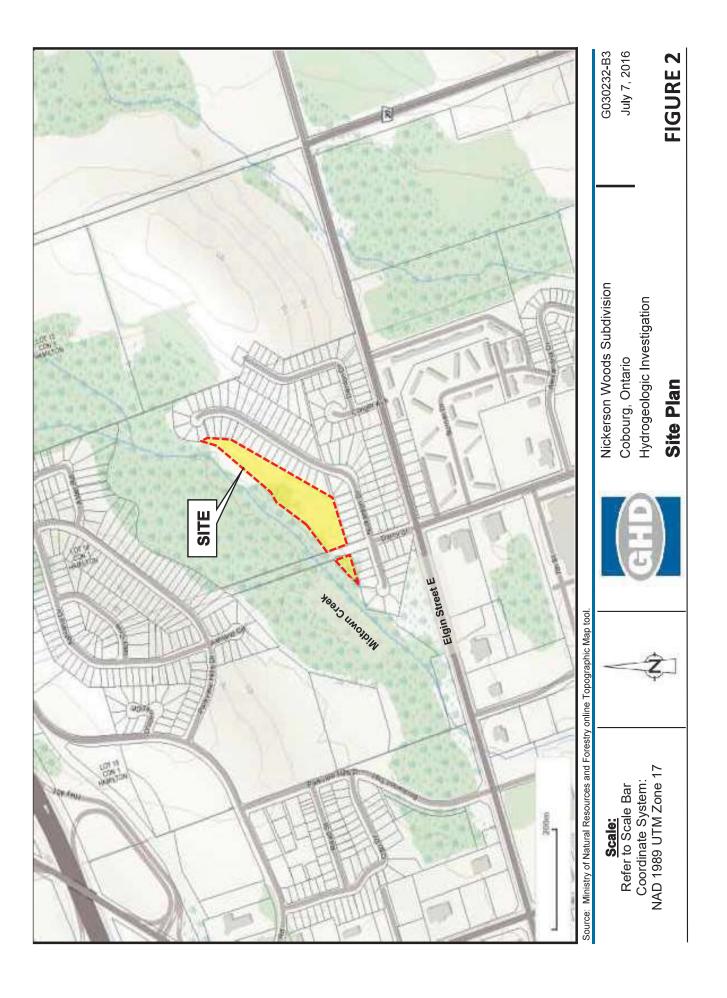
Andy Fawcett, P.Eng.

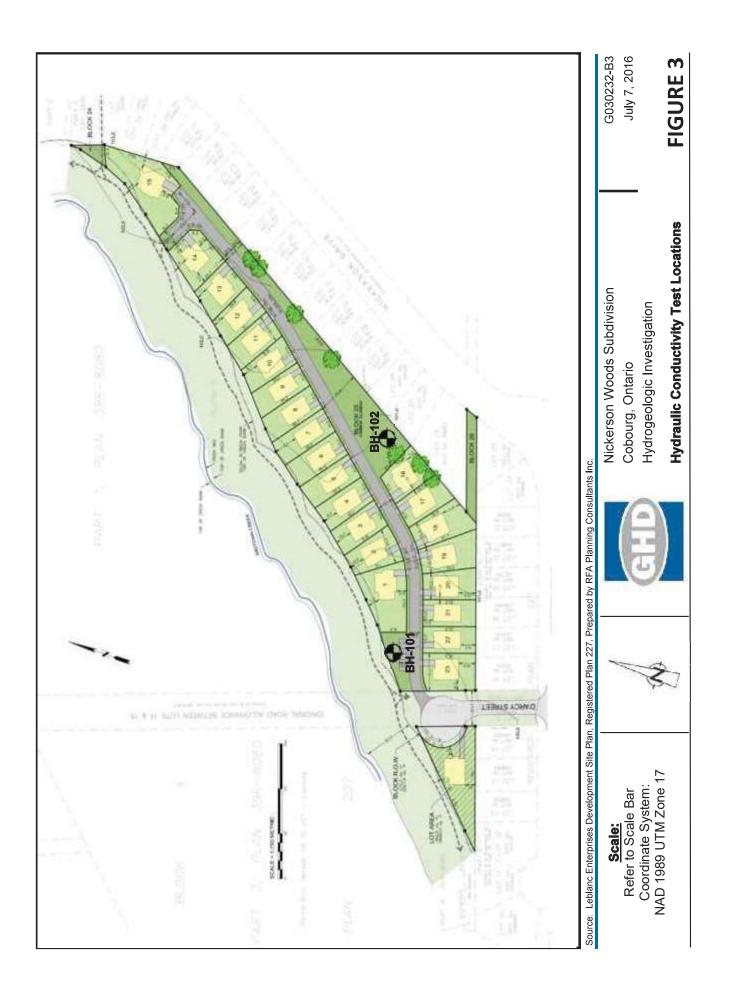


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Encl. Vicinity Plan Site Plan Hydraulic Conductivity Test Locations Appendix A: Subsurface Exploration Data Appendix B: Hydraulic Conductivity Test Data Enclosures







Appendix A:

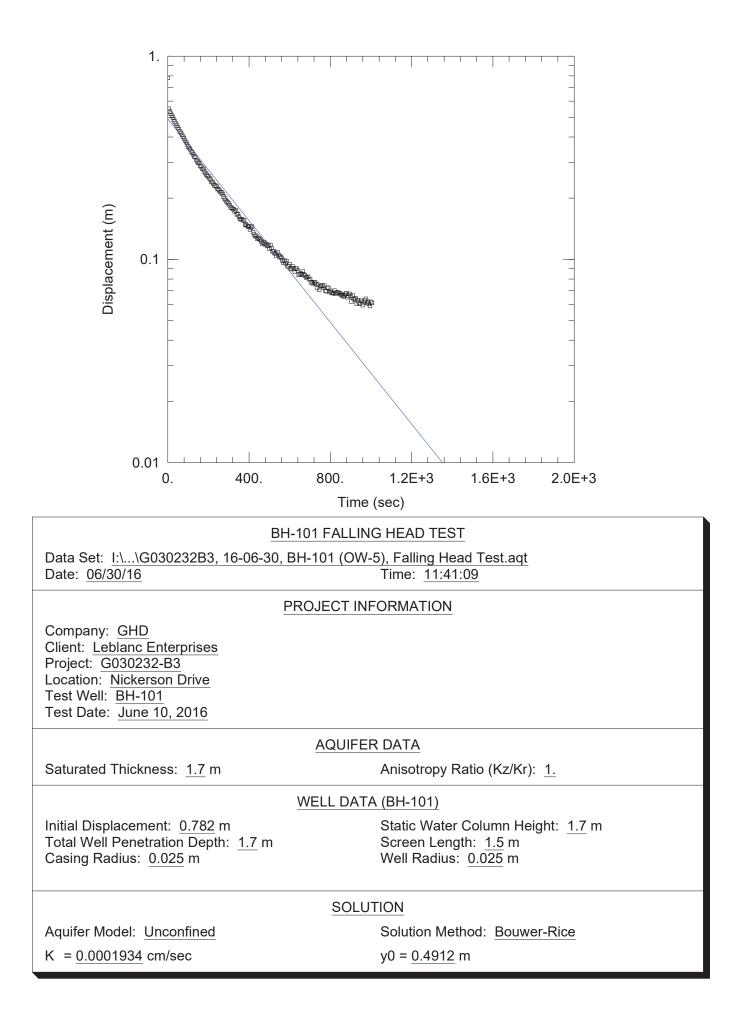
Subsurface Exploration Data

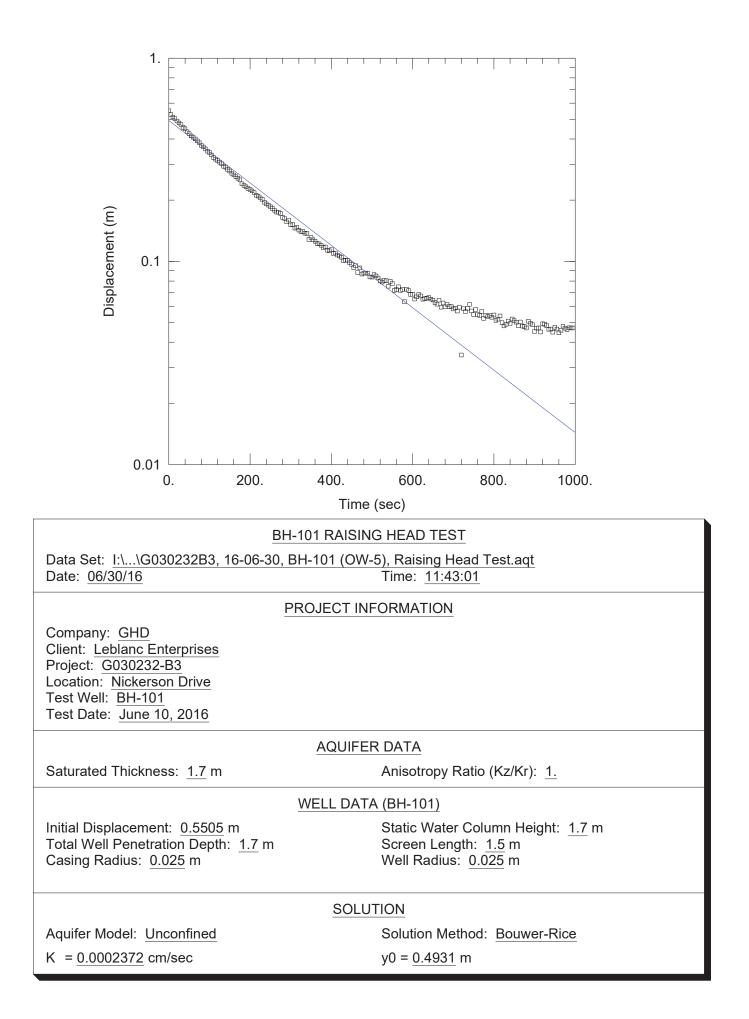
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CLIENT	:	L	_eblanc Enterprises								LE	GEND
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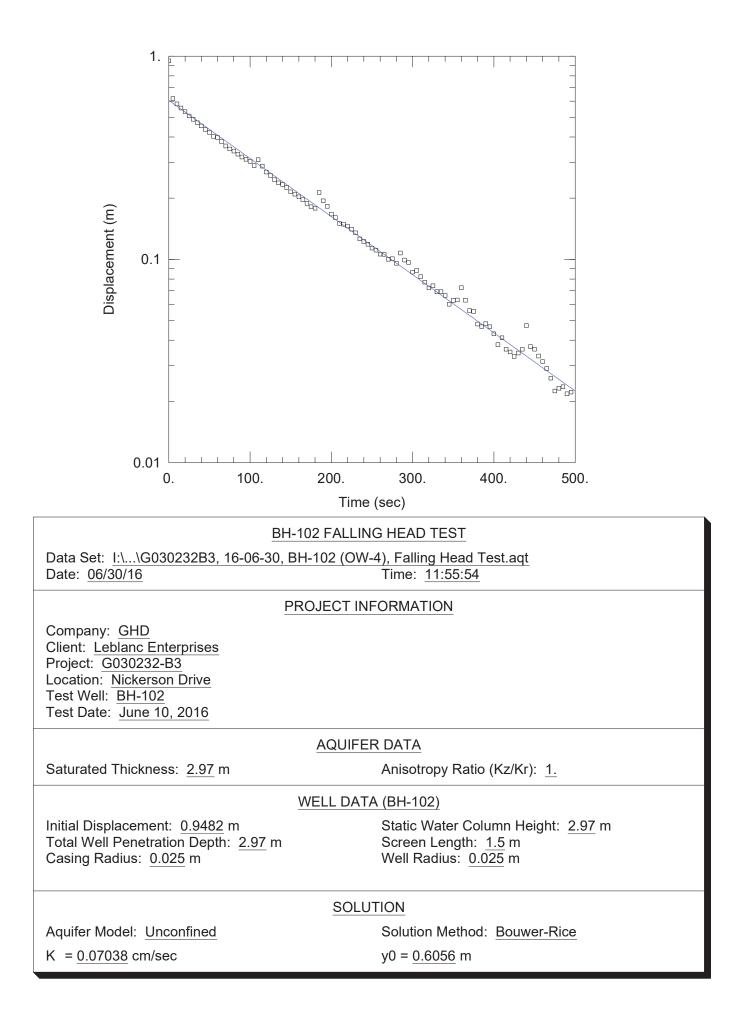
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GIL			ELE	VATION	l:	Exi	sting	Gra	rade Page: <u>1</u> of <u>1</u>
CLIENT	:	Leblanc Enterprises							LEGEND
PROJE	СТ:	Nickerson Drive							SS - SPLIT SPOON
LOGGE	D BY: I	P. Hynes		DA	ATE:	Ju	ine 1,	2016	6 AS - AUGER SAMPLE
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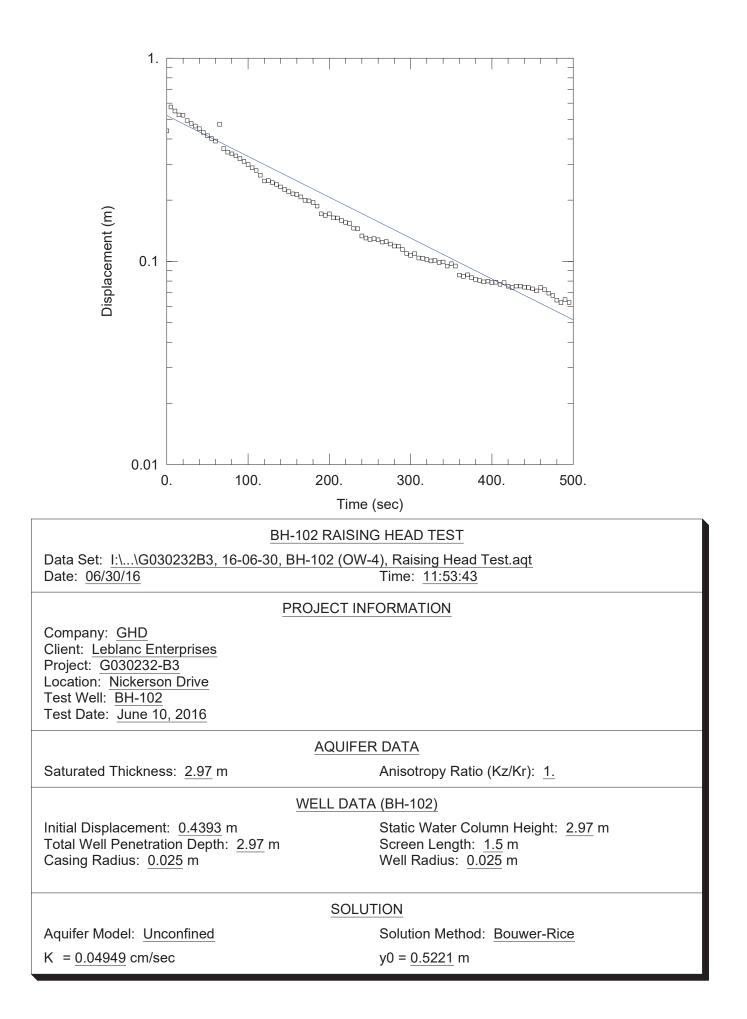
EHOLE LOG GEOTECH G030232-B3. 16-06-22. BOREHOLE LOGS.GPJ GEOLO

Appendix B: Hydraulic Conductivity Test Data







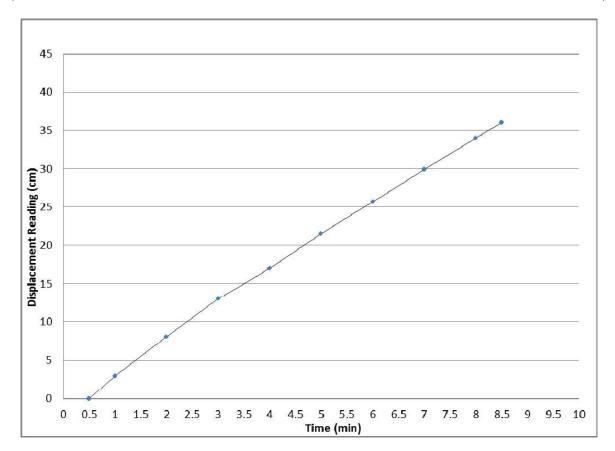




GHD LTD. 347 Pido Road Unit 29 Peterborough, ON, K9J 6X7 Tel: (705) 749-3317 Fax: (705) 749-9248

CONSTANT HEAD INFILTRATION TEST - BH-101

Client:	Leblanc Enterprises.	Project No.:	G030232-B3
Project:	Nickerson Woods Subdivision	Borehole No.	BH-101
Date:	June 10, 2016	Test Performed by:	K. Geraldi



TEST PARAMETERS

Well hole diameter (cm) =		
Height of water in well (cm) =	15	

Selected sat/unsat flow ratio (cm-1) = 0.36 Shape factor =

1.36

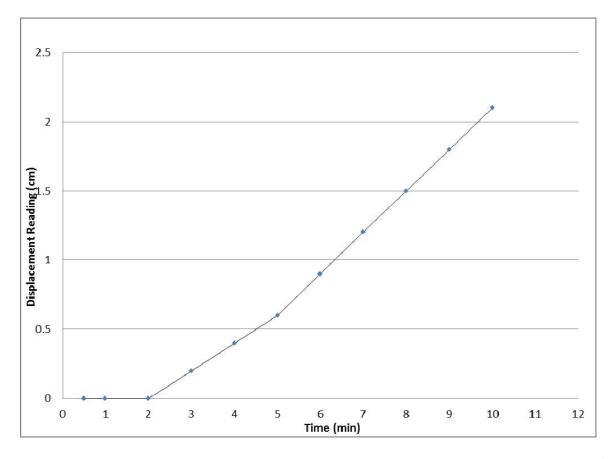
RESULTS

R- quasi steady-state rate of fall = 4.1 cm/minKsf - field saturated hydraulic conductivity = 2.8E-05 m/sec



GHD LTD. 347 Pido Road Unit 29 Peterborough, ON, K9J 6X7 Tel: (705) 749-3317 Fax: (705) 749-9248

CONSTANT HEAD INFILTRATION TEST – BH-102					
Client:	Leblanc Enterprises.	Project No.:	G030232-B3		
Project:	Nickerson Woods Subdivision	Borehole No.	BH-102		
Date:	June 10, 2016	Test Performed by:	K. Geraldi		



TEST PARAMETERS

Well hole diameter (cm) = Height of water in well (cm) =	Selected sat/unsat flow ratio (cm-1) = Shape factor =	

RESULTS

 $\label{eq:R-quasi-state} \begin{array}{ll} \text{R-quasi-state-rate of fall} = & 0.3 \text{ cm/min} \\ \text{Ksf-field saturated hydraulic conductivity} = & 1.6\text{E-06 m/sec} \end{array}$

Appendix H

Detailed Design Drawings