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STORMWATER MANAGEMENT REPORT

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12892 DIXIE ROAD - CALEDON

STORMWATER MANAGEMENT REPORT

TRIBAL PARTNERS CANADA INC.

ORIGINAL

PROJECT NO.: 201-11545-00
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DATE: FEBRUARY 24, 2021

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1 INTRODUCTION

1.1 SCOPE

WSP Canada Inc. (WSP) has been retained by Tribal Partners Canada Inc. (Tribal) to prepare a stormwater management (SWM) Report in support of the proposed development at 12892 Dixie Road in the Town of Caledon, Ontario.

The proposed development consists of four (4) large warehouse buildings with surface parking and loading areas. There are four (4) environmental protection areas on site which includes natural channels and a woodlot; these areas will not be developed and will remain unchanged in post development conditions. Buffers will be provided for these areas as recommended by the ecologist (WSP Canada Inc.).

The proposed site will be divided into four catchments. Three of the catchments will be serviced by a SWM wet pond and infiltration gallery each; they are proposed to meet the stormwater management requirements for the catchments. For the remaining catchment, an infiltration gallery alone is proposed to meet the specific stormwater management requirements.

The development of the SWM strategy has been guided by the Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design (SWMPD) Manual (March 2003), Toronto and Region Conservation Authority (TRCA) Stormwater Management Criteria (August 2012) and the Region of Peel Public Works Stormwater Design Criteria and Procedural Manual (June 2019).

This SWM report presents the detailed design information for the three SWM wet facilities and should be read in conjunction with the WSP Functional Servicing Report prepared under separate cover.

1.2 SITE LOCATION

The subject site is located at 12892 Dixie Road in the Town of Caledon in Ontario. It is bounded by Dixie Road to the east, Old School Road to the north, an industrial distribution facility to the south and agricultural fields to the west. The site location is shown in Figure 1.

1.3 BACKGROUND DOCUMENTS

The following documents have been reviewed in preparing this SWM report:

- "*Stormwater Management Planning and Design (SWMPD) Manual*", Ontario Ministry of Environment, Conservation and Parks (MOECP), March 2003;
- "*Low Impact Development Stormwater Management Planning and Design Guide, Version 1.0*", Credit Valley Conservation (CVC) and Toronto and Region Conservation Authority (TRCA), 2010;
- *"Stormwater Management Criteria"*, Toronto and Region Conservation Authority (TRCA), August 2012;
- *"Public Works Stormwater Design Criteria and Procedural Manual"*, Region of Peel, June 2019;
- *"Final Report Humber River Hydrology Update"*, Civica, June 2015;
- *"12892 Dixie Road Proposed Industrial Development Geotechnical Investigation"*, MTE Consultants, January 2021;
- *"Guidance for Development Activities in Redside Dace Protected Habitat"*, Ministry of Natural Resources and Forestry, March 2016.

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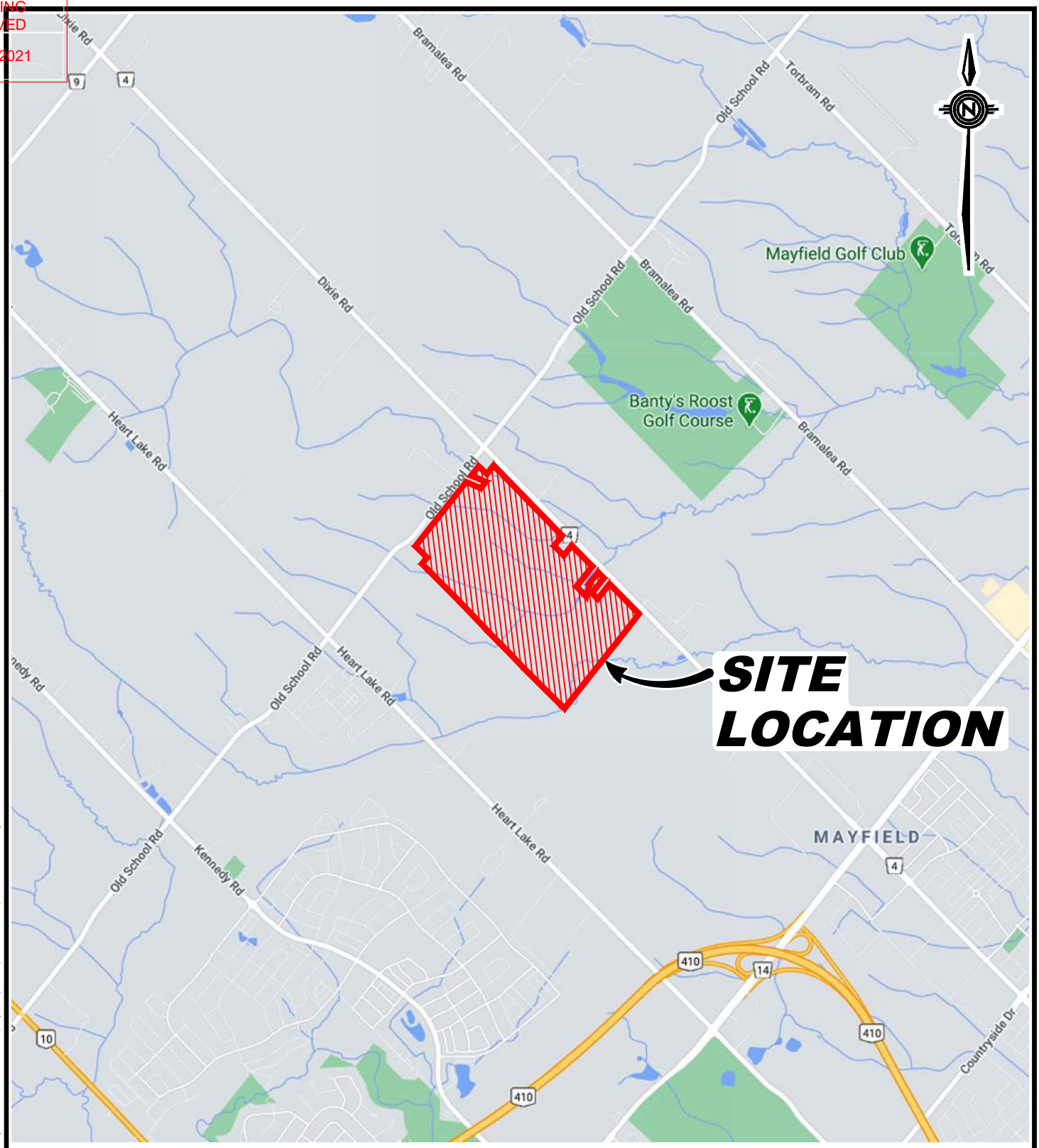

@2021 Google - Map data @2021 Tele Atlas

0 0.5 1.0 1.5km

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TITLE 12892 DIXIE ROAD – CALEDON SITE LOCATION	
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FIGURE 1.dwg - 12892 Dixie Rd -Caledon - Site Location C:\Users\chanj\BIM 360\WSP Canada projects (AMER)\Land Development Ontario\Project Files\201-11545 - 12892 Dixie Road\SWM\FIGURES-\ Feb 23, 2021 - 1:54pm

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1.4 DESIGN CRITERIA

12892 Dixie Road is located within the TRCA's Humber River Watershed and the following stormwater management design criteria have been identified in conformity with the various background documents listed in Section 1.3.

Water Quality Control:

Provide Enhanced (Level 1) water quality protection; 80% long-term TSS removal.

Water Quantity Control:

Limit the post-development peak discharges to the corresponding pre-development levels, using TRCA's unit flows for the West Humber River Watershed for all storms up to and including the 100-year storm. In addition, the proposed water quantity control SWM facilities should have the capacity to convey the regional event.

Water Balance:

As per the MECP's Source Protection Information Atlas, the site is not located in a Source Protection Area. As per the TRCA's Water Balance Tool results, it is also not in a Significant Groundwater Recharge area. Best efforts will be implemented to maintain pre-development recharge in post development conditions.

The development catchments of this site are adjacent to environmentally protected areas; as such a feature-based water balance is required to maintain existing flows to tributaries in the proposed condition. This portion of the stormwater management strategy will be the responsibility of another consultant and a report detailing the feature-based water balance will be submitted under separate cover. Note that the results of the feature-based water balance study may impact the overall stormwater management strategy which will be refined through further investigation and detailed design.

Erosion Control:

As per the TRCA SWM Criteria (2012), the minimum erosion control requirement is retention of the first 5 mm of every rainfall event. For sites with a SWM Pond, extended detention of the 25 mm event for a period of 48 hours is required.

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2 PRE-DEVELOPMENT CONDITIONS

2.1 GENERAL

The 79.08 ha mostly pervious site currently consists of agricultural lands and environmental protection areas. The environmental protection areas will be excluded from the development area and will remain unchanged in the post development conditions. As such, only the 59.48 ha that will be developed will be considered in the stormwater management strategy discussed in this report. The existing site has a 2-year runoff coefficient of 0.25. Figure 2 shows the existing site conditions.

Currently, the majority of the site drains south and east towards Dixie Road. Runoff is directed to ditch swales adjacent to the right of way and culverts direct stormwater drainage to a tributary at the south-east corner of the site. Additionally, there is an area at the southern portion of the site that drains south towards Kilamanagh Creek. The delineated areas that drain to the site's tributaries will be shown in the feature-based water balance report by the ecology consultant.

There are also three fully pervious external areas that are draining through the subject site. The external areas will not be developed in the proposed condition. The discharge from these areas will drain to roadside ditches and bypass the proposed stormwater infrastructure on site. As such, these areas will not be included in the SWM analysis.

Regarding the existing site's internal and external area's flows to the protected environmental features, these flows will be maintained in proposed conditions; the feature-based water balance analysis will be submitted under separate cover by the ecology consultant.

2.2 EXISTING FLOW RATES

A standard event-oriented modelling approach, the Visual OTTHYMO Model Version 6.2 (VO6), was used to model the existing conditions.

The 6-hour and 12-hour AES storms with 2-year through 100-year return periods from Appendix 14 of the Humber Hydrology Update were used to determine the existing flow rates from the site. The 12-hour Hurricane Hazel storm is used in the hydrologic modelling for the regional storm. Modelling results can be found in Appendix B.

Table 2-1 presents a summary of the existing flow rates for the site.

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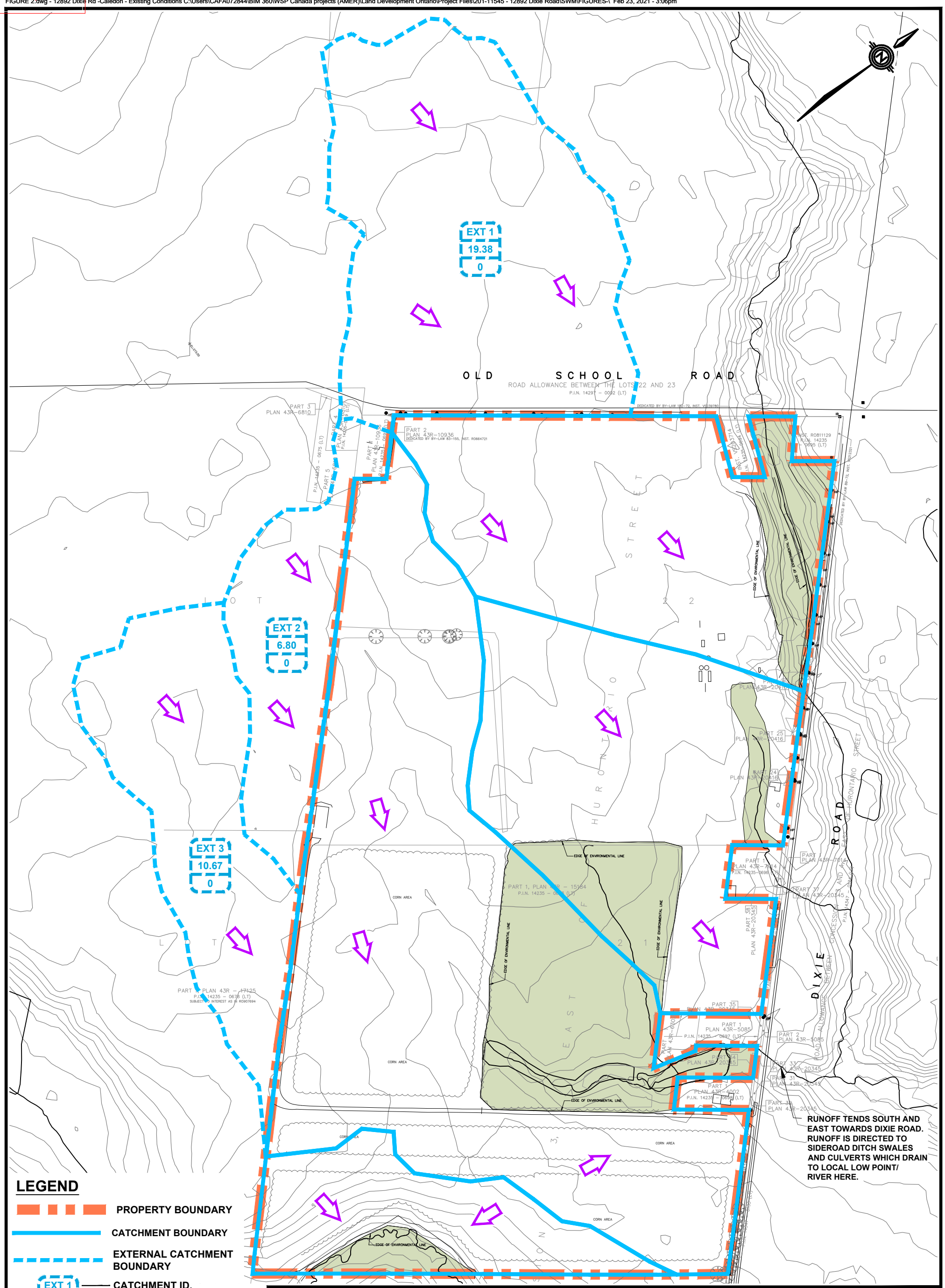

LEGEND

- PROPERTY BOUNDARY
- CATCHMENT BOUNDARY
- EXTERNAL CATCHMENT BOUNDARY
- EXT 1 — CATCHMENT ID.
- 19.38 — DRAINAGE AREA (ha)
- 0 — IMPERVIOUSNESS (%)
- ENVIRONMENTAL PROTECTION AREA
- DRAINAGE DIRECTION

0 50 100 150 200 250m

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EXISTING CONDITIONS

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Table 2-1 Existing Peak Flow Rates

Storm Events	6 Hour AES Total Existing Discharge* (m^3/s)	12 Hour AES Total Existing Discharge* (m^3/s)
25 mm	0.1274	
2-year	0.5099	0.5319
5-year	0.8856	0.8667
10-year	1.1706	1.1197
25-year	1.5597	1.4615
50-year	1.8727	1.7289
100-year	2.1953	2.0068
Regional	5.4261	

*Modelled using an area of 59.48 ha and 100% pervious

2.3 ALLOWABLE FLOW RATES

This site is located within the TRCA's Humber River Watershed, as such, the post-development peak discharges must be controlled to the pre-development levels using TRCA's unit flow rates for all storms up to and including the 100-year storm. In addition, each of the proposed SWM facilities should be designed to convey the post development flow rates for the regional event.

As discussed in Section 2.1, the external areas will bypass the site in future conditions, as such, they were not included in the modelling or calculations. Regarding the external area's flows to the protected environmental features, these flows will be maintained in proposed conditions; the feature-based water balance analysis will be submitted under separate cover by the ecology consultant.

Table 2-2 presents a summary of the quantity control targets for the proposed development based on Figure 3.

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Table 2-2 Allowable Peak Flow Rates

Storm Events	Allowable Release Rate for Catchment 1000 (m^3/s)	Allowable Release Rate for Catchment 1100 (m^3/s)	Allowable Release Rate for Catchment 1200 (m^3/s)	Allowable Release Rate for Catchment 1300 (m^3/s)	Total Site (m^3/s)
2-year	0.149	0.125	0.109	0.066	0.45
5-year	0.228	0.191	0.167	0.101	0.69
10-year	0.280	0.235	0.205	0.124	0.84
25-year	0.353	0.296	0.258	0.156	1.06
50-year	0.412	0.346	0.302	0.182	1.24
100-year	0.465	0.391	0.341	0.206	1.40
Regional	2.979	2.451	2.107	1.209	---

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3 HYDROLOGIC MODELLING OF PROPOSED CONDITIONS

3.1 OVERVIEW

A standard event-oriented modelling approach, the Visual OTTHYMO Model Version 6.0 (VO6), was used to estimate the required storage volume for erosion and quantity control, to size the outlet structures, and to confirm the performance of the SWM wet ponds.

3.2 LOW IMPACT DEVELOPMENT STRATEGIES

Low impact development (LID) strategies will be implemented on site to mitigate impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. LID strategies seek to minimize runoff and mimic pre-development hydrology. Ultimately, LIDs strive to reduce volume and intensity of stormwater flows in proposed conditions.

For this site, infiltration galleries and catchbasin shields will be included in the stormwater management strategy. Infiltration galleries will be sized to meet water balance requirements for Catchments 1000, 1100, 1200 and 1300; best practices will be implemented to maintain post to pre-development infiltration. For Catchment 1000, catchbasin shields will be installed to provide pre-treatment for at-grade runoff prior to entering Pond A+A1.

3.3 RAINFALL DATA

The 6-hour and 12-hour AES storms with 2-year through 100-year return periods have been used in the Visual OTTHYMO modelling. The 12-hour Hazel Hurricane is used in the hydrologic modelling for Regional Storm. The 25 mm rainfall event is used to evaluate the erosion control performance of the SWM wet ponds.

3.4 PROPOSED DRAINAGE PLAN

The subject site and its external areas are represented by seven (7) catchments, as shown in Figure 3. Note that the areas identified as environmental protection areas will not be developed and will remain unchanged in the proposed conditions. They will be omitted from the stormwater management strategy and are considered to be outside of the development boundary. Regarding the site's existing flows to the protected environmental features, these flows will be maintained in proposed conditions; the feature-based water balance analysis will be submitted under separate cover by the ecology consultant.

Catchments 1000, 1100, 1200 and 1300 are the catchments within the property line that will be developed. The following presents an overview of how each catchment will be serviced:

- Catchment 1000 – Building A will provide roof storage which will discharge to SWM Pond A+A1;
- Catchment 1100 – All stormwater discharge will be directed to SWM Pond B;
- Catchment 1200 – All stormwater discharge will be directed to SWM Pond C;
- Catchment 1300 – All stormwater discharge will be directed to an underground infiltration system.

Catchments External 1, External 2 and External 3 are external areas that currently contribute storm flows to the site. These areas are undeveloped agricultural lands, considered to be fully pervious. In the proposed condition, the external

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areas will drain to a bypass ditch, as such, these areas will not be included in the SWM analysis. For more details on the bypass ditches, see Functional Servicing Report (February 2021) prepared by WSP under separate cover.

Flows from catchments 1000, 1100, 1200 and 1300 with imperviousness greater than 20% are modelled using the STANDHYD command in the Visual OTTHYMO model.

The time of concentration (T_C) for the catchments (1000, 1100, 1200, 1300) are calculated using Upland Method, where the time to peak (T_P) is determined using equation $T_P = 2/3 * T_C$. A value of 76 for the SCS curve number (CN) from the TRCA hydrologic model shall be used to model the infiltration potential of the native soil. A typical IA of 5 mm and 1 mm is assigned to the pervious and impervious areas, respectively.

A weighted imperviousness is calculated for the development blocks (1000, 1100, 1200, 1300) based on various land use in the current site plan. Note that the permanent pool of the proposed SWM wet ponds is considered impervious area while perimeter area above the permanent pool elevation is considered pervious area. The length of impervious area is derived from the VO6 model, which is calculated based on A=1.5×L2.

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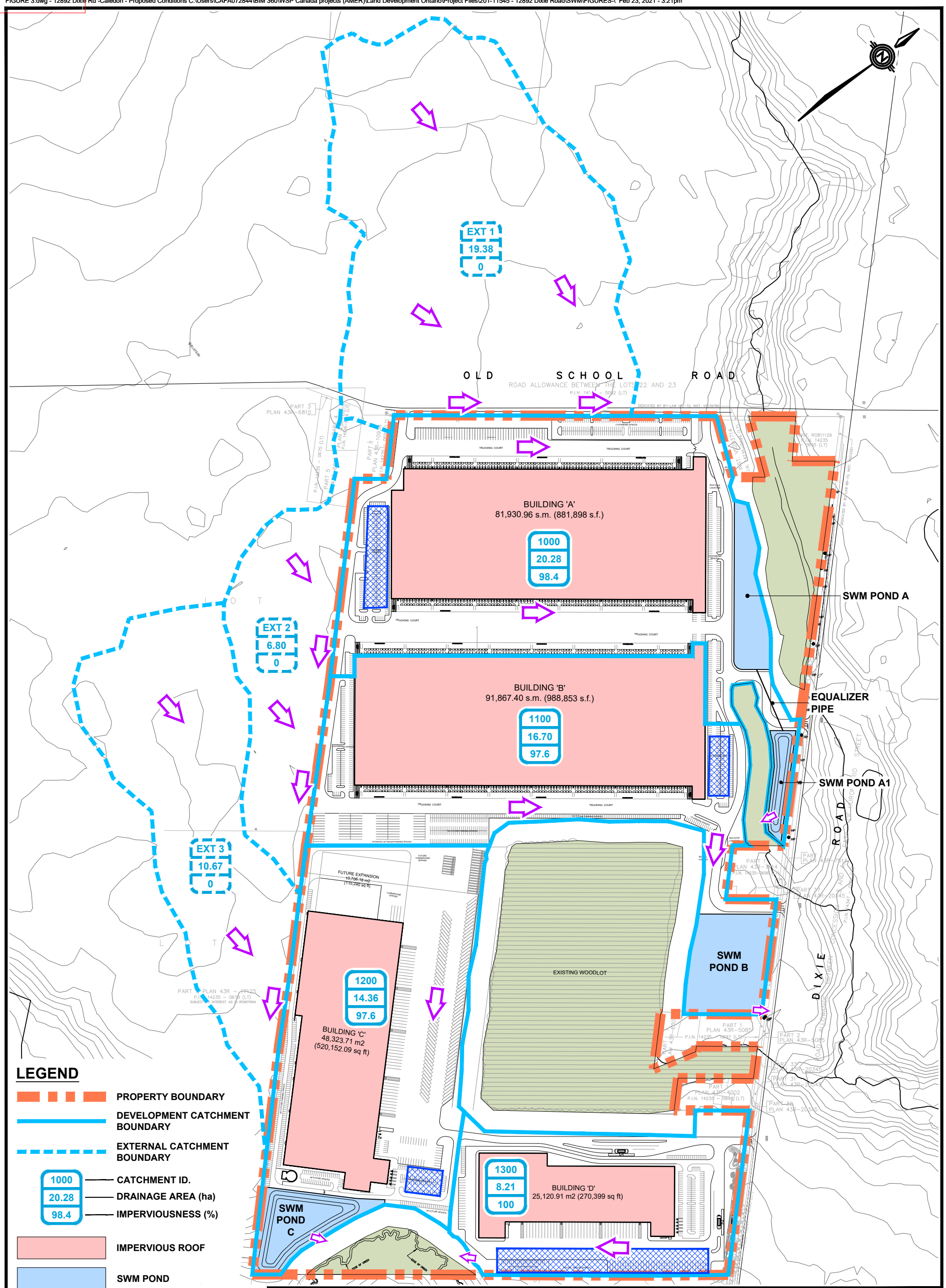

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PROPOSED CONDITIONS

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The model parameters for the post-development catchments are summarized in Table 3-1. Refer to Appendix A for detailed calculations.

Table 3-1 Catchment Parameters under Proposed Development Conditions

Catchment	Area (ha)	IMP (%)	IA	Tp (hr)	Land Use
1000	20.28	98.4	1.0	0.64	Industrial Development
1100	16.70	97.6	1.0	0.79	Industrial Development
1200	14.36	97.6	1.0	0.61	Industrial Development
1300	8.21	100.0	1.0	0.59	Industrial Development

The subject property will be serviced by a conventional storm sewer system designed in accordance with Town's standards. The storm sewers will be sized using a 5-year return frequency and the current Town's IDF curves. All runoff from the development areas will be conveyed to the proposed SWM facilities. The collected runoff will be treated for water quality and quantity control with extended detention for erosion control.

A design for the overland flow route has been provided throughout the development blocks to safely convey major storm system flows in excess of the minor system up to the Regional event into the SWM wet ponds.

3.5 HYDROLOGIC MODELLING RESULTS

The VO6 model was created to establish the required quantity control volumes for 2-year up to 100-year events. For the catchments with a pond facility (1000, 1100, 1200), the required volume for erosion control is extended detention of the 25 mm storm event. For Catchment 1300, the infiltration gallery will be sized to provide a sump to retain the first 5 mm of every rainfall event. The required erosion control volume for Pond A+A1, Pond B, Pond C and Catchment 1300 are 4,812 m^3, 3,894 m^3, 3,349 m^3 and 328 m^3, respectively. Refer to Appendix A for details.

The post-development conditions are simulated using the VO6 hydrologic model by incorporating the following components in the SWM wet ponds:

- Erosion Control by providing adequate extended detention volume with orifice plates/tubes;
- Water Quantity Control by the proposed SWM facilities for events up to 100-year storm as well as regional storm, through detailed design of the proposed SWM wet ponds.

Refer to Section 4.0, 5.0, 6.0 and 7.0 for the detailed design of the SWM Pond A+A1, Pond B, Pond C and the infiltration gallery for Catchment 1300, respectively.

3.5.1 TARGET FLOW RATES VS. CONTROLLED FLOW RATES

Table 3-2 provides a comparison of the post-development peak flow rates vs the allowable flow rates. As shown in Table 3-2, with the proposed SWM wet ponds, the post-development peak flow rates will be controlled to the allowable release rates for all design storms including 25 mm and 2-year up to 100-year storm events.

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Table 3-2 Controlled Flow Rates at SWM Facilities

Storm EVENTS	ALLOWABLE PEAK FLOW RATES (M^3/S)				CONTROLLED PEAK FLOW RATES (M^3/S)			
	1000	1100	1200	1300	1000	1100	1200	1300
25 mm	0.111	0.090	0.078	5 mm Retention	0.057	0.065	0.050	5 mm Retention
2-year	0.149	0.125	0.109	0.066	0.118	0.129	0.099	0.064
5-year	0.228	0.191	0.167	0.101	0.172	0.187	0.143	0.077
10-year	0.280	0.235	0.205	0.124	0.214	0.230	0.177	0.085
25-year	0.353	0.296	0.258	0.156	0.268	0.290	0.224	0.095
50-year	0.412	0.346	0.302	0.182	0.311	0.337	0.260	0.103
100-year	0.465	0.391	0.341	0.206	0.326	0.386	0.299	0.111
Regional	2.979	2.451	2.107	1.209	1.497	1.733	1.404	1.202

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4 WATER BALANCE

4.1 OVERVIEW

As indicated in Section 1.4, best efforts will be implemented to maintain pre-development recharge rates in post development conditions for the developed catchments.

Section 4.5.8 of the MECP's Stormwater Management Planning & Design Manual (hereafter MECP Manual) provides guidance on the design of the infiltration chamber. The information provided in the Geotechnical Investigation prepared by MTE Consultants (January 2021) (Hereafter MTE's Geotech-Investigation) is used in the preliminary feasibility evaluation and configuration of the infiltration chamber.

MTE's Geotech-Investigation indicates that the native soils on site are clayey silt, slit and sandy silt fill. Groundwater levels were measured in monitoring wells at depths of 5.5 to 8.8 m BGS. The maximum infiltration chamber height is 2.06 m plus a minimum 0.15 m cover to bottom of pavement. In the MECP Manual, Table 4.9 states that a minimum 1.0 m clearance is required between the bottom of the infiltration chamber and the water table. At this site, the bottom of the infiltration chamber system would be well above the average water table. The estimated infiltration rate is estimated to be 5.10 mm/hr based on a desktop study using the Soil Survey Reports for Ontario from the Government of Canada. The water balance calculation can be found in Appendix A. It is recommended that a hydrogeological study is done for the overall development area to determine the site-specific infiltration rates and propose the specific design infiltration rates that include the safety factor according to the TRCA/CVC LID guidelines (2010).

The method used for analysis is based on the examples provided in Section 3.2.3 of the MECP Manual. For each type of surface proposed on the site, the relationship between rainfall, evapotranspiration, runoff and infiltration is determined, and the results are then weighted based on area coverage to calculate the site-wide water balance relationship.

General assumptions used in the calculations include:

- The average annual precipitation volume in Caledon is 877 mm (based on The TRSPA Water Balance Tool).
- The impervious area can accept 1.0 mm rainfall for subsequent evaporation due to shallow depression.

4.2 CATCHMENT 1000

Stormwater runoff from the roof of Building A will contribute to the infiltration gallery while runoff from the at-grade areas will be piped directly into SWM Pond A.

The GreenStorm-ST chamber system will provide 2,806 m^3 of storage in total; 1,488 m3 of which will be the sump for infiltration; the system shall have a footprint of 4,428 m^2 and outlet shall be set 0.35 m from the bottom of the unit. The depth of infiltration storage was accounted for in water infiltration calculation and can infiltrate within 72 hours in the site's soil conditions. A water balance analysis was carried out to demonstrate that pre-development recharge is maintained in post development conditions with the proposed infiltration chamber.

Table 4-1 shows that, under the existing conditions, of the total average annual rainfall, infiltration accounts for approximately 36.0%, evapotranspiration (ET) accounts for approximately 46.8%, and there is approximately 17.2% runoff.

Under the proposed condition, with the mitigation measure in place, of the total average annual rainfall, infiltration accounts for approximately 36.4%, ET accounts for approximately 9.6%, and there is approximately 54.1% runoff. Therefore, total 45.9% of annual rainfall shall be retained on site for infiltration or evapotranspiration. Therefore, the

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proposed development shall enhance the groundwater recharge and satisfy the water balance design criteria. Detailed calculations for the water balance analysis can be found in Appendix A.

Table 4-1 Water Balance Analysis Catchment 1000

HYDROLOGIC CYCLE COMPONENTS	PRE-DEVELOPMENT CONDITIONS		POST-DEVELOPMENT CONDITIONS	
	Annual Depth (mm)	% of Annual Precipitation	Annual Depth (mm)	% of Annual Precipitation
Infiltration	316.0	**36.0**	318.8	**36.4**
Evapotranspiration	410.0	46.8	83.9	9.6
Runoff	151.0	17.2	474.3	54.1
Precipitation	877.0	100.0	877.0	100.0

4.3 CATCHMENT 1100

Stormwater runoff from the roof of Building B will contribute to the infiltration gallery while runoff from the at-grade areas will be piped directly into SWM Pond B.

The GreenStorm-ST chamber system will provide 15,00 m^3 of storage in total; 796 m^3 of which will be the sump for infiltration; the system shall have a footprint of 2,368 m^2 and outlet shall be set 0.35 m from the bottom of the unit. The depth of infiltration storage was accounted for in water infiltration calculation and can infiltrate within 72 hours in the site's soil conditions. A water balance analysis was carried out to demonstrate that pre-development recharge is maintained in post development conditions with the proposed infiltration chamber.

Table 4-2 shows that, under the existing conditions, of the total average annual rainfall, infiltration accounts for approximately 36.0%, evapotranspiration (ET) accounts for approximately 46.8%, and there is approximately 17.2% runoff.

Under the proposed condition, with the mitigation measure in place, of the total average annual rainfall, infiltration accounts for approximately 37.4%, ET accounts for approximately 11.7%, and there is approximately 50.9% runoff. Therefore, total 49.1% of annual rainfall shall be retained on site for infiltration or evapotranspiration. Therefore, the proposed development shall enhance the groundwater recharge and satisfy the water balance design criteria. Detailed calculations for the water balance analysis can be found in Appendix A.

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Table 4-2 Water Balance Analysis Catchment 1100

Hydrologic Cycle Components	PRE-DEVELOPMENT CONDITIONS		POST-DEVELOPMENT CONDITIONS	
	Annual Depth (mm)	% of Annual Precipitation	Annual Depth (mm)	% of Annual Precipitation
Infiltration	316.0	**36.0**	328.1	**37.4**
Evapotranspiration	410.0	46.8	102.9	11.7
Runoff	151.0	17.2	446.0	50.9
Precipitation	877.0	100.0	877.0	100.0

4.4 CATCHMENT 1200

Stormwater runoff from the roof of Building C will contribute to the infiltration gallery while runoff from the at-grade areas will be piped directly into SWM Pond C.

The GreenStorm-ST chamber system will provide 2,281 m^3 of storage in total; 1,210 m^3 of which will be the sump for infiltration; the system shall have a footprint of 3,600 m^2 and outlet shall be set 0.35 m from the bottom of the unit. The depth of infiltration storage was accounted for in water infiltration calculation and can infiltrate within 72 hours in the site's soil conditions. A water balance analysis was carried out to demonstrate that pre-development recharge is maintained to the extent practicable in post development conditions with the proposed infiltration chamber.

Table 4-3 shows that, under the existing conditions, of the total average annual rainfall, infiltration accounts for approximately 36.0%, evapotranspiration (ET) accounts for approximately 46.8%, and there is approximately 17.2% runoff.

Under the proposed condition, with the mitigation measure in place, of the total average annual rainfall, infiltration accounts for approximately 32.0%, ET accounts for approximately 9.6%, and there is approximately 58.4% runoff. Therefore, total 41.6% of annual rainfall shall be retained on site for infiltration or evapotranspiration. Under proposed conditions, the infiltration is slightly lower than in pre-development conditions. As only the stormwater from the roof will be contributing to the infiltration gallery, there is a limited volume of water that can be reasonably captured and piped to the infiltration gallery. As per the water balance calculations in Appendix A, 95% of the runoff from the roof will be captured. Note that the infiltration gallery in Catchment 1300 will be capturing and infiltrating more than the required amount which will help offset the deficit in Catchment 1200.

Therefore, the proposed development shall enhance the groundwater recharge and satisfy the water balance design criteria. Detailed calculations for the water balance analysis can be found in Appendix A.

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Table 4-3 Water Balance Analysis Catchment 1200

Hydrologic Cycle Components	PRE-DEVELOPMENT CONDITIONS		POST-DEVELOPMENT CONDITIONS	
	Annual Depth (mm)	% of Annual Precipitation	Annual Depth (mm)	% of Annual Precipitation
Infiltration	316.0	**36.0**	280.4	**32.0**
Evapotranspiration	410.0	46.8	84.5	9.6
Runoff	151.0	17.2	512.0	58.4
Precipitation	877.0	100	877.0	100.0

4.5 CATCHMENT 1300

Stormwater runoff from the from the entire catchment will contribute to the infiltration gallery.

The StormTech MC-4500 chamber system will provide 6,500 m^3 of storage in total; the clearstone base will provide 448 m^3 of sump for infiltration; the system shall have a footprint of 4,870 m^2 and outlet shall be set 0.23 m from the bottom of the clearstone. The depth of infiltration storage was accounted for in water infiltration calculation and can infiltrate within 72 hours in the site's soil conditions. A water balance analysis was carried out to demonstrate that pre-development recharge is maintained in post development conditions with the proposed infiltration chamber.

Table 4-4 shows that, under the existing conditions, of the total average annual rainfall, infiltration accounts for approximately 36.0%, evapotranspiration (ET) accounts for approximately 46.8%, and there is approximately 17.2% runoff.

Under the proposed condition, with the mitigation measure in place, of the total average annual rainfall, infiltration accounts for approximately 52.0%, ET accounts for approximately 18.3%, and there is approximately 29.7% runoff. Therefore, total 70.3% of annual rainfall shall be retained on site for infiltration or evapotranspiration. Therefore, the proposed development shall enhance the groundwater recharge and satisfy the water balance design criteria. Detailed calculations for the water balance analysis can be found in Appendix A.

Table 4-4 Water Balance Analysis Catchment 1300

Hydrologic Cycle ComponenTS	PRE-DEVELOPMENT CONDITIONS		POST-DEVELOPMENT CONDITIONS	
	Annual Depth (mm)	% of Annual Precipitation	Annual Depth (mm)	% of Annual Precipitation
Infiltration	316.0	**36.0**	456.0	**52.0**
Evapotranspiration	410.0	46.8	160.9	18.3
Runoff	151.0	17.2	260.0	29.7
Precipitation	877.0	100	877.0	100.0

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5 SWM POND A+A1 DESIGN

5.1 OVERVIEW

SWM Pond A+A1 shall be designed to provide quality (Enhanced Level Protection), erosion (Extended Detention) and quantity control for Catchment 1000 for the 2- through 100-year events as directed by the TRCA Humber River Hydrology Report. The pond will also have the capacity to convey the regional event to pre-development levels and is classified as a wet pond.

Pond A is the north cell and Pond A1 is the south cell; the cells will be connected with an equalizer pipe and will effectively operate as a single pond. As such, in the calculations and modelling, they will be considered as one entity.

Under the proposed development scenario, the 8.19 ha building roof area will provide roof storage before discharging to Pond A+A1. The remaining at-grade areas will discharge directly to the pond.

5.2 STORAGE REQUIREMENTS

The proposed SWM Pond A+A1 shall provide quality, erosion and quantity control for runoff for Catchment 1000 which is 20.28 ha. The required storage volume was determined by following the MECP's SWMPD Manual.

In addition to the storage volumes required for SWM Pond A+A1, roof storage was also provided for Building A. As this project is in the high-level design stage, it was assumed that 75% of the roof surface area would be available for roof storage with a ponding depth of 0.10 m. This equates to a roof storage volume of 6,145 m^3; this storage volume is to be discharged via roof drains to SWM Pond A+A1.

5.2.1 WATER QUALITY CONTROL

SWM Pond A+A1 shall provide an Enhanced Level of Protection for Catchment 1000.The proposed roof area is not prone to sediment generation and may be considered clean for the purposes of water quality control. Stormwater runoff from the vehicular surfaces will require water quality treatment. The permanent pool storage of the pond has been sized to only consider the 12.09 ha of at-grade area.

Based on Table 3.2 in the 2003 MECP's SWMPD Manual and a lumped imperviousness of 97.3%, a wet pond will require 281.4 m^3/ha of storage volume to provide an "Enhanced Level of Protection" or 80% TSS removal, of which 40 m^3/ha will be extended detention storage the remaining 241.4 m^3/ha will be permanent pool storage. Based on a contributing drainage area of 12.09 ha, these objectives translate to a volume of 3,403 m^3, of which 2,919 m^3 is the permanent pool volume and 484 m^3 is the extended detention storage.

Note that the extended detention volume required for the quality control (484 m^3) is less than that for erosion control (4,812 m^3) and shall be combined with the latter to be controlled with an orifice plate/tube.

5.2.2 EROSION CONTROL

Pond A+A1 will provide extended detention of the 25 mm event for a period of 48 hours. The erosion control volume calculated in Section 3.1.2 of Appendix A, for Catchment 1000 is 4,812 m^3 with a target release rate of 0.111 m^3/s.

Note that the extended detention volume for water quality control is smaller than that for the erosion control. As such, the extended detention volume shall be combined with the larger quality control volume to be released at the maximum allowable release rate for the erosion control.

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5.2.3 WATER QUANTITY CONTROL

Hydrologic modelling was carried out for 6-hour and 12-hour AES storms to determine the required storage volume for quantity control up to and including the 100-year event. As shown in Table 5-1, the storage volume required for water quantity control is approximately 9,000 m^3 to limit the 100-year peak to allowable discharge rates and convey the regional storm.

Table 5-1 Quantity Control Storage Requirements for SWM Pond A+A1

Storm Event	Allowable Peak Flow Rates (m^3/s)	Required Active Storage (m^3)		
		6 hr AES	12 hr AES	Minimum
25 mm	0.111	---	---	4,812
2-year	0.1489	3,600	3,700	3,700
5-year	0.2279	4,770	4,770	4,770
10-year	0.2804	5,520	5,450	5,520
25-year	0.3529	6,450	6,280	6,450
50-year	0.4118	7,130	6,880	7,130
100-year	0.4654	7,790	7,430	7,790
Regional	2.979	---	---	**9,000**

5.3 POND GRADING

The layout of SWM Pond A+A1 is shown in Drawing SW1-1. The wet pond is designed to provide the required permanent pool and active storage volumes, and to conform to the grading of the site. A summary of required storage volumes and provided storage for water quality, erosion control and quantity control are provided in Table 5-2.

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Table 5-2 Storage Summary for Pond A+A1

		Required Storage (m^3)	Storage Provided (m^3)
Permanent Pool Storage	Water Quality	**2,919**	**2,991**
Active Storage**	Water Quality*	484	**5,513**
	Erosion Control	**4,812**	
	Water Quantity (100-year)	**7,194**	**10,446**
	Water Quantity (Regional)***	**-**	**13,438**
Total****			**16,250**

* *Extended detention storage for water quality and erosion control will be combined.*

** *Extended detention storage is part of the active storage for water quantity control up to 100-year event.*

*** *Storage above the design high water level for 100-year storm shall be used for Regional Storm control.*

**** *A 0.30 m freeboard is provided above the design high water level for Regional Storm.*

SWM Pond A+A1 will provide 2,991 m^3 of total permanent pool storage at the elevation 264.80 m. The permanent pool storage is provided with a depth of 1.50 m at the forebay and 1.50 m depth at the main cell.

An extended detention volume of 5,513 m^3 is provided at the elevation 265.70 m, with a maximum depth of 0.90 m above the permanent pool elevation. Total 13,438 m^3 active storage is available for quantity control up to 100-year event and regional storm. A 0.30 m freeboard is provided above the top of pond level for Regional Storm and an emergency spillway shall be incorporated at the south berm of both pond cells to safety convey the inflow from the 100-year event or regional storm, whichever is larger.

5.4 SEDIMENT FOREBAY

SWM Pond A+A1 has an inlet to convey the minor system flow to the wet pond – a 1650Ø mm concrete pipe at the south end of Pond A. The major system flow shall be conveyed to the pond via a 4.0 m wide overland flow route at the south side of Pond A.

A sediment forebay is required at the inlet of the wet pond to settle out majority of the sediment load within an area that can be conveniently accessed for maintenance. The forebay for the proposed wet pond is sized according to the guidelines given in the *Stormwater Management Planning and Design Manual* (SWMPDM, MOECP, 2003). The forebay length is determined based on calculations of the dispersion and settling lengths, as shown in Section 3.5 of Appendix A.

5.5 OUTLET STRUCTURE

The proposed outlet structures for SWM Pond A+A1 consist of the following components:

- **Low Flow Control for Extended Detention**

  A 375Ø mm reverse slope pipe configured with a 320Ø mm orifice plate (invert = 264.80 m) is proposed to achieve the target flow rate of 0.111 m^3/s with an extended detention volume of 4,812 m^3 at 265.50 m.

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- **Flow Control up to 100-year Storm Event**

  A 600 x 1200 mm precast concrete ditch inlet catch basin (DICB) (OPSD 705.040) (lid elevation = 265.80 m) is proposed to convey the flow (up to 100-year event) into the DICB. Then the inflow from the grating of DICB shall be controlled by a 500Ø mm orifice tube (invert = 264.40 m).

- **Outlet Pipe**

  Flow from above control structures shall discharge to a control manhole which will pipe the flow to an existing roadside ditch at Dixie Road; see servicing drawings in the Functional Servicing Report for more details.

- **Emergency Spillway**

  In case of blockage to the outlet structure, a 7.4 m wide emergency overflow spillway (lid elevation = 266.30 m) is proposed for both Pond A and Pond A1 to safely convey the peak flow rate from 100-year event which is greater than the peak flow rate from regional storm.

Table 5-3 shows the stage – storage relationship for the proposed wet pond. The detailed calculations are included in Appendix A.

Table 5-3 Stage – Storage Relationships for SWM Pond A+A1

Description	Elevation (m)	Total Volume (m^3)	Active Storage (m^3)
Bottom of Pond	263.30	0	0
	264.20	1,099	0
Permanent Pool	264.80	2,991	0
	265.40	6,365	3,374
Extended Detention	265.70	8,504	5,513
	266.00	10,857	7,866
Top of Pond	266.30	13,438	10,446

5.6 OPERATION PERFORMANCE

The Hydrologic model was simulated for 6-hour and 12-hour AES storms to determine the operation performance of SWM Pond A+A1 with the proposed outlet structure. The modelling results are summarized in Table 5-4. Detailed hydrologic modelling (VO6) outputs are included in Appendix B.

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Table 5-4 Quantity Control Performance of SWM Pond A+A1

Storm Event	Inflow Rate (m^3/s)	Outflow Rate (m^3/s)	Utilized Storage (m^3)	Water Elevation (m)
Erosion Control Event				
25 mm	0.319	0.085	1,709	265.10
6-hour AES Storm				
2-year	1.779	0.144	3,218	265.37
5-year	2.391	0.171	4,378	265.54
10-year	2.801	0.187	5,181	265.65
25-year	3.325	0.204	6,211	265.79
50-year	3.710	0.216	6,997	265.89
100-year	4.091	0.244	7,767	265.99
12-hour AES Storm				
2-year	1.072	0.147	3,328	265.39
5-year	1.393	0.172	4,402	265.54
10-year	1.608	0.187	5,166	265.65
25-year	1.878	0.203	6,156	265.78
50-year	2.078	0.215	6,904	265.88
100-year	2.277	0.226	7,660	265.97
Hurricane Hazel				
Regional	2.979	2.200	Full	Emergency Overflow

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6 POND B DESIGN

6.1 OVERVIEW

SWM Pond B shall be designed to provide quality (Enhanced Level Protection), erosion (Extended Detention) and quantity control for Catchment 1100 for the 2- through 100-year events as directed by the TRCA Humber River Hydrology Report. The pond will also have the capacity to convey the regional event to pre-development levels and is classified as a wet pond.

6.2 STORAGE REQUIREMENTS

The proposed SWM Pond B shall provide quality, erosion and quantity control for runoff for Catchment 1100 which is 16.70 ha. The required storage volume was determined by following the MECP's SWMPD Manual.

6.2.1 WATER QUALITY CONTROL

SWM Pond B shall provide an Enhanced Level of Protection for runoff from a total drainage area of 16.70 ha with an imperviousness of 97.6%.

Based on Table 3.2 in the 2003 MECP's SWMPD Manual and a lumped imperviousness of 97.6%, a wet pond will require 282.2 m^3/ha of storage volume to provide an "Enhanced Level of Protection" or 80% TSS removal, of which 40 m^3/ha will be extended detention storage, while the remaining 242.2 m^3/ha will be permanent pool storage. Based on a total drainage area of 16.70 ha, these objectives translate to a volume of 4,712 m^3, of which 4,044 m^3 is the permanent pool volume and 668 m^3 is the extended detention storage.

Note that the extended detention volume required for the quality control (668 m^3) is less than that for erosion control (4,044 m^3) and shall be combined with the latter to be controlled with an orifice plate/tube.

6.2.2 EROSION CONTROL

Pond B will provide extended detention of the 25 mm event for a period of 48 hours. The erosion control volume calculated in Section 4.1.2 of Appendix A, for Catchment 1100 is 3,894 m^3 with a target release rate of 0.090 m^3/s.

Note that the extended detention volume for water quality control is smaller than that for the erosion control. As such, the extended detention volume shall be combined with the larger quality control volume to be released at the maximum allowable release rate for the erosion control.

6.2.3 WATER QUANTITY CONTROL

Hydrologic modelling was carried out for 6-hour and 12-hour AES storms to determine the required storage volume for quantity control up to and including the 100-year event. As shown in Table 6-1 the storage volume required for water quantity control is approximately 18,500 m^3 to limit the 100-year peak to allowable discharge rates and convey the regional storm.

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Table 6-1 Quantity Control Storage Requirements for SWM Pond B

Storm Event	Allowable Peak Flow Rates (m^3/s)	Required Active Storage (m^3)		
		6 hr AES	12 hr AES	Minimum
25 mm	0.090	---	---	3,894
2-year	0.125	5,210	5,470	5,470
5-year	0.191	6,910	7,040	7,040
10-year	0.235	8,020	8,050	8,050
25-year	0.296	9,400	9,330	9,400
50-year	0.346	10,420	10,260	10,420
100-year	0.391	11,420	11,190	11,420
Regional	2.451	---	---	**18,500**

6.3 POND B GRADING

The layout of SWM Pond B is shown in Drawing SW2-1. The wet pond is designed to provide the required permanent pool and active storage volumes, and to conform to the grading of the site. A summary of required storage volumes and provided storage for water quality, erosion control and quantity control are provided in Table 6-2.

Table 6-2 Storage Summary for SWM Pond B

		Required Storage (m^3)	Storage Provided (m^3)
Permanent Pool Storage	Water Quality	**4,044**	**17,426**
Active Storage**	Water Quality*	688	**4,105**
	Erosion Control	**3,894**	
	Water Quantity (100-year)	**10,382**	**27,032**
	Water Quantity (Regional)***	**---**	**31,086**
Total****			**48,512**

* *Extended detention storage for water quality and erosion control will be combined.*

** *Extended detention storage is part of the active storage for water quantity control up to 100-year event.*

*** *Storage above the design high water level for 100-year storm shall be used for Regional Storm control.*

**** *A 0.30 m freeboard is provided above the design high water level for Regional Storm.*

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SWM Pond B will provide 17,426 m^3 of total permanent pool storage at the elevation 263.48 m. The permanent pool storage is provided with a depth of 1.50 m at the forebay and 2.5 m depth at the main cell.

An extended detention volume of 4,105 m^3 is provided at the elevation 263.88 m, with a maximum depth of 0.40 m above the permanent pool elevation. Total 31,086 m^3 active storage is available for quantity control up to 100-year event and regional storm. A 0.30 m freeboard is provided above the top of pond elevation for Regional Storm and an emergency spillway shall be incorporated at the east berm of the pond to safety convey the inflow from the 100-year event or regional storm, whichever is larger.

6.4 SEDIMENT FOREBAY

The SWM Pond B has an inlet to convey the minor system flow to the wet pond – a 1500Ø mm concrete pipe at the northwest corner of the pond. The major system flow shall be conveyed to the pond via a 4.0 m wide overland flow route at the north side of the pond.

A sediment forebay is required at the inlet of the wet pond to settle out majority of the sediment load within an area that can be conveniently accessed for maintenance. The forebay for the proposed wet pond is sized according to the guidelines given in the *Stormwater Management Planning and Design Manual* (SWMPDM, MOECP, 2003). The forebay length is determined based on calculations of the dispersion and settling lengths, as shown in Section 4.5 of Appendix A.

6.5 OUTLET STRUCTURE

The proposed outlet structures for SWM Pond 10 consist of the following components:

- **Low Flow Control for Extended Detention**

  A 375Ø mm reverse slope pipe configured with a 310Ø mm orifice plate (invert = 263.48 m) is proposed to achieve the target flow rate of 0.090 m^3/s with an extended detention volume of 4,105 m^3 at 263.88 m.

- **Flow Control up to 100-year Storm Event**

  A 600 x 1200 mm precast concrete ditch inlet catch basin (DICB) (OPSD 705.040) (lid elevation = 264.18 m) is proposed to convey the flow (up to 100-year event) into the DICB. Then the inflow from the grating of DICB shall be controlled by a 350Ø mm orifice plate (invert = 263.48 m).

- **Outlet Pipe**

  Flow from above control structures shall discharge to a control manhole which will pipe the flow to an existing roadside ditch at Dixie Road; see servicing drawings in the Functional Servicing Report for more details.

- **Emergency Spillway**

  In case of blockage to the outlet structure, a 12.1 m wide emergency overflow spillway (lid elevation = 265.78 m) is proposed at the south embankment to safely convey the peak flow rate from 100-year event which is greater than the peak flow rate from regional storm.

Table 6-3 shows the stage – storage relationship for the proposed wet pond. The detailed calculations are included in Appendix A.

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Table 6-3 Stage – Storage – Discharge Relationships for SWM Pond B

Description	Elevation (m)	Total Volume (m^3)	Active Storage (m^3)
Bottom of Pond	260.98	0	-
	261.88	4,820	-
	262.88	12,098	-
Permanent Pool	263.48	17,426	0
Extended Detention	263.88	21,531	4,105
	264.08	23,707	6,282
Top of Pond	265.78	44,458	27,032
Freeboard	266.08	48,512	31,086

6.6 OPERATION PERFORMANCE

The Hydrologic model was simulated for 6-hour and 12-hour AES storms to determine the operation performance of SWM Pond B with the proposed outlet structure. The modelling results are summarized in Table 6-4. Detailed hydrologic modelling (VO6) outputs are included in Appendix B.

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Table 6-4 Quantity Control Performance of SWM Pond B

Storm Event	Inflow Rate (m^3/s)	Outflow Rate (m^3/s)	Utilized Storage (m^3)	Water Elevation (m)
Erosion Control Event				
25 mm	0.261	0.0654	2,604	263.73
6-hour AES Storm				
2-year	1.464	0.1152	4,725	263.94
5-year	1.967	0.1417	6,374	264.09
10-year	2.310	0.1553	7,501	264.18
25-year	2.733	0.1712	8,929	264.30
50-year	3.049	0.2593	9,810	264.37
100-year	3.363	0.3715	10,493	264.43
12-hour AES Storm				
2-year	0.879	0.1201	4,982	263.96
5-year	1.143	0.1439	6,555	264.10
10-year	1.320	0.1570	7,640	264.19
25-year	1.541	0.1722	9,016	264.30
50-year	1.705	0.2520	9,765	264.37
100-year	1.870	0.3488	10,355	264.41
Hurricane Hazel				
Regional	2.45	0.63	23,274	265.47

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7 POND C DESIGN

7.1 OVERVIEW

SWM Pond C shall be designed to provide quality (Enhanced Level Protection), erosion (Extended Detention) and quantity control for Catchment 1200 for the 2- through 100-year events as directed by the TRCA Humber River Hydrology Report. The pond will also have the capacity to convey the regional event to pre-development levels and is classified as a wet pond.

7.2 STORAGE REQUIREMENTS

The proposed SWM Pond C shall provide quality, erosion and quantity control for runoff for Catchment 1200 which is 14.36 ha. The required storage volume was determined by following the MECP's SWMPD Manual.

7.2.1 WATER QUALITY CONTROL

SWM Pond C shall provide an Enhanced Level of Protection for runoff from a total drainage area of 14.36 ha with an imperviousness of 97.6%.

Based on Table 3.2 in the 2003 MECP's SWMPD Manual and a lumped imperviousness 97.6%, a wet pond will require 282.1 m^3/ha of storage volume to provide an "Enhanced Level of Protection" or 80% TSS removal, of which 40 m^3/ha will be extended detention storage the remaining 242.1 m^3/ha will be permanent pool storage. Based on a total drainage area of 14.36 ha, these objectives translate to a volume of 4,049 m^3, of which 3,475 m^3 is the permanent pool volume and 574 m^3 is the extended detention storage.

Note that the extended detention volume required for the quality control (574 m^3) is less than that for erosion control (3,349 m^3) and shall be combined with the latter to be controlled with an orifice plate/tube.

7.2.2 EROSION CONTROL

Pond C will provide extended detention of the 25 mm event for a period of 48 hours. The erosion control volume calculated in Section 5.1.2 of Appendix A, for Catchment 1200 is 3,349 m^3 with a target release rate of 0.078 m^3/s.

Note that the extended detention volume for water quality control is smaller than that for the erosion control. As such, the extended detention volume shall be combined with the larger quality control volume to be released at the maximum allowable release rate for the erosion control.

7.2.3 WATER QUANTITY CONTROL

Hydrologic modelling was carried out for 6-hour and 12-hour AES storms to determine the required storage volume for quantity control up to and including the 100-year event. As shown in Table 7-1 the storage volume required for water quantity control is approximately 15,500 m^3 to limit the 100-year peak to allowable discharge rates and convey the regional storm.

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Table 7-1 Quantity Control Storage Requirements for SWM Pond C

Storm Event	Allowable Peak Flow Rates (m^3/s)	Required Active Storage (m^3)		
		6 hr AES	12 hr AES	Minimum
25 mm	0.078	---	---	3,349
2-year	0.109	4,490	4,690	4,690
5-year	0.167	5,960	6,040	6,040
10-year	0.205	6,920	6,910	6,920
25-year	0.258	8,100	8,010	8,100
50-year	0.302	8,990	8,810	8,990
100-year	0.341	9,850	9,600	9,850
Regional	2.107	---	---	**15,500**

7.3 POND GRADING

The layout of SWM Pond 10 is shown in Drawing SW3-1. The wet pond is designed to provide the required permanent pool and active storage volumes, and to conform to the grading of the site. A summary of required storage volumes and provided storage for water quality, erosion control and quantity control is provided in Table 7-2.

Table 7-2 Storage Summary for Pond C

		Required Storage (m^3)	Storage Provided (m^3)
Permanent Pool Storage	Water Quality	**3,475**	**6,493**
Active Storage**	Water Quality*	574	**3,292**
	Erosion Control	**3,349**	
	Water Quantity (100-year)	**8,901**	**16,846**
	Water Quantity (Regional)***	**-**	**19,371**
Total****			**25,864**

* *Extended detention storage for water quality and erosion control will be combined.*

** *Extended detention storage is part of the active storage for water quantity control up to 100-year event.*

*** *Storage above the design high water level for 100-year storm shall be used for Regional Storm control.*

**** *A 0.30 m freeboard is provided above the design high water level for Regional Storm.*

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SWM Pond C will provide 6,493 m^3 of total permanent pool storage at the elevation 264.20 m. The permanent pool storage is provided with a depth of 2.50 m at the forebay and 1.1 m depth at the main cell.

An extended detention volume of 3,292 m^3 is provided at the elevation 264.80 m, with a maximum depth of 0.60 m above the permanent pool elevation. Total 19,371 m^3 active storage is available for quantity control up to 100-year event and regional storm. A 0.30 m freeboard is provided above the design high water level for Regional Storm and an emergency spillway shall be incorporated at the south berm of the pond to safety convey the inflow from the 100-year event or regional storm, whichever is larger.

7.4 SEDIMENT FOREBAY

The SWM Pond C has an inlet to convey the minor system flow to the wet pond – a 1350Ø mm concrete pipe at the north side of the pond. The major system flow shall be conveyed to the pond via a 4.0 m wide overland flow route at the north side of the pond.

A sediment forebay is required at the inlet of the wet pond to settle out majority of the sediment load within an area that can be conveniently accessed for maintenance. The forebay for the proposed wet pond is sized according to the guidelines given in the *Stormwater Management Planning and Design Manual* (SWMPDM, MOECP, 2003). The forebay length is determined based on calculations of the dispersion and settling lengths, as shown in Section 5.5 of Appendix A.

7.5 OUTLET STRUCTURE

The proposed outlet structures for SWM Pond C consist of the following components:

- **Low Flow Control for Extended Detention**

  A 375Ø mm reverse slope pipe configured with a 250Ø mm orifice plate (invert = 264.20 m) is proposed to achieve the target flow rate of 0.078 m^3/s with an extended detention volume of 3,292 m^3 at 264.80 m.

- **Flow Control up to 100-year Storm Event**

  A 600 x 1200 mm precast concrete ditch inlet catch basin (DICB) (OPSD 705.040) (lid elevation = 265.11 m) is proposed to convey the flow (up to 100-year event) into the DICB. Then the inflow from the grating of DICB shall be controlled by a 225Ø mm orifice plate (invert = 264.20 m).

- **Outlet Pipe**

  Flow from above control structures shall discharge to the creek southeast of the pond; see servicing drawings in the Functional Servicing Report for more details.

- **Emergency Spillway**

  In case of blockage to the outlet structure, a 10.5 m wide emergency overflow spillway (lid elevation = 266.70 m) is proposed at the south embankment to safely convey the peak flow rate from 100-year event which is greater than the peak flow rate from regional storm.

Table 7-3 shows the stage – storage – discharge relationship for the proposed wet pond. The detailed calculations are included in Appendix A.

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Table 7-3 Stage – Storage Relationships for SWM Pond C

Description	Elevation (m)	Total Volume (m^3)	Active Storage (m^3)
Bottom of Pond	261.70	0	---
	263.10	2,654	---
	263.60	4,095	---
Permanent Pool	264.20	6,493	0
Extended Detention	264.80	9,785	3,292
Top of Pond	266.70	23,339	16,846

7.6 OPERATION PERFORMANCE

The Hydrologic model was simulated for 6-hour and 12-hour AES storms to determine the operation performance of the SWM Pond C with the proposed outlet structure. The modelling results are summarized in Table 7-4. Detailed hydrologic modelling (VO6) outputs are included in Appendix B.

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Table 7-4 Quantity Control Performance of SWM Pond C

Storm Event	Inflow Rate (m^3/s)	Outflow Rate (m^3/s)	Utilized Storage (m^3)	Water Elevation (m)
Erosion Control Event				
25 mm	0.225	0.066	1,979	264.56
6hour AES Storm				
2-year	1.264	0.103	3,973	264.90
5-year	1.701	0.120	5,420	265.10
10-year	1.991	0.131	6,401	265.24
25-year	2.354	0.235	7,338	265.37
50-year	2.627	0.260	8,076	265.47
100-year	2.896	0.273	8,901	265.59
12hour AES Storm				
2-year	0.757	0.105	4,142	264.92
5-year	0.983	0.122	5,529	265.11
10-year	1.135	0.131	6,477	265.25
25-year	1.326	0.227	7,271	265.36
50-year	1.467	0.257	7,895	265.45
100-year	1.608	0.270	8,669	265.55
Hurricane Hazel				
Regional	2.11	1.77	Full	Emergency Overflow

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8 INFILTRATION GALLERY FOR CATCHMENT 1300

8.1 OVERVIEW

The infiltration gallery system for Catchment 1300 shall be designed to provide quality (Enhanced Level Protection), erosion (Extended Detention), catchment water balance and quantity control for Catchment 1300 for the 2- through 100-year events as directed by the TRCA Humber River Hydrology Report. The infiltration gallery will also have the capacity to convey the regional event to pre-development levels.

Note that the water balance calculations and discussion will be completed by the hydrogeological consultant

8.2 WATER QUALITY CONTROL

Stormwater runoff from at-grade vehicular and impervious areas will require water quality treatment to an 80% TSS removal on an annual loading basis, to achieve an "Enhanced" level of protection as defined by the MECP's SWM Planning and Design Manual.

Isolator rows within the subsurface infiltration gallery are proposed to provide stormwater quality treatment. The separator rows are wrapped entirely in geotextile to ensure water entering the system is filtered through the cloth. The StormTech Isolator Row is ETV Certified to achieve an 82% removal efficiency. Certification and product specifications can be found in Appendix C.

8.3 EROSION CONTROL

As noted in Section 1.4, the minimum erosion control requirement is retention of the first 5 mm of every rainfall event. The 5 mm volume calculated as per the site plan properties is 330 m^3. has This volume will be provided in the sump of the infiltration gallery.

8.4 WATER QUANTITY CONTROL

Section 4.5.8 of the MOECP's Stormwater Management Planning & Design Manual (hereafter MOECP Manual) provided guidance on the design of the infiltration chamber. The information provided in the Geotechnical Study prepared by MTE Consultants (February 2021) is used in the preliminary feasibility evaluation and configuration of the infiltration chamber.

The geotechnical study indicates that the native soils just west of the proposed location at infiltration gallery is clayey silt to sandy silt. The groundwater levels were measured to be 5.5 m to 8.8 m BGS (as per monitoring wells MW101-20 to MW107-20); 5.5 m BGS will be used as a conservative design groundwater level. The total infiltration gallery height is 2.06 m plus a minimum 0.60 m cover for heavy duty asphalt. In the MOECP Manual, Table 4.9 states that a minimum 1.0 m clearance is required between the bottom of the infiltration gallery and the water table. At this site, the bottom of the infiltration gallery system would be 2.8 m above the water table.

Quantity control shall be provided with an infiltration gallery for Catchment 1300; this catchment is 8.12 ha and considered to be fully impervious. The infiltration gallery has a footprint of 4870 m^2 and a storage volume of 6500 m^3. The primary gravity drained outlet is a 215 mm orifice tube set on top of the base stone. The infiltration gallery will be installed at the south east area of the site and discharge to the adjacent creek west of the gallery. The product

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used in the modelling for the infiltration chamber is the ADS StormTech MC-4500. The product sheet can be found in Appendix C.

A standard event-oriented modelling approach, the Visual OTTHYMO Model Version 6.0 (VO), was used to estimate the required storage volume for erosion and quantity control, to size the outlet structures, and to confirm the performance of the infiltration gallery.

Table 8-1 presents a summary of the of the modelling results for the infiltration chamber. Refer to Appendix B for model outputs.

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Table 8-1 Quantity Control Performance of Infiltration Gallery

Storm Event	Inflow Rate (m^3/s)	Outflow Rate (m^3/s)	Utilized Storage (m^3)
Erosion Control Event			
25 mm	0.131	0.037	1,060
6-hour AES Storm			
2-year	0.746	0.063	2,234
5-year	0.995	0.077	3,045
10-year	1.162	0.085	3,594
25-year	1.370	0.095	4,287
50-year	1.528	0.103	4,807
100-year	1.681	0.111	5,318
12-hour AES Storm			
2-year	0.440	0.064	2,290
5-year	0.570	0.077	3,049
10-year	0.657	0.085	3,571
25-year	0.767	0.094	4,232
50-year	0.847	0.101	4,723
100-year	0.928	0.109	5,213
Hurricane Hazel			
Regional	1.21	1.20	Full

The modelling results demonstrate that the post-development peak flow rates for all events up to the regional storm are lower than the allowable release rates established in Section 2.3. The entire storage volume is used in the infiltration chamber for the regional event; excess flows will exit the chamber from the emergency overflow.

Note that the storage volume provided includes the erosion control volume discussed in Section 7.3.

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9 EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION

The following erosion and sediment controls are proposed for implementation during construction to minimize erosion potential and soil migration from the site to adjacent lands and/or receiving waters:

- Install silt fence at the downslope side of disturbed areas and snow fence (if necessary) along the perimeter of the development site, prior to the start of construction.
- Install stone mud mats at all construction entrances.
- Stockpile topsoil at designated locations and at least 15 m away from the top bank of the watercourse. Stockpiles will be contained by silt fences on the downslope side.
- Accumulated silt shall be removed from all sediment control devices as required during construction and disposed of in locations approved by the Town of Caledon and TRCA.
- All exposed soils are to be stabilized and vegetated as soon as possible using seed and mulch application on 100 mm of topsoil, as directed by the engineer.
- All catch basins are to be fitted with sediment control devices as directed by the engineer and in accordance with Town of Caledon's standard requirements.
- Half bulk head to be installed in storm manholes immediately upstream from outfall structures and removed after all building construction and landscaping activity has been completed.
- Additional erosion/sediment controls may be required on site as determined by the engineer.
- No construction activity/machinery shall intrude beyond the silt/snow fence or property limit. All construction vehicles shall enter and leave the site via designated entrances.
- All regraded areas that are not occupied by dwellings, roads, sidewalks, driveways, park, and other services shall be covered by 100 mm topsoil and sodded/seeded immediately after completion of final grading operations, as directed by the engineer.
- All temporary erosion and sediment controls must be installed prior to the commencement of site grading, must be inspected on a regular basis and after every rainfall event, and must be cleaned and maintained as required to prevent the migration of sediment from the site.
- All sediment and erosion control facilities are to remain in place until finalization of construction activity.
- All temporary erosion and sediment controls must be removed after construction and once the site has been stabilized to the Town of Caledon's satisfaction. All areas disturbed by erosion/sediment control devices are to be restored with 100 mm topsoil and sodded/seeded after construction.
- The contractor shall keep public roadways free of debris during construction. Any material tracked from the site shall be promptly removed from roadways at the contractor's expenses.
- All material and workmanship shall conform to the current OPSD and standards endorsed by the Town of Caledon, the TRCA and other regulatory agencies.

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- The contractor is responsible to locate and protect all existing utilities and municipal services, and to make arrangement with utility companies prior to construction.
- All excavations shall be in accordance with the Ontario "Occupational Health and Safety Act", and other federal and provincial regulations related to construction projects.

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10 CONCLUSIONS

The detailed design of the three proposed SWM ponds and infiltration galleries on the *12892 Dixie Road* site has been completed in order to meet the requirements set out in the Humber River Hydrology Update (June 2015). The designs include the following features:

Water Balance

Site based water balance will be met by installing infiltration galleries for each of the proposed catchments. A best practices approach has been used to maintain the pre-development infiltration in post development conditions to the extent practicable.

Existing flows to the environmental protection areas will be maintained in the proposed condition; however, this is part of the feature-based water balance strategy. Note that the feature-based water balance will be the responsibility of the hydrogeological consultant and are not discussed in this report. Refer to the feature-based water balance report by MTE Consultants for more details.

Water Quality

Sufficient permanent pool and extended detention volumes are provided in the SWM Ponds in order to meet the requirements for *Enhanced Level* protection as per the MOECP's Stormwater Management Planning and Design Manual.

Extended Detention (Erosion Control)

For the catchments with a SWM pond facility, a reversed slope pipe configurated with diameter plate is proposed as flow control to achieve the target flow rate for 25 mm rainfall event. For Catchment 1300, a sump at the bottom of the infiltration gallery will retain the first 5 mm of every rainfall. By meeting the erosion control requirements, no erosion is anticipated in the receiving watercourses.

Water Quantity Control (2 ~ 100-year Events)

Sufficient storage is provided in each SWM facility to detain runoff and control discharge rates down to the allowable rates set out in the Humber River Hydrology Update for the 2 to 100-year storm events and the Regional event.

Water Quantity Control (Regional)

In addition to the 2 to 100-year discharge requirements, additional active storage and flow control is provided in each pond to limit outflow rates during the Regional storm event in accordance with the requirements of the TRCA and Humber River Hydrology Update.

Respectfully submitted,

WSP Canada Inc.

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APPENDIX

A STORMWATER MANAGEMENT CALCULATIONS

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1.0 Introduction

12892 Dixie Road is part of the Tribal Caledon industrial development.
SWM design is guided by the MECP's Stormwater Management Planning and Design (March 2003) and the TRCA's Stormwater Management Criteria (August 2012).

1.1 Design Criteria & SWM Strategies

SWM Design Criteria has been outlined in Secion 1.4 in the 12892 Dixie Road Stormwater Management Report.
Three SWM Wet Ponds (A + A1, B, C) have been proposed to achieve the SWM quality, erosion, and quantity control. For Catchment 1300, an infiltration gallery will provide water quality, balance, quantity and erosion control.

1.1.1 Water Quality Controls

SWM Pond A + A1, B and C, and the infiltration gallery for Catchment 1300 must provide water quality control at Enhanced Protection Level.
Storage requirements for permanent pool and extended detention for quality treatment shall follow Table 3.2 in "Stormwater Management Planning and Design Manual" (MOE, 2003)

1.1.2 Quantity Control

Limit the post-development peak discharges to the corresponding pre-development levels, using TRCA"s unit flows for the West Humber River Watershed for all storms up to and including the 100-year storm.

Storm Event	Allowable Flow Rates from SWM Ponds (m^3/s)				
	1000 (Pond A +A1)	1100 (Pond B)	1200 (Pond C)	1300 (Infiltration Gallery)	Total
2-yr	0.149	0.125	0.109	0.066	0.45
5-yr	0.228	0.191	0.167	0.101	0.69
10-yr	0.280	0.235	0.205	0.124	0.84
25-yr	0.353	0.296	0.258	0.156	1.06
50-yr	0.412	0.346	0.302	0.182	1.24
100-yr	0.465	0.391	0.341	0.206	1.40
Regional	2.979	2.451	2.107	1.209	---

1.1.3 Erosion Control

As per the TRCA SWM Criteria, the minimum erosion control requirement is retention of the first 5 mm of every rainfall event.
For sites with a SWM Pond, extended detention of the 25 mm event for a period of 48 hours is required.

1.2 Design Storm

25 mm rainfall event for erosion control.
6 hour AES storm for Quantity Control for 2-year up to 100-year events.
12 hour AES storm for Quantity Control for 2-year up to 100-year events.
Regional Storm (12 hour Hazel Hurricane) for Quantity Control for regional storm.

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2.0 Proposed Development

The proposed development consists of a four large warehouse buildings with extensive surface parking.
Three SWM wet ponds are proposed at the northeast, east and southwest edge of the site to provide quality, erosion and quantity control for runoff from the development site.

2.1 Catchment Parameters

The subject development and its external area are delineated into four sub-catchments.
The hydrologic parameters used in Visual OTTHYMO model are summarized in following table.

Sub-Catchment	Area (ha)	IMP (%)	CN	IA (mm)	Tp (hours)	Command	Land Use
1000	20.28	98.4	76	5.0	0.64	StandHyd	Industrial Development
1100	16.70	97.6	76	5.0	0.79	StandHyd	Industrial Development
1200	14.36	97.6	76	5.0	0.61	StandHyd	Industrial Development
1300	8.21	100.0	76	5.0	0.59	StandHyd	Industrial Development
Total	59.55						

2.1.1 Imperviousness

Weighted imperviousness is calculated for catchment 1000, 1100, 1200 and 1300, based on current site plan.

Sub- Catchment	Land Use	Area (ha)	IMP (%)
1000	Warehouse Building	8.19	100.0
	At-grade Impervious Area	10.81	100.0
	At-grade Pervious Area	0.00	0.0
	SWM Block*	1.28	75.0
	Total	**20.28**	**98.4**
1100	Warehouse Building	9.19	100.0
	At-grade Impervious Area	5.94	100.0
	At-grade Pervious Area	0.00	0.0
	SWM Block*	1.57	75.0
	Total	**16.70**	**97.6**
1200	Warehouse Building	4.83	100.0
	At-grade Impervious Area	8.33	100.0
	Art-grade Pervious Area	0.00	0.0
	SWM Block*	1.20	71.1
	Total	**14.36**	**97.6**
1300**	Warehouse Building	2.51	100.0
	At-grade Impervious Area	5.70	100.0
	Art-grade Pervious Area	0.00	0.0
	SWM Block*	0.00	75.0
	Total	**8.21**	**100.0**

** Permanent pool is considered impervious area.*

***Catchment 1300 will utlize an underground infiltration system instead of a pond*

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2.1.2 SCS CN Numbers CN = 76 *From TRCA Hydrologic Model*

2.1.3 Initial Abstraction (IA)

Initial Abstraction for various land use are as either taken from TRCA's hydrologic model or confirmed by TRCA.

Land use	IA (mm)	Comments
Woodlot	10.0	Confirmed by TRCA
Agricultural Area	5.0	Typical value for pervious area
Urban Lawn	5.0	Typical value for pervious area
Impervious Surface	1.0	Typical value for impervious area

2.1.4 Time of Concentration (T_C) and Time to Peak (T_P) for rural catchment (1000 and 1100)

Time of concentration (tc) was calculated using Upland Method, then time to peak (tp) was determined using Equation tp=2/3*Tc.

With Upland Method, the average overland flow velocity is determined for a catchment based on the catchment slope and ground type. Once the velocity has been determined, then the time of concentration is determined by dividing the catchment length by the overland flow velocity.

The velocity can be either read from a figure for Velocity vs. Slope or calculated from the following equation:

$$V = K\sqrt{S}$$

Where, V is average velocity;
S is slope in percentage (%); and
K (m/s) is an intercept Coefficient as shown in following table.

Flow Type	K
Overland Flow: Forest with Heavy Litter; Hay Meadow	0.8
Overland Flow: Woodland; Fallow or Minimum Tillage Cultivation, Contour or Strip Crop	1.5
Overland Flow: Pasture	2.1
Overland Flow: Cultivated Straight Row	2.7
Overland Flow: Nearly Bare Soil, Untilled	3.1
Grassed Waterway	4.6

Catchment	Flow Pattern & Ground Cover	L (m)	E_1 (m)	E_2 (m)	Sw	V (m/s)	Tc (min)	Tp hr)
1000	Overland, Pasture	605.102	272.20	268.70	0.58	0.17	57.6	0.64
1100	Overland, Pasture	774.884	270.88	266.05	0.62	0.18	71.1	0.79
1200	Overland, Pasture	654.971	270.89	265.93	0.76	0.20	54.5	0.61
1300	Overland, Pasture	427.203	265.90	264.46	0.34	0.13	53.3	0.59

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2.4 Post-Development Peak Flow Rates

Storm Event	Allowable Flow Rates from Catchments (m^3/s)					Controlled Flow Rates from Catchments (m^3/s)				
	1000	1100	1200	1300	Total	1000	1100	1200	1300	Total
25 mm	0.111	0.090	0.078	5 mm Retention	-	0.085	0.0654	0.0660	5 mm Retention	---
2-yr	0.149	0.125	0.109	0.066	0.448	0.147	0.120	0.105	0.064	0.436
5-yr	0.228	0.191	0.167	0.101	0.687	0.172	0.144	0.122	0.077	0.514
10-yr	0.280	0.235	0.205	0.124	0.845	0.187	0.157	0.131	0.085	0.560
25-yr	0.353	0.296	0.258	0.156	1.063	0.204	0.172	0.235	0.095	0.706
50-yr	0.412	0.346	0.302	0.182	1.241	0.216	0.259	0.260	0.103	0.838
100-yr	0.465	0.391	0.341	0.206	1.402	0.244	0.372	0.273	0.111	0.999
Regional	2.979	2.451	2.107	1.209	---	2.200	0.630	1.769	1.202	---

*24 hr detention for erosion control volume

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3.0 Pond A + A1

3.1 Design Criteria and Required Storage

Pond A + A1 will be hydrologically connected using an equalizer pipe and effectively modelled as one pond.

3.1.1 Water Quality Controls

Pond A + A1 must provide water quality control at Enhanced Protection Level

Refer to Table 3.2 in "Stormwater Management Planning and Design Manual" (MOE, 2003)

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced 80% long-term S.S. removal	Infiltration	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250

Sub- Catchment	Area (ha)	Imperviousness (%)	A X IMP (ha)
Roof	8.19	100.0	8.19
At-Grade	12.09	97.3	11.77
Total	20.28	98.4	19.96

Total Drainage Area	12.09	ha		*note that this excludes the roof area*	
Imperviousness	97.3	%			
SWMP Type	Wet Pond				
Enhanced Level Protection:	80	% TSS Removal			
Storage Volume per ha	281.4	m^3/ha	or	3,403	m^3
Extended Detention Volume	40.0	m^3/ha	or	484	m^3
Permanent Pool Storage	241.4	m^3/ha	or	**2,919**	m^3

3.1.2 Erosion Control

Runoff Volume for 25 mm event	23.72	mm	*(Refer to VO output node 47)*
Extended Detention (Erosion Control)	**4812**	m^3	

3.1.3 Quantity Control Target

The target flow rate is calculated using the TRCA's unit flow rates for the Humber River Watershed.

Storm Event	Allowable Peak Flow Rate (m^3/s)	Minimum Storage Requirement (from VO Model) (m^3)		Minimum Design Storage Requirement (m^3)
		6 hour AES	12 hour AES	
25 mm*	0.111	---	---	4,812
2-Yr	0.1489	3,600	3,700	3,700
5-Yr	0.2279	4,770	4,770	4,770
10-Yr	0.2804	5,520	5,450	5,520
25-Yr	0.3529	6,450	6,280	6,450
50-Yr	0.4118	7,130	6,880	7,130
100-Yr	0.4654	7,790	7,430	7,790
Regional	2.979	---	---	**9,000**

**24 hr detention for erosion control volume*

Furthermore, the regional flow from Pond A + A1 shall be conveyed by the emergency spillway.

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3.2 Pond Grading

Pond grading was carried out to provide required storage.
The Stage - Storage Relationships for Pond A + A1 are as follows.

Description	Elevation (m)	Surface Area (m^2)	Total Volume (m^3)	Active Volume (m^3)
Bottom of Pond	263.30	481	0	0
	264.20	1,962	1,099	0
Permanent Pool	264.80	4,472	2,991	0
	265.40	6,774	6,365	3,374
Extended Detention	265.70	7,485	8,504	5,513
	266.00	8,206	10,857	7,866
Top of Pond	266.30	8,996	13,438	10,446
Freeboard	266.60	9,751	16,250	13,259

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3.3 Outlet Structure Design

Outlet Structure for Pond A + A1 consists of:

1. Reverse Slope Pipe configured with orifice plate for Erosion Control.
2. DICB configured with orifice tube for Quantity Control up to 100-year event.
3. DICB configured with orifice tube for Quantity Control for Regional Storm.
4. Emergency Spillway.

3.3.1 Low Flow Outlet for Erosion Control

A 375 mm reverse slope pipe is proposed to drain water from the deep portion of the pond.
A 320 mm orifice plate is proposed to achieve the target flow rate for the extended detention volume

Orifice Discharge Equation is used to calculate the release rate from the 320 mm orifice plate:

$$Q = CA\sqrt{2gh}$$

Where,	Q = Orifice Plate Flow Rate (m^3/s)	0.165	m^3/s
	C = Flow Coefficient for Orifice Plate	0.63	
	d = Diameter of orifice (mm)	**320**	mm
	A = Cross-section Area of Orifice Plate (m^2)	0.0804	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above Centerline of Orifice Plate (m)	0.540	m
	Invert of Orifice Plate is set at permanent pool level	264.80	m
	Extended Detention	265.50	m

3.3.2 High Flow Outlet for Quantity Control up to 100-year Event

A 600 x 1200 mm precast concrete ditch inlet (OPSD 705.040) with 600 X 1200 mm grate (OPSD 403.010) & a 3:1 slope is proposed to convey the 100-year flow to the DICB.

The invert of the grate is set at elevation:	265.80	m

A 500 mm orifice plate is proposed to control flow rate up to 100-year event

The invert of orifice plate is set at	264.80	m

The flow rate through the grate can be estimated using either weir flow equation or orifice discharge equation, depending on the water head. Note that a 50% blockage is assumed in the flow capacity calculations.

When water head is low and the grate is not submerged, the flow rate can be estimated using Sharp-Crested Weir Equation

$$Q = 50\%\ CLH^{1.5}$$

Where,	Q = Sharp-Crested Weir Flow Rate (m^3/s)		
	C = Flow Coefficient for Sharp-Crested Weir	1.84	
	L' = Length of the Ditch Inlet Catchbasin (m)	1.20	m
	α = Effective Length Ratio	0.90	
	L = Effective Weir Length (m)	1.08	m
	H = Water Depth (m) = Water surface Elevation - 265.80 m. (Note: H < = 0.6/3= 0.20 m)		

When water head is high and the grate is submerged, the flow can be estimated using Orifice Discharge Equation

$$Q = 50\%\ CA\sqrt{2gh}$$

Where,	Q = Orifice Plate Flow Rate (m3/s)	0.271	
	C = Flow Coefficient for Orifice Plate	0.63	
	A = Cross-section Area of Orifice Plate (m^2)		
	= Length X Width X 0.9 (Opening Ratio)	0.648	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above centerline of the grate (m) = Water Surface Elevation - 265.80 - 0.20/2		

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Orifice Discharge Equation is used to calculate the release rate from the 500 mm orifice plate:

$$Q = CA\sqrt{2gh}$$

Where,	Q = Orifice plate Controlled Flow Rate (m^3/s)	0.506	m^3/s
	C = Flow Coefficient for Orifice plate	0.60	
	d = Diameter of Orifice (mm)	500	mm
	A = Cross-section Area of Orifice (m^2)	0.196	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above Centerline of Orifice (m)	0.94	
	Invert of Orifice	264.80	m
	100-Year Water Level	265.99	m

3.3.3 Emergency Spillway

In case that all orifice tubes be blocked, an emergency spillway shall be proposed to convey the peak inflow rate from regional or 100-year event, whichever is greater.

100-year inflow rate=	4.09	m^3/s
Regional inflow rate=	2.98	m^3/s

Weir Bottom Lid Elevation is set at 266.30 m

Broad-Crested Weir Equation is used to estimate the flow through the emergency spillway.

$$Q = CLH^{3/2}$$

Where,	Q = Broad-Crested Weir Flow Rate (m^3/s)	4.13	m^3/s *
	C = Flow Coefficient	1.70	
	L = Weir Length (m)	7.4	m **
	H = Water Depth (m) = Top of Pond - 262.70 m	0.30	m

**multipled by 2 because two separate pond cells*
*** each pond shall have an emergency spillway*

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3.4 Pond Performance

Visual OTTHYMO model was simulated for 12 hour AES storm, 6 hour AES Storm and Regional Storm. The results are summarized as follows.

3.4.1 Pond A + A1 Performance _ 6 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
25 mm	0.319	0.085	1,709	265.10
2-Yr	1.779	0.144	3,218	265.37
5-Yr	2.391	0.171	4,378	265.54
10-Yr	2.801	0.187	5,181	265.65
25-Yr	3.325	0.204	6,211	265.79
50-Yr	3.710	0.216	6,997	265.89
100-Yr	4.091	0.244	7,767	265.99

3.4.2 Pond A + A1 Performance _ 12 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
2-Yr	1.072	0.147	3,328	265.39
5-Yr	1.393	0.172	4,402	265.54
10-Yr	1.608	0.187	5,166	265.65
25-Yr	1.878	0.203	6,156	265.78
50-Yr	2.078	0.215	6,904	265.88
100-Yr	2.277	0.226	7,660	265.97

3.4.3 Pond A + A1 Performance _ Regional Event

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
Regional Event	2.979	2.200	Full	Emergency Overflow

3.4.4 Allowable Flow Rates vs Controlled Flow Rates

Storm Event	Allowable Flow Rate (m^3/s)	Post-Development Peak Flow Rate (m^3/s)	
		6 hr AES	12 hr AES
25 mm	0.111	0.085	
2-Yr	0.149	0.144	0.147
5-Yr	0.228	0.171	0.172
10-Yr	0.280	0.187	0.187
25-Yr	0.353	0.204	0.203
50-Yr	0.412	0.216	0.215
100-Yr	0.465	0.244	0.226

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3.5 Forebay Configuration

A sediment forebay is one of the deeper areas of the pond which facilitates maintenance and improves pollutant removal by trapping larger particles near the inlet of the pond.
The sediment forebay design guidelines are presented in section 4.6.2 of the <Stormwater Management Practice Planning and Design Manual> (MOE, 2003) on page 4.55 to 4.57.

3.5.1 Settling Calculation

$$D_{ist} = \sqrt{\frac{rQ_p}{V_s}}$$ Equation 4.5 of MOE Manual

Where,	D_{ist} = Forebay length (m)	30.2	m
	r = Length -to-Width ratio of forebay	3.24	
	Q_p = Peak flow rate from the pond during 25 mm storm	0.085	m^3/s
	V_s = Setting velocity	0.0003	m/s

3.5.2 Dispersion Length

The dispersion length refers to the length of fluid required to slow a jet discharge. It is recommended that the forebay length is such that a fluid jet will disperse to a velocity of ≤ 0.50 m/s at the forebay berm.

$$D_{ist} = \frac{8Q}{dV_f}$$ Equation 4.6 of MOE Manual

Where,	D_{ist} = Dispersion Length	37.3	m
	Q = Inlet flow rate from design storm (10-year)	2.80	m^3/s
	d = Depth of permanent pool in the forebay	1.20	m
	V_f = Desired velocity in the forebay	0.50	m/s

3.5.3 Minimum Forebay Bottom Width

$$W_{idth} = \frac{D_{ist}}{8}$$ Equation 4.7 of MOE Manual

Where,	W_{idth} = Minimum Forebay Deep Zone Bottom Width	4.7	
	D_{ist} = Larger of Settling Length and Dispersion Length	37.3	m

3.5.4 Forebay Configuration

Description	Required	Provided
Depth (m)	1.0	1.2
Settling Length (m)	30.2	44.5
Dispersion Length (m)	37.3	
Minimum Bottom Width of Forebay Deep Zone	4.7	13.7

3.5.5 Average Flow Velocity in the forebay

A check should be made using the entire forebay cross-sectional area to ensure that the average velocity in the forebay is less than, or equal to , 0.15 m/s which is empirically recognized as the maximum permissible velocity before which erosion will occur in a channel.

$$V_{avg} = Q/A$$

Where,	V_{avg} = Average velocity in the forebay	0.04	m/s
	Q = Inlet flow rate from design storm (100-year)	2.80	m^3/s
	A = Entire forebay cross-sectional area	65.78	m^2
	d = Depth of permanent pool in the forebay	1.20	m
	W_B = Forebay Deep Zone Bottom Width	13.73	m
	W_t = Forebay Deep Zone Top Width at Permanent Pool Elevation	95.90	m

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By	Jennifer Chan	Date	2/23/2021
Checked	Vladimir Nikolic	Checked	
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Subject: **SWM Calculation - Pond A + A1**

3.7 Stage - Storage - Discharge Relationships for Pond A + A1

Elevation (m)	Flow Control for Extended Detention		Flow Control for Up to 100-Year Event					Emergency Spillway North		Emergency Spillway South		Total Flow (m^3/s)	Active Storage (m^3)
	Orifice Plate #1 C = 0.63 Dia. = 320 Inv. = 264.80		Grating of DICB* C = 0.63 600 x 1200 Lid. = 265.80		Orifice Plate #2 C = 0.63 Dia. = 500 Inv. = 264.80		Orifice Tube #2 Controlled Flow (m^3/s)	Broad Crest Weir C = 1.70 L = 7.4 Lid. = 266.30		Broad Crest Weir C = 1.70 L = 7.4 Lid. = 266.30			
	Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)		Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)		
264.80	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
264.88	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**444**
264.96	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**887**
265.04	0.08	0.062	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.062**	**1,331**
265.12	0.16	0.089	0.000	0.000	0.066	0.134	0.000	0.000	0.000	0.000	0.000	**0.089**	**1,775**
265.19	0.23	0.109	0.000	0.000	0.144	0.198	0.000	0.000	0.000	0.000	0.000	**0.109**	**2,218**
265.27	0.31	0.126	0.000	0.000	0.223	0.247	0.000	0.000	0.000	0.000	0.000	**0.126**	**2,662**
265.35	0.39	0.141	0.000	0.000	0.302	0.287	0.000	0.000	0.000	0.000	0.000	**0.141**	**3,105**
265.43	0.47	0.154	0.000	0.000	0.381	0.322	0.000	0.000	0.000	0.000	0.000	**0.154**	**3,596**
265.51	0.55	0.166	0.000	0.000	0.460	0.354	0.000	0.000	0.000	0.000	0.000	**0.166**	**4,159**
265.59	0.63	0.178	0.000	0.000	0.539	0.383	0.000	0.000	0.000	0.000	0.000	**0.178**	**4,721**
265.67	0.71	0.189	0.000	0.000	0.618	0.410	0.000	0.000	0.000	0.000	0.000	**0.189**	**5,284**
265.75	0.79	0.199	0.000	0.000	0.697	0.436	0.000	0.000	0.000	0.000	0.000	**0.199**	**5,880**
265.83	0.87	0.209	0.000	0.000	0.776	0.460	0.000	0.000	0.000	0.000	0.000	**0.209**	**6,499**
265.90	0.94	0.218	0.000	0.000	0.855	0.482	0.000	0.000	0.000	0.000	0.000	**0.218**	**7,118**
265.98	1.02	0.227	0.000	0.000	0.933	0.504	0.000	0.000	0.000	0.000	0.000	**0.227**	**7,737**
266.06	1.10	0.236	0.162	0.364	1.012	0.525	0.364	0.000	0.000	0.000	0.000	**0.600**	**8,403**
266.14	1.18	0.244	0.241	0.444	1.091	0.545	0.444	0.000	0.000	0.000	0.000	**0.688**	**9,081**
266.22	1.26	0.252	0.320	0.512	1.170	0.564	0.512	0.000	0.000	0.000	0.000	**0.764**	**9,760**
266.30	1.34	0.260	0.399	0.571	1.249	0.583	0.571	0.000	0.000	0.000	0.000	**0.831**	**10,439**

DICB grating funcitons as weir with lower flow head.

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4.0 Pond B

4.1 Design Criteria and Required Storage

4.1.1 Water Quality Controls

Pond B must provide water quality control at Enhanced Protection Level
Refer to Table 3.2 in "Stormwater Management Planning and Design Manual" (MOE, 2003)

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced 80% long-term S.S. removal	Infiltration	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250

Sub- Catchment	Area (ha)	Imperviousness (%)	A X IMP (ha)
1100	16.70	97.6	16.30
Total	16.70	97.6	16.30

Total Drainage Area	16.70	ha			
Imperviousness	97.6	%			
SWMP Type	Wet Pond				
Enhanced Level Protection:	80	% TSS Removal			
Storage Volume per ha	282.2	m^3/ha	or	4,712	m^3
Extended Detention Volume	40.0	m^3/ha	or	668	m^3
Permanent Pool Storage	242.2	m^3/ha	or	**4,044**	m^3

4.1.2 Erosion Control

Runoff Volume for 25 mm event	23.32	mm	*(Refer to VO output)*
Extended Detention (Erosion Control)	**3894**	m^3	

4.1.3 Quantity Control Target

The target flow rate is calculated using the TRCA's unit flow rates for the Humber River Watershed.

Storm Event	Allowable Flow Rate (m^3/s)	Minimum Storage Requirement ((from VO Model) I) (m^3)		Minimum Design Storage Requirement (m^3)
		6 hour AES	12 hour AES	
25 mm*	0.090	---	---	3,894
2-Yr	0.125	5,210	5,470	5,470
5-Yr	0.191	6,910	7,040	7,040
10-Yr	0.235	8,020	8,050	8,050
25-Yr	0.296	9,400	9,330	9,400
50-Yr	0.346	10,420	10,260	10,420
100-Yr	0.391	11,420	11,190	11,420
Regional	2.451	---	---	**18,500**

**24 hr detention for erosion control volume*

Furthermore, the regional flow from Pond B shall be conveyed by the emergency spillway.

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4.2 Pond Grading

Pond grading was carried out to provide required storage.
The Stage - Storage Relationships for Pond B are as follows.

Description	Elevation (m)	Surface Area (m^2)	Total Volume (m^3)	Active Volume (m^3)
Bottom of Pond	260.98	4,924	0	-
	261.88	6,718	4,820	-
	262.88	8,073	12,098	-
Permanent Pool	263.48	9,864	17,426	0
Extended Detention	263.88	10,662	21,531	4,105
	264.08	11,103	23,707	6,282
Top of Pond	265.78	13,310	44,458	27,032
Freeboard	266.08	13,716	48,512	31,086

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4.3 Outlet Structure Design

Outlet Structure for Pond B consists of:

1. Reverse Slope Pipe configured with orifice plate for Erosion Control.
2. DICB configured with orifice tube for Quantity Control up to 100-year event.
3. DICB configured with orifice tube for Quantity Control for Regional Storm.
4. Emergency Spillway.

4.3.1 Low Flow Outlet for Erosion Control

A 375mm reverse slope pipe is proposed to drain water from the deep portion of the pond.
A 310 mm orifice plate is proposed to achieve the target flow rate for the extended detention volume

Orifice Discharge Equation is used to calculate the release rate from the 310 mm orifice plate:

$$Q = CA\sqrt{2gh}$$

Where,	Q = Orifice Plate Flow Rate (m^3/s)	0.104	m^3/s
	C = Flow Coefficient for Orifice Plate	0.63	
	d = Diameter of orifice (mm)	**310**	mm
	A = Cross-section Area of Orifice Plate (m^2)	0.0755	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above Centerline of Orifice Plate (m)	0.245	m
	Invert of Orifice Plate is set at permanent pool level	263.48	m
	Extended Detention	263.88	m

4.3.2 High Flow Outlet for Quantity Control up to 100-year Event

A 600 x 1200 mm precast concrete ditch inlet (OPSD 705.040) with 600 X 1200 mm grate (OPSD 403.010) & a 3:1 slope is proposed to convey the 100-year flow to the DICB.

The invert of the grate is set at elevation:	264.18	m

A 350 mm orifice plate is proposed to control flow rate up to 100-year event

The invert of orifice tube is	263.48	m

The flow rate through the grate can be estimated using either weir flow equation or orifice discharge equation, depending on the water head. Note that a 50% blockage is assumed in the flow capacity calculations.

When water head is low and the grate is not submerged, the flow rate can be estimated using Sharp-Crested Weir Equation

$$Q = 50\%\ CLH^{1.5}$$

Where,	Q = Sharp-Crested Weir Flow Rate (m^3/s)		
	C = Flow Coefficient for Sharp-Crested Weir	1.84	
	L' = Length of the Ditch Inlet Catchbasin (m)	0.60	m
	α = Effective Length Ratio	0.90	
	L = Effective Weir Length (m)	0.54	m
	H = Water Depth (m) = Water surface Elevation - 264.18 m.	(Note: H < = 0.60/3= 0.20 m)	

When water head is high and the grate is submerged, the flow can be estimated using Orifice Discharge Equation

$$Q = 50\%\ CA\sqrt{2gh}$$

Where,	Q = Orifice Plate Flow Rate (m^3/s)	0.350	
	C = Flow Coefficient for Orifice Plate	0.63	
	A = Cross-section Area of Orifice Plate (m^2)		
	= Length X Width X 0.9 (Opening Ratio)	0.648	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above centerline of the grate (m) = Water Surface Elevation - 264.18 - 0.20/2		

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Orifice Discharge Equation is used to calculate the release rate from the 350 mm orifice plate:

$$Q = CA\sqrt{2gh}$$

Where,	Q = Orifice tube Controlled Flow Rate (m^3/s)	0.225	m^3/s
	C = Flow Coefficient for Orifice Plate	0.60	
	d = Diameter of Orifice (mm)	350	mm
	A = Cross-section Area of Orifice (m^2)	0.0962	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above Centerline of Orifice (m)	0.775	
	Invert of Orifice Tube	263.48	m
	100-Year Water Level	264.43	m

4.3.4 Emergency Spillway

In case that all orifice tubes be blocked, an emergency spillway shall be proposed to convey the peak inflow rate from regional or 100-year event, whichever is greater.

100-year inflow rate=	3.36	m^3/s
Regional inflow rate=	2.45	m^3/s

Weir Bottom Lid Elevation is set at 265.78 m

Broad-Crested Weir Equation is used to estimate the flow through the emergency spillway.

$$Q = CLH^{3/2}$$

Where,	Q = Broad-Crested Weir Flow Rate (m^3/s)	3.38	m^3/s
	C = Flow Coefficient	1.70	
	L = Weir Length (m)	12.1	m
	H = Water Depth (m) = Top of Pond - 265.78	0.30	m

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4.4 Pond Performance

Visual OTTHYMO model was simulated for 12 hour AES storm, 6 hour AES Storm and Regional Storm. The results are summarized as follows.

4.4.1 Pond B Performance _ 6 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
25 mm	0.261	0.0654	2,604	263.73
2-Yr	1.464	0.1152	4,725	263.94
5-Yr	1.967	0.1417	6,374	264.09
10-Yr	2.310	0.1553	7,501	264.18
25-Yr	2.733	0.1712	8,929	264.30
50-Yr	3.049	0.2593	9,810	264.37
100-Yr	3.363	0.3715	10,493	264.43

4.4.2 Pond B Performance _ 12 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
2-Yr	0.879	0.1201	4,982	263.96
5-Yr	1.143	0.1439	6,555	264.10
10-Yr	1.320	0.1570	7,640	264.19
25-Yr	1.541	0.1722	9,016	264.30
50-Yr	1.705	0.2520	9,765	264.37
100-Yr	1.870	0.3488	10,355	264.41

4.4.3 Pond B Performance _ Regional Event

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
Regional Event	2.45	0.63	23,274	265.47

4.4.4 Allowable Flow Rates vs Controlled Flow Rates

Storm Event	Allowable Flow Rate (m^3/s)	Post-Development Peak Flow Rate (m^3/s)	
		6 hr AES	12 hr AES
25 mm	0.090	0.065	
2-Yr	0.125	0.115	0.120
5-Yr	0.191	0.142	0.144
10-Yr	0.235	0.155	0.157
25-Yr	0.296	0.171	0.172
50-Yr	0.346	0.259	0.252
100-Yr	0.391	0.372	0.349

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4.5 Forebay Configuration

A sediment forebay is one of the deeper areas of the pond which facilitates maintenance and improves pollutant removal by trapping larger particles near the inlet of the pond.
The sediment forebay design guidelines are presented in section 4.6.2 of the <Stormwater Management Practice Planning and Design Manual> (MOE, 2003) on page 4.55 to 4.57.

4.5.1 Settling Calculation

$$D_{ist} = \sqrt{\frac{rQ_p}{V_s}}$$ Equation 4.5 of MOE Manual

Where,

D_{ist} =	Forebay length (m)	27.3	m
r =	Length -to-Width ratio of forebay	3.41	
Q_p =	Peak flow rate from the pond during 25 mm storm	0.065	m^3/s
V_s =	Setting velocity	0.0003	m/s

4.5.2 Dispersion Length

The dispersion length refers to the length of fluid required to slow a jet discharge. It is recommended that the forebay length is such that a fluid jet will disperse to a velocity of ≤ 0.50 m/s at the forebay berm.

$$D_{ist} = \frac{8Q}{dV_f}$$ Equation 4.6 of MOE Manual

Where,

D_{ist} =	Dispersion Length	24.6	m
Q =	Inlet flow rate from design storm (10-year)	2.310	m^3/s
d =	Depth of permanent pool in the forebay	1.50	m
V_f =	Desired velocity in the forebay	0.50	m/s

4.5.3 Minimum Forebay Bottom Width

$$W_{idth} = \frac{D_{ist}}{8}$$ Equation 4.7 of MOE Manual

Where,

W_{idth} =	Minimum Forebay Deep Zone Bottom Width	3.4	
D_{ist} =	Larger of Settling Length and Dispersion Length	27.3	m

4.5.4 Forebay Configuration

Description	Required	Provided
Depth (m)	1.0	1.5
Settling Length (m)	27.3	83.4
Dispersion Length (m)	24.6	
Minimum Bottom Width of Forebay Deep Zone	3.4	24.4

4.5.5 Average Flow Velocity in the forebay

A check should be made using the entire forebay cross-sectional area to ensure that the average velocity in the forebay is less than, or equal to , 0.15 m/s which is empirically recognized as the maximum permissible velocity before which erosion will occur in a channel.

$$V_{avg} = Q/A$$

Where,

V_{avg} =	Average velocity in the forebay	0.06	m/s
Q =	Inlet flow rate from design storm (100-year)	2.31	m^3/s
A =	Entire forebay cross-sectional area	36.33	m^2
d =	Depth of permanent pool in the forebay	1.50	m
W_B =	Forebay Deep Zone Bottom Width	24.44	m
W_t =	Forebay Deep Zone Top Width at Permanent Pool Elevation	24.00	m

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4.7 Stage - Storage - Discharge Relationships for Pond B

Elevation (m)	Flow Control for Extended Detention		Flow Control for Up to 100-Year Event					Emergency Spillway		Total Flow (m^3/s)	Active Storage (m^3)
	Orifice Plate #1 C = 0.63 Dia. = 310 Inv. = 263.48		Grating of DICB C = 1.84 600 x 1200 Lid. = 264.18		Orifice plate #2 C = 0.60 Dia. = 350 Inv. = 263.48		Orifice Tube #2 Controlled Flow (m^3/s)	Broad Crest Weir C = 1.70 L = 12.1 Lid. = 265.78			
	Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)		Depth (m)	Flow (m^3/s)		
263.48	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
263.60	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**1,242**
263.72	0.09	0.062	0.000	0.000	0.067	0.066	0.000	0.000	0.000	**0.062**	**2,484**
263.84	0.21	0.096	0.000	0.000	0.188	0.111	0.000	0.000	0.000	**0.096**	**3,725**
263.96	0.33	0.121	0.000	0.000	0.309	0.142	0.000	0.000	0.000	**0.121**	**5,019**
264.09	0.45	0.141	0.000	0.000	0.430	0.168	0.000	0.000	0.000	**0.141**	**6,343**
264.21	0.57	0.159	0.000	0.000	0.551	0.190	0.000	0.000	0.000	**0.159**	**7,820**
264.33	0.69	0.175	0.000	0.000	0.672	0.210	0.000	0.000	0.000	**0.175**	**9,297**
264.45	0.81	0.190	0.168	0.371	0.793	0.228	0.228	0.000	0.000	**0.418**	**10,774**
264.57	0.93	0.204	0.289	0.486	0.914	0.244	0.244	0.000	0.000	**0.448**	**12,251**
264.69	1.05	0.216	0.410	0.579	1.035	0.260	0.260	0.000	0.000	**0.476**	**13,727**
264.81	1.18	0.228	0.531	0.659	1.156	0.275	0.275	0.000	0.000	**0.503**	**15,204**
264.93	1.30	0.240	0.652	0.730	1.277	0.289	0.289	0.000	0.000	**0.529**	**16,681**
265.05	1.42	0.251	0.773	0.795	1.398	0.302	0.302	0.000	0.000	**0.553**	**18,158**
265.17	1.54	0.261	0.894	0.855	1.519	0.315	0.315	0.000	0.000	**0.576**	**19,635**
265.30	1.66	0.271	1.015	0.911	1.640	0.327	0.327	0.000	0.000	**0.599**	**21,112**
265.42	1.78	0.281	1.136	0.964	1.761	0.339	0.339	0.000	0.000	**0.620**	**22,589**
265.54	1.90	0.290	1.257	1.014	1.882	0.351	0.351	0.000	0.000	**0.641**	**24,066**
265.66	2.02	0.300	1.378	1.061	2.003	0.362	0.362	0.000	0.000	**0.661**	**25,543**
265.78	2.14	0.308	1.499	1.107	2.124	0.373	0.373	0.000	0.000	**0.681**	**27,020**

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5.0 South Pond C

5.1 Design Criteria and Required Storage

5.1.1 Water Quality Controls

Pond C must provide water quality control at Enhanced Protection Level

Refer to Table 3.2 in "Stormwater Management Planning and Design Manual" (MOE, 2003)

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level			
		35%	55%	70%	85%
Enhanced 80% long-term S.S. removal	Infiltration	25	30	35	40
	Wetlands	80	105	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250

Sub- Catchment	Area (ha)	Imperviousness (%)	A X IMP (ha)
1200	14.36	97.6	14.01
Total	14.36	97.6	14.01

Total Drainage Area	14.36	ha			
Imperviousness	97.6	%			
SWMP Type	Wet Pond				
Enhanced Level Protection:	80	% TSS Removal			
Storage Volume per ha	282.1	m^3/ha	or	4,049	m^3
Extended Detention Volume	40.0	m^3/ha	or	574	m^3
Permanent Pool Storage	242.1	m^3/ha	or	**3,475**	m^3

5.1.2 Erosion Control

Runoff Volume for 25 mm event	23.33	mm	*(Refer to VO output)*
Extended Detention (Erosion Control)	**3349**	m^3	

5.1.3 Quantity Control Target

The target flow rate is calculated using the TRCA's unit flow rates for the Humber River Watershed.

Storm Event	Allowable Flow Rate (m^3/s)	Minimum Storage Requirement ((from VO Model) I) (m^3)		Minimum Design Storage Requirement (m^3)
		6 hour AES	12 hour AES	
25 mm*	0.078	---	---	3,349
2-Yr	0.109	4,490	4,690	4,690
5-Yr	0.167	5,960	6,040	6,040
10-Yr	0.205	6,920	6,910	6,920
25-Yr	0.258	8,100	8,010	8,100
50-Yr	0.302	8,990	8,810	8,990
100-Yr	0.341	9,850	9,600	9,850
Regional	2.107	---	---	**15,500**

**24 hr detention for erosion control volume*

Furthermore, the regional flow from Pond C shall be conveyed by the emergency spillway.

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5.2 Pond Grading

Pond grading was carried out to provide required storage.
The Stage - Storage Relationships for Pond C are as follows.

Description	Elevation (m)	Surface Area (m^2)	Total Volume (m^3)	Active Volume (m^3)
Bottom of Pond	261.70	1,451	0	---
	263.10	2,510	2,654	---
	263.60	3,257	4,095	---
Permanent Pool	264.20	4,940	6,493	0
Extended Detention	264.80	6,033	9,785	3,292
Top of Pond	266.70	8,234	23,339	16,846
Freeboard	267.00	8,600	25,864	19,371

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5.3 Outlet Structure Design

Outlet Structure for the South Pond C consists of:

1. Reverse Slope Pipe configured with orifice plate for Erosion Control.
2. DICB configured with orifice tube for Quantity Control up to 100-year event.
3. DICB configured with orifice tube for Quantity Control for Regional Storm.
4. Emergency Spillway.

5.3.1 Low Flow Outlet for Erosion Control

A 375 mm reverse slope pipe is proposed to drain water from the deep portion of the pond.
A 250 mm orifice plate is proposed to achieve the target flow rate for the extended detention volume

Orifice Discharge Equation is used to calculate the release rate from the 250 mm orifice plate:

$$Q = CA\sqrt{2gh}$$

Where,	Q = Orifice Plate Flow Rate (m^3/s)	0.095	m^3/s
	C = Flow Coefficient for Orifice Plate	0.63	
	d = Diameter of orifice (mm)	250	mm
	A = Cross-section Area of Orifice Plate (m^2)	0.0491	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above Centerline of Orifice Plate (m)	0.485	m
	Invert of Orifice Plate	264.20	m
	Extended Detention	264.81	m

5.3.2 High Flow Outlet for Quantity Control up to 100-year Event

A 600 x 1200 mm precast concrete ditch inlet (OPSD 705.040) with 600 X 1200 mm grate (OPSD 403.010) & a 3:1 slope is proposed to convey the 100-year flow to the DICB.

The invert of the grate is set at elevation:	265.11	m

A 225 mm orifice plate is proposed to control flow rate up to 100-year event

The invert of orifice tube is	264.20	m

The flow rate through the grate can be estimated using either weir flow equation or orifice discharge equation, depending on the water head. Note that a 50% blockage is assumed in the flow capacity calculations.

When water head is low and the grate is not submerged, the flow rate can be estimated using Sharp-Crested Weir Equation

$$Q = 50\%\ CLH^{1.5}$$

Where,	Q = Sharp-Crested Weir Flow Rate (m^3/s)		
	C = Flow Coefficient for Sharp-Crested Weir	1.84	
	L' = Length of the Ditch Inlet Catchbasin (m)	0.60	m
	α = Effective Length Ratio	0.90	
	L = Effective Weir Length (m)	0.54	m
	H = Water Depth (m) = Water surface Elevation - 265.11 m.	(Note: H < = 0.60/3= 0.20 m)	

When water head is high and the grate is submerged, the flow can be estimated using Orifice Discharge Equation

$$Q = 50\%\ CA\sqrt{2gh}$$

Where,	Q = Orifice Plate Flow Rate (m^3/s)	0.557	
	C = Flow Coefficient for Orifice Plate	0.63	
	A = Cross-section Area of Orifice Plate (m^2)		
	= Length X Width X 0.9 (Opening Ratio)	0.648	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above centerline of the grate (m) = Water Surface Elevation - 265.11- 0.20/2		

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Orifice Discharge Equation is used to calculate the release rate from the 225 mm orifice plate:

$$Q = CA\sqrt{2gh}$$

Where,	Q = Orifice plate Controlled Flow Rate (m^3/s)	0.119	m^3/s
	C = Flow Coefficient for Orifice plate	0.60	
	d = Diameter of Orifice (mm)	225	mm
	A = Cross-section Area of Orifice (m^2)	0.0398	m^2
	g = Gravity Acceleration (m/s^2)	9.81	m/s^2
	h = Water Head above Centerline of Orifice (m)	1.277	
	Invert of Orifice Plate	264.20	m
	100-Year Water Level	265.59	m

5.3.3 Emergency Spillway

In case that all orifice tubes be blocked, an emergency spillway shall be proposed to convey the peak inflow rate from regional or 100-year event, whichever is greater.

100-year inflow rate=	2.90	m^3/s
Regional inflow rate=	2.11	m^3/s

Weir Bottom Lid Elevation is set at	266.70	m

Broad-Crested Weir Equation is used to estimate the flow through the emergency spillway.

$$Q = CLH^{3/2}$$

Where,	Q = Broad-Crested Weir Flow Rate (m^3/s)	2.93	m^3/s
	C = Flow Coefficient	1.70	
	L = Weir Length (m)	10.5	m
	H = Water Depth (m) = Top of Pond - 266.70	0.30	m

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5.4 Pond Performance

Visual OTTHYMO model was simulated for 12 hour AES storm, 6 hour AES Storm and Regional Storm. The results are summarized as follows.

5.4.1 Pond C Performance _ 6 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
25 mm	0.225	0.066	1,979	264.56
2-Yr	1.264	0.103	3,973	264.90
5-Yr	1.701	0.120	5,420	265.10
10-Yr	1.991	0.131	6,401	265.24
25-Yr	2.354	0.235	7,338	265.37
50-Yr	2.627	0.260	8,076	265.47
100-Yr	2.896	0.273	8,901	265.59

5.4.2 Pond C Performance _ 12 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
2-Yr	0.757	0.105	4,142	264.92
5-Yr	0.983	0.122	5,529	265.11
10-Yr	1.135	0.131	6,477	265.25
25-Yr	1.326	0.227	7,271	265.36
50-Yr	1.467	0.257	7,895	265.45
100-Yr	1.608	0.270	8,669	265.55

5.4.3 Pond C Performance _ Regional Event

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)	WSE (m)
Regional Event	2.11	1.77	Full	Emergency Overflow

5.4.4 Allowable Flow Rates vs Controlled Flow Rates

Storm Event	Allowable Flow Rate (m^3/s)	Post-Development Peak Flow Rate (m^3/s)	
		6 hr AES	12 hr AES
25 mm	0.078	0.066	
2-Yr	0.109	0.103	0.105
5-Yr	0.167	0.120	0.122
10-Yr	0.205	0.131	0.131
25-Yr	0.258	0.235	0.227
50-Yr	0.302	0.260	0.257
100-Yr	0.341	0.273	0.270

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5.5 Forebay Configuration

A sediment forebay is one of the deeper areas of the pond which facilitates maintenance and improves pollutant removal by trapping larger particles near the inlet of the pond.
The sediment forebay design guidelines are presented in section 4.6.2 of the <Stormwater Management Practice Planning and Design Manual> (MOE, 2003) on page 4.55 to 4.57.

5.5.1 Settling Calculation

$$D_{ist} = \sqrt{\frac{rQ_p}{V_s}}$$ Equation 4.5 of MOE Manual

Where,	D_{ist} = Forebay length (m)	44.7	m
	r = Length -to-Width ratio of forebay	9.08	
	Q_p = Peak flow rate from the pond during 25 mm storm	0.066	m^3/s
	V_s = Setting velocity	0.0003	m/s

5.5.2 Dispersion Length

The dispersion length refers to the length of fluid required to slow a jet discharge. It is recommended that the forebay length is such that a fluid jet will disperse to a velocity of ≤ 0.50 m/s at the forebay berm.

$$D_{ist} = \frac{8Q}{dV_f}$$ Equation 4.6 of MOE Manual

Where,	D_{ist} = Dispersion Length	21.2	m
	Q = Inlet flow rate from design storm (10-year)	1.991	m^3/s
	d = Depth of permanent pool in the forebay	1.50	m
	V_f = Desired velocity in the forebay	0.50	m/s

5.5.3 Minimum Forebay Bottom Width

$$W_{idth} = \frac{D_{ist}}{8}$$ Equation 4.7 of MOE Manual

Where,	W_{idth} = Minimum Forebay Deep Zone Bottom Width	5.6	
	D_{ist} = Larger of Settling Length and Dispersion Length	44.7	m

5.5.4 Forebay Configuration

Description	Required	Provided
Depth (m)	1.0	1.5
Settling Length (m)	44.7	99.9
Dispersion Length (m)	21.2	
Minimum Bottom Width of Forebay Deep Zone	5.6	11.0

5.5.5 Average Flow Velocity in the forebay

A check should be made using the entire forebay cross-sectional area to ensure that the average velocity in the forebay is less than, or equal to , 0.15 m/s which is empirically recognized as the maximum permissible velocity before which erosion will occur in a channel.

$$V_{avg} = Q/A$$

Where,	V_{avg} = Average velocity in the forebay	0.08	m/s
	Q = Inlet flow rate from design storm (100-year)	1.99	m^3/s
	A = Entire forebay cross-sectional area	26.25	m^2
	d = Depth of permanent pool in the forebay	1.50	m
	W_B = Forebay Deep Zone Bottom Width	11.00	m
	W_t = Forebay Deep Zone Top Width at Permanent Pool Elevation	24.00	m

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5.7 Stage - Storage - Discharge Relationships for Pond C

Elevation (m)	Flow Control for Extended Detention		Flow Control for Up to 100-Year Event					Emergency Spillway		Total Flow (m^3/s)	Active Storage (m^3)
	Orifice Plate #1 C = 0.63 Dia. = 250 Inv. = 264.20		Grating of DICB C = 0.63 600 x 1200 Lid. = 265.11		Orifice Plate #2 C = 0.60 Dia. = 225 Inv. = 264.20		Orifice Tube #2 Controlled Flow (m^3/s)	Broad Crest Weir C = 1.70 L = 10.5 Lid. = 266.70			
	Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)	Depth (m)	Flow (m^3/s)		Depth (m)	Flow (m^3/s)		
264.20	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**	**0**
264.33	0.01	0.011	0.000	0.000	0.019	0.015	0.000	0.000	0.000	**0.011**	**722**
264.46	0.14	0.051	0.000	0.000	0.151	0.041	0.000	0.000	0.000	**0.051**	**1,444**
264.59	0.27	0.071	0.000	0.000	0.282	0.056	0.000	0.000	0.000	**0.071**	**2,166**
264.73	0.40	0.087	0.000	0.000	0.414	0.068	0.000	0.000	0.000	**0.087**	**2,888**
264.86	0.53	0.100	0.000	0.000	0.545	0.078	0.000	0.000	0.000	**0.100**	**3,706**
264.99	0.66	0.112	0.000	0.000	0.677	0.087	0.000	0.000	0.000	**0.112**	**4,644**
265.12	0.80	0.122	0.000	0.000	0.809	0.095	0.000	0.000	0.000	**0.122**	**5,583**
265.25	0.93	0.132	0.000	0.000	0.940	0.102	0.000	0.000	0.000	**0.132**	**6,522**
265.38	1.06	0.141	0.174	0.378	1.072	0.109	0.109	0.000	0.000	**0.250**	**7,461**
265.52	1.19	0.149	0.306	0.500	1.203	0.116	0.116	0.000	0.000	**0.265**	**8,399**
265.65	1.32	0.158	0.438	0.598	1.335	0.122	0.122	0.000	0.000	**0.280**	**9,338**
265.78	1.45	0.165	0.569	0.682	1.467	0.128	0.128	0.000	0.000	**0.293**	**10,277**
265.91	1.59	0.172	0.701	0.757	1.598	0.134	0.134	0.000	0.000	**0.306**	**11,216**
266.04	1.72	0.180	0.832	0.825	1.730	0.139	0.139	0.000	0.000	**0.318**	**12,155**
266.17	1.85	0.186	0.964	0.888	1.861	0.144	0.144	0.000	0.000	**0.330**	**13,093**
266.31	1.98	0.193	1.096	0.946	1.993	0.149	0.149	0.000	0.000	**0.342**	**14,032**
266.44	2.11	0.199	1.227	1.002	2.125	0.154	0.154	0.000	0.000	**0.353**	**14,971**
266.57	2.24	0.205	1.359	1.054	2.256	0.159	0.159	0.000	0.000	**0.364**	**15,910**
266.70	2.38	0.211	1.490	1.104	2.388	0.163	0.163	0.000	0.000	**0.374**	**16,846**

DICB grating funcitons as weir with lower flow head.

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6.0 Infiltration Gallery

6.1 Orifice Check

Orifice Size, D (mm) **215**
Orifice Coefficient, C 0.6
Orifice Area, A (m^2) 0.036
Orifice invert elevation, h1 (m) 0.23

Orifice Equation: Q = $CA \times \sqrt{2gh}$

Water Elev. in Tank h2 (m)	Head on Outlet* h (m)	Q ($m^3/2$)	Q L/s	Q m3/s
0.00	-	-	-	-
0.05	-	-	-	-
0.10	-	-	-	-
0.15	-	-	-	-
0.20	-	-	-	-
0.25	-	-	-	-
0.30	-	-	-	-
0.35	0.01	0.011	10.8	0.0108
0.40	0.06	0.024	24.1	0.0241
0.45	0.11	0.032	32.4	0.0324
0.50	0.16	0.039	38.9	0.0389
0.55	0.21	0.044	44.5	0.0445
0.60	0.26	0.049	49.4	0.0494
0.65	0.31	0.054	53.9	0.0539
0.70	0.36	0.058	58.1	0.0581
0.75	0.41	0.062	62.0	0.0620
0.80	0.46	0.066	65.6	0.0656
0.85	0.51	0.069	69.1	0.0691
0.90	0.56	0.072	72.4	0.0724
0.95	0.61	0.076	75.5	0.0755
1.00	0.66	0.079	78.5	0.0785
1.05	0.71	0.081	81.4	0.0814
1.10	0.76	0.084	84.3	0.0843
1.15	0.81	0.087	87.0	0.0870
1.20	0.86	0.090	89.6	0.0896
1.25	0.91	0.092	92.2	0.0922
1.30	0.96	0.095	94.7	0.0947

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6.3 Infiltration Gallery Performance

Visual OTTHYMO model was simulated for 12 hour AES storm, 6 hour AES Storm and Regional Storm.
The results are summarized as follows.

6.3.1 Infitration Gallery _ 6 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)
25 mm	0.131	0.037	1,060
2-Yr	0.746	0.063	2,234
5-Yr	0.995	0.077	3,045
10-Yr	1.162	0.085	3,594
25-Yr	1.370	0.095	4,287
50-Yr	1.528	0.103	4,807
100-Yr	1.681	0.111	5,318

6.3.2 Infitration Gallery _ 12 Hour AES Storm

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)
2-Yr	0.440	0.064	2,290
5-Yr	0.570	0.077	3,049
10-Yr	0.657	0.085	3,571
25-Yr	0.767	0.094	4,232
50-Yr	0.847	0.101	4,723
100-Yr	0.928	0.109	5,213

6.3.3 Pond C Performance _ Regional Event

Storm Event	Q_{in} (m^3/s)	Q_{out} (m^3/s)	V (m^3)
Regional Event	1.21	1.20	Full

6.3.4 Target Flow Rates vs Controlled Flow Rates

Storm Event	Target Flow Rate (m^3/s)	Post-Development Peak Flow Rate (m^3/s)	
		6 hr AES	12 hr AES
25 mm	5mm Retention for Erosion	-	
2-Yr	0.066	0.063	0.064
5-Yr	0.101	0.077	0.077
10-Yr	0.124	0.085	0.085
25-Yr	0.156	0.095	0.094
50-Yr	0.182	0.103	0.101
100-Yr	0.206	0.111	0.109

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6.4 Erosion Control

The Toronto and Region Conservation Authority Stormwater Criteria (August 2012) requires a site to retain the first 5 mm of every rainfall event. In this case, the minimum on-site runoff retention will require the site to retain all runoff from 5 mm storm event through evapotranspiration infiltration, or rainwater reuse.

The current area measurements and land use types for the site are as follows:

Land Use	Area (m^2)	Runoff C	Impervious	CN	% Coverage
Warehouse Building	25,118	0.90	100%	98	31
At-grade Impervious Area	56,985	0.90	0%	98	69
At-grade Pervious Area	-	0.25	100%	76	0
SWM Block	-	0.77	75%	76	0
Total Site Area:	82,104	0.90	31%	98	100

Surface Type	Area (m^2)	IA (mm)	Volume Abstracted (m^3)	5 mm Volume (m^3)	Water Balance (m^3)
Warehouse Building	25,118	0.001	25.1	125.6	100.5
At-grade Impervious Area	56,985	0.001	57.0	284.9	227.9
At-grade Pervious Area	-	0.005	0.0	0.0	0.0
SWM Block		0.001	0.0	0.0	0.0
Total Site Area:	**82,104**	**-**	**82.1**	**410.5**	**328.4**

It is assumed that the impervious surfaces on the site can abstract 1 mm of rainfall, and that all soft landscaped areas can absorb 5 mm

Therefore, volume of runoff during a 5 mm storm event: **328.41** m^3

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6.5 Drawdown Time

Equation 4.2 in 2003 MOE SWMPDM is used to calculate the allowable depth of the infiltration trench.

$$d = \frac{PT}{1000}$$ Equation 4.2 in 2003 MOE SWMPDM

Where, d = Maximum Allowable Depth of Infiltration Storage of the Trench	0.37	m	
P = Percolation Rate	5.10	mm/hr	*estimated value for clay loam*
T = Drawdown time	72	hours	
	72	hours	

Depth of Storage	0.23	m
	230	mm
Drawdown time	45.1	hours

The 100-year elevation in the infiltration system is less than the maximum allowable depth of infiltration storage. Therefore the system meets the MOE requirements.

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	Water Recharge Analysis _ Pre-Development Conditions			

Water Balance - Catchment 1000

1. Design Criteria and SWM Strategies

The site is not located in a Source Water Protection vulnerable area nor in a Significant Ground Water Recharge Area.

The implementation of best management practices is recommended to maintain pre-development recharge.

It is proposed best effort to conserve the hydrologic cycle.

LID measures such as an infiltration gallery is proposed to retain runoff to maximize water recharge

2 Pre-development Catchment Water Balance Analysis

The TRCA's online water balance tool gives the approximate recharge amount of the site location (see below).

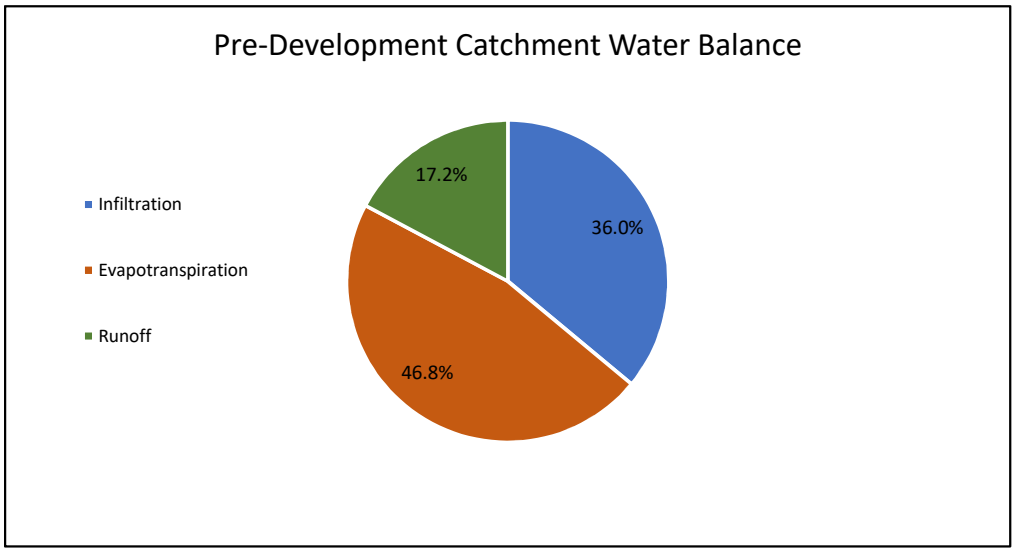
Annual Water Balance Average Function

TRCA tool

	(%)	(mm)
Infiltration	36.0	316.0
Evapotranspiration	46.8	410.0
Runoff	17.2	151.0
Precipitation	100.0	877.0

Pre-development Catchment Water Balance Relationship

Water Budget (mm/hr)	Impervious Area	Pervious Area	Catchment - Wide
% Land-Use Coverage	0.0%	100.0%	100.0%
Infiltration		316.0	36.0%
Evapotranspiration		410.0	46.8%
Runoff		151.0	17.2%
Precipitation		877.0	100%



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3. Post-development Catchment Water Balance Analysis _ without Mitigation Measures

Water balance analysis for post-development conditions without mitigation measures is carried out to evaluate the impacts due to the proposed development. It follows the procedure illustrated in the pre-development water balance analysis.

3.1 Water Balance Relationship for the Impervious Area

20.28 ha or 100.0%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	...
Evapotranspiration	12.5	109.6	*1 mm depression, refer to Figure 1a in City of Toronto WWFMGs.*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

3.2 Water Balance Relationship for the Pervious Area

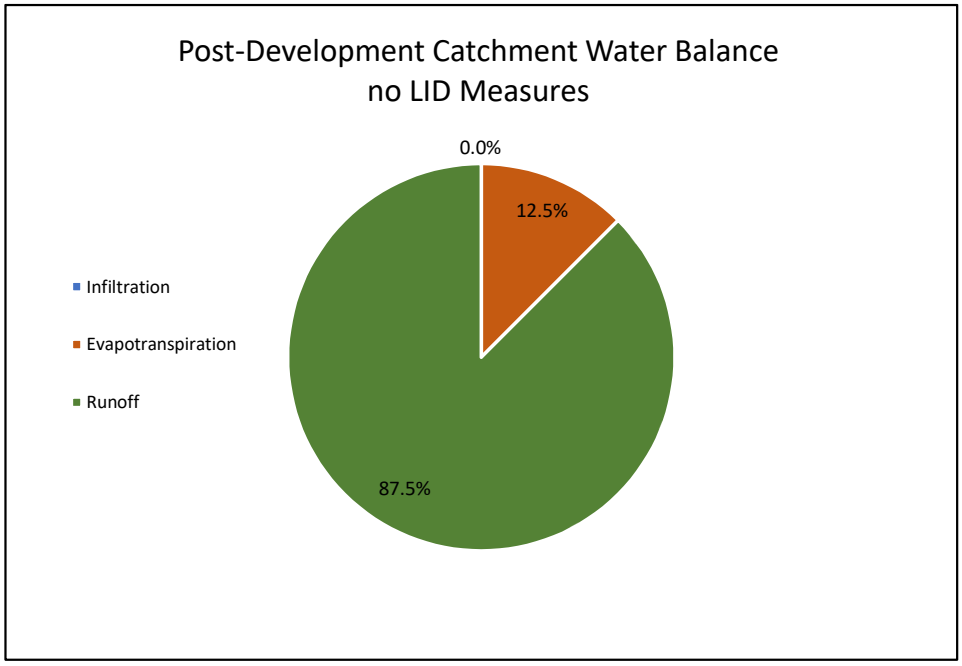
Under proposed conditions, the catchment pervious area is grassed area.

0.00 ha or 0.0%

	(%)	(mm)	
Infiltration	37.3	326.9	*(Precipitation - Evapotranspiration) * infiltration factor based on soil type found in Ontario Soils Map*
Evapotranspiration	60.1	527.0	
Runoff	2.6	23.1	
Precipitation	100.0	877.0	

3.3 Catchment Water Balance Relationship _ Post-development without Mitigation Measures

	Impervious Area	Pervious Area	Catchment - Wide	
% Land-Use Coverage	100.0%	0.0%	100.0%	
Infiltration	0.0	326.9	0.0	0.0%
Evapotranspira	109.6	527.0	109.6	12.5%
Runoff	767.4	23.1	767.4	87.5%
Precipitation	877.0	877.0	877.0	100.0%



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4. Post-development Catchment Water Balance Analysis

Under proposed development conditions, the current pervious area will be mainly impervious area.

Therefore, LID measures shall be incorporated into the site plan to make best effort for groundwater recharge.

4.1 Water Retention Strategies

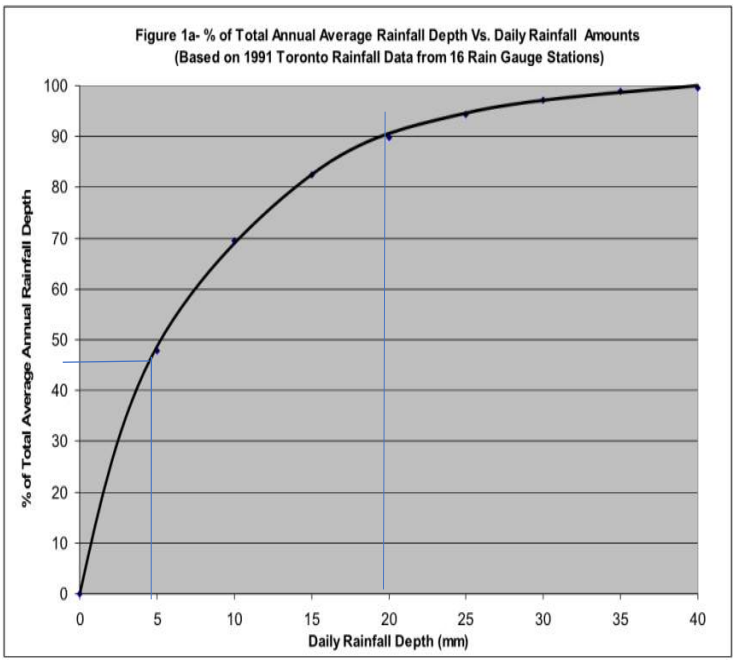
The proposed LID measures includes infiltration base of chamber system, and placement of minimum 300 mm deep absorbent soil at at-grade pervious areas.

The following assumptions are applied in the analysis.

1) All pervious area will have an initial abstraction of 10 mm.

2) All impervious area shall accept 1 mm rainfall prior to runoff generation due to shallow depressions.

Figure 1a in City of Toronto WWFMGs presents the relationship of the % of the total annual rainfall depth vs. the daily rainfall amounts. This relationship will be used to conduct the water balance analysis for the subject site from an annual basis.



4.2 Define Individual Plan per Land Use

Proposed Catchment Area to Chamber System

At Grade Impervious Area	120,918	m^2	60%
Roof Area to Chamber System	81,931	m^2	40%
Total Site Area	**202,849**	**m^2**	**100%**

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Water Recharge Analysis _ Post-Development with Mitigation Measures

1) At Grade Imervious Area - flows directly to pond

12.09 ha or 59.6%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	*No infiltration for at-grade areas*
Evapotranspiration	12.5	109.6	*1 mm depression*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

2) Runoff from Impervious Area to be retained through Infiltration Base

The provided Infiltration Storage 912.8 m^3 *consider 0.35m height of chamber*

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Total Catchment Area	202,849	4.5	1.0	3.5	912.8

	(%)	(mm)	Comments/Assumptions:
Infiltration	36.0	316.0	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	22.2	194.9	*1 mm abstraction of total rainfall depth assumed to evaporate*
Runoff	41.7	366.1	...
Precipitation	100.0	877.0	

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Roof Area	81,931	19.1	1.0	18.1	1483.0

	(%)	(mm)	Comments/Assumptions:
Infiltration	90.0	789.3	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	5.2	45.9	*1 mm depression*
Runoff	4.8	41.8	...
Precipitation	100.0	877.0	

4.3 Catchment Water Balance Relationship _ Post-development Conditions with Mitigation Measures

	At Grade Impervious Area	Roof Area to Chamber System	Catchment Water Balance Relationship	
% Land-Use Coverage	59.6%	40.4%	100.0%	
Infiltration	0.0	789.3	318.8	36.4%
Evapotranspiration	109.6	45.9	83.9	9.6%
Runoff	767.4	41.8	474.3	54.1%
Precipitation	877.0	877.0	877.0	100.0%

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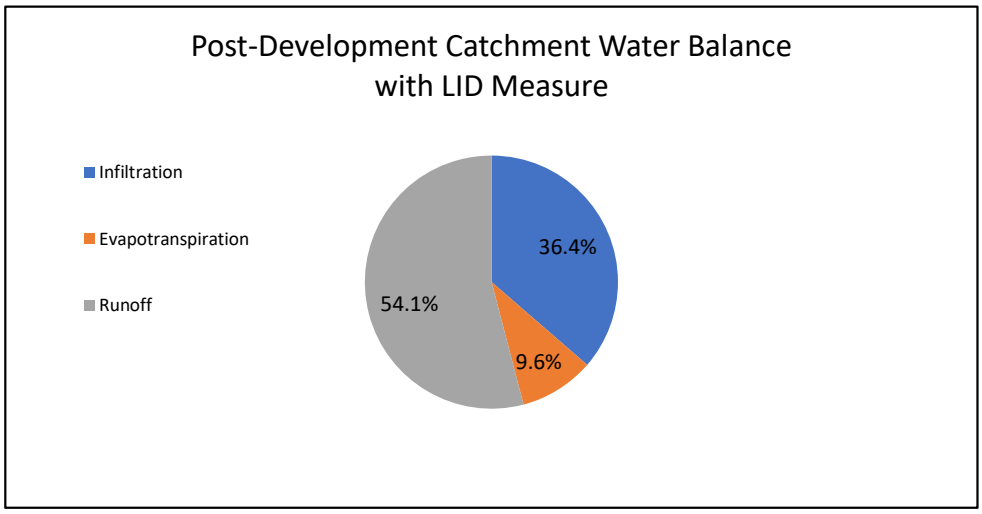

5. Post-development vs Pre-Development Water Balance

Hydrologic Cycle Components	Pre-Development Conditions		Post-Development Conditions without Mitigation Measures		Post-Development Conditions with Mitigation Measures	
	mm	%	mm	%	mm	%
Infiltration	316.0	***36.0%***	0.0	0.0%	318.8	***36.4%***
Evapotranspiration	410.0	46.8%	109.6	12.5%	83.9	***9.6%***
Runoff	151.0	17.2%	767.4	87.5%	474.3	***54.1%***
Precipitation	877.0	100.0%	877.0	100.0%	877.0	***100.0%***

The comparison of water balance reveals that the water recharge under post-development with LID measure will be greater than the pre-development level, though the runoff volume will increase due to the decrease of evapotranspiration.

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	Water Recharge Analysis _ Pre-Development Conditions			

Water Balance - Catchment 1100

1. Design Criteria and SWM Strategies

The site is not located in a Source Water Protection vulnerable area nor in a Significant Ground Water Recharge Area.

The implementation of best management practices is recommended to maintain pre-development recharge.

It is proposed best effort to conserve the hydrologic cycle.

LID measures such as an infiltration gallery is proposed to retain runoff to maximize water recharge

2 Pre-development Catchment Water Balance Analysis

The TRCA's online water balance tool gives the approximate recharge amount of the site location (see below).

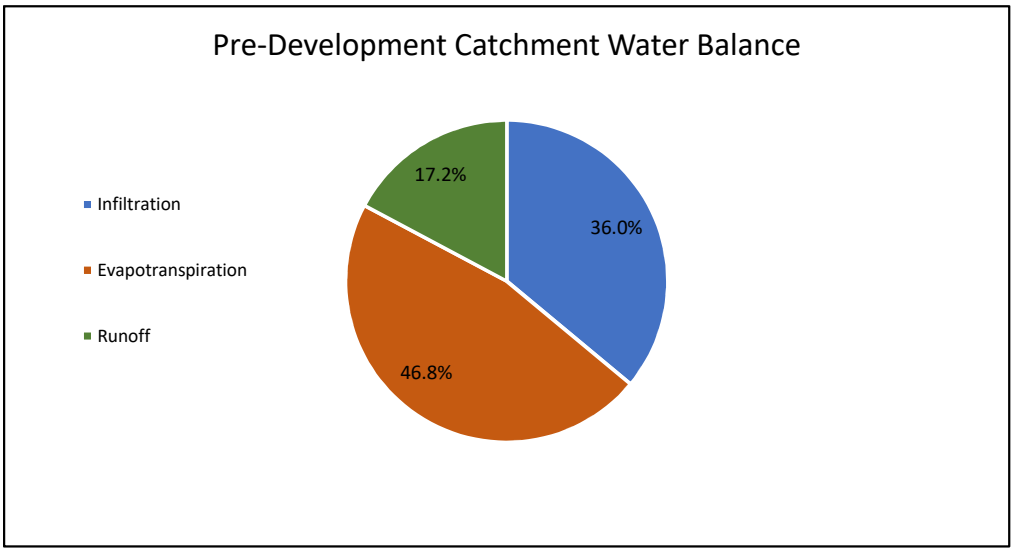
Annual Water Balance Average Function

TRCA tool

	(%)	(mm)
Infiltration	36.0	316.0
Evapotranspiration	46.8	410.0
Runoff	17.2	151.0
Precipitation	100.0	877.0

Pre-development Catchment Water Balance Relationship

Water Budget (mm/hr)	Impervious Area	Pervious Area	Catchment - Wide
% Land-Use Coverage	0.0%	100.0%	100.0%
Infiltration		316.0	36.0%
Evapotranspiration		410.0	46.8%
Runoff		151.0	17.2%
Precipitation		877.0	100%



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3. Post-development Catchment Water Balance Analysis _ without Mitigation Measures

Water balance analysis for post-development conditions without mitigation measures is carried out to evaluate the impacts due to the proposed development. It follows the procedure illustrated in the pre-development water balance analysis.

3.1 Water Balance Relationship for the Impervious Area

16.70 ha or 100.0%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	...
Evapotranspiration	12.5	109.6	*1 mm depression, refer to Figure 1a in City of Toronto WWFMGs.*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

3.2 Water Balance Relationship for the Pervious Area

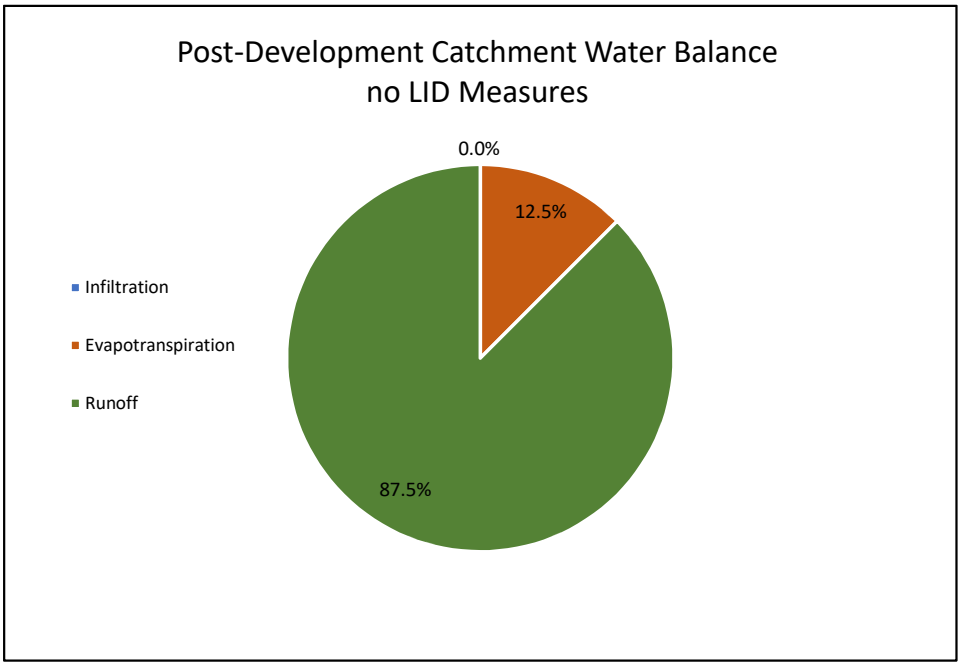
Under proposed conditions, the catchment pervious area is grassed area.

0.00 ha or 0.0%

	(%)	(mm)	
Infiltration	37.3	326.9	*(Precipitation - Evapotranspiration) * infiltration factor based on soil type found in Ontario Soils Map*
Evapotranspiration	60.1	527.0	
Runoff	2.6	23.1	
Precipitation	100.0	877.0	

3.3 Catchment Water Balance Relationship _ Post-development without Mitigation Measures

	Impervious Area	Pervious Area	Catchment - Wide	
% Land-Use Coverage	100.0%	0.0%	100.0%	
Infiltration	0.0	326.9	0.0	0.0%
Evapotranspira	109.6	527.0	109.6	12.5%
Runoff	767.4	23.1	767.4	87.5%
Precipitation	877.0	877.0	877.0	100.0%



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4. Post-development Catchment Water Balance Analysis

Under proposed development conditions, the current pervious area will be mainly impervious area.

Therefore, LID measures shall be incorporated into the site plan to make best effort for groundwater recharge.

4.1 Water Retention Strategies

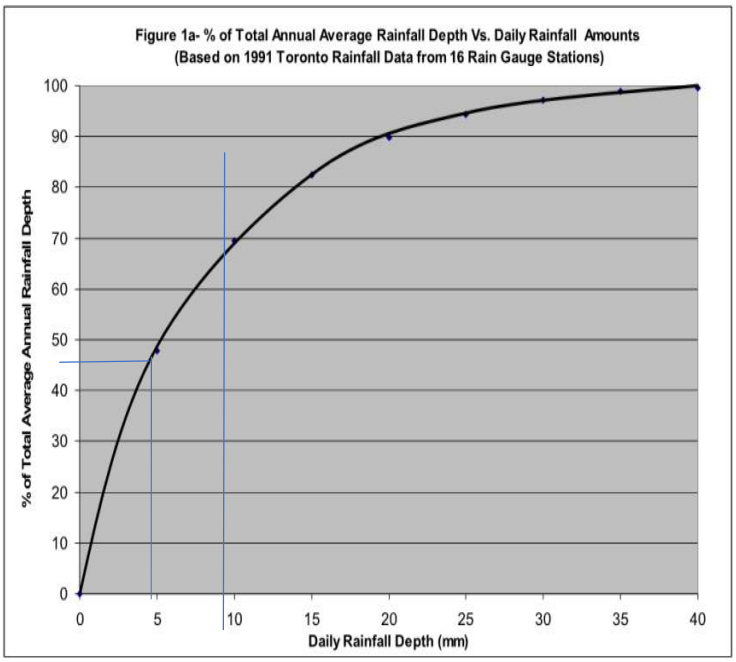
The proposed LID measures includes infiltration base of chamber system, and placement of minimum 300 mm deep absorbent soil at at-grade pervious areas.

The following assumptions are applied in the analysis.

1) All pervious area will have an initial abstraction of 10 mm.

2) All impervious area shall accept 1 mm rainfall prior to runoff generation due to shallow depressions.

Figure 1a in City of Toronto WWFMGs presents the relationship of the % of the total annual rainfall depth vs. the daily rainfall amounts. This relationship will be used to conduct the water balance analysis for the subject site from an annual basis.



4.2 Define Individual Plan per Land Use

Proposed Catchment Area to Chamber System

At Grade Impervious Area	75,119	m^2	45%
Roof Area to Chamber System	91,866	m^2	55%
Total Site Area	**166,985**	**m^2**	**100%**

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Water Recharge Analysis _ Post-Development with Mitigation Measures

1) At Grade Imervious Area - flows directly to pond

7.51 ha or 45.0%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	*No infiltration for at-grade areas*
Evapotranspiration	12.5	109.6	*1 mm depression*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

2) Runoff from Impervious Area to be retained through Infiltration Base

The provided Infiltration Storage 751.4 m^3 *consider 0.35m height of chamber*

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Total Catchment Area	166,985	4.5	1.0	3.5	751.4

	(%)	(mm)	Comments/Assumptions:
Infiltration	36.0	316.0	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	22.2	194.9	*1 mm abstraction of total rainfall depth assumed to evaporate*
Runoff	41.7	366.1	...
Precipitation	100.0	877.0	

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Roof Area	91,866	9.0	1.0	8.0	734.9

	(%)	(mm)	Comments/Assumptions:
Infiltration	68.0	596.4	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	11.1	97.4	*1 mm depression*
Runoff	20.9	183.2	...
Precipitation	100.0	877.0	

4.3 Catchment Water Balance Relationship _ Post-development Conditions with Mitigation Measures

	At Grade Impervious Area	Roof Area to Chamber System	Catchment Water Balance Relationship	
% Land-Use Coverage	45.0%	55.0%	100.0%	
Infiltration	0.0	596.4	328.1	37.4%
Evapotranspiration	109.6	97.4	102.9	11.7%
Runoff	767.4	183.2	446.0	50.9%
Precipitation	877.0	877.0	877.0	100.0%

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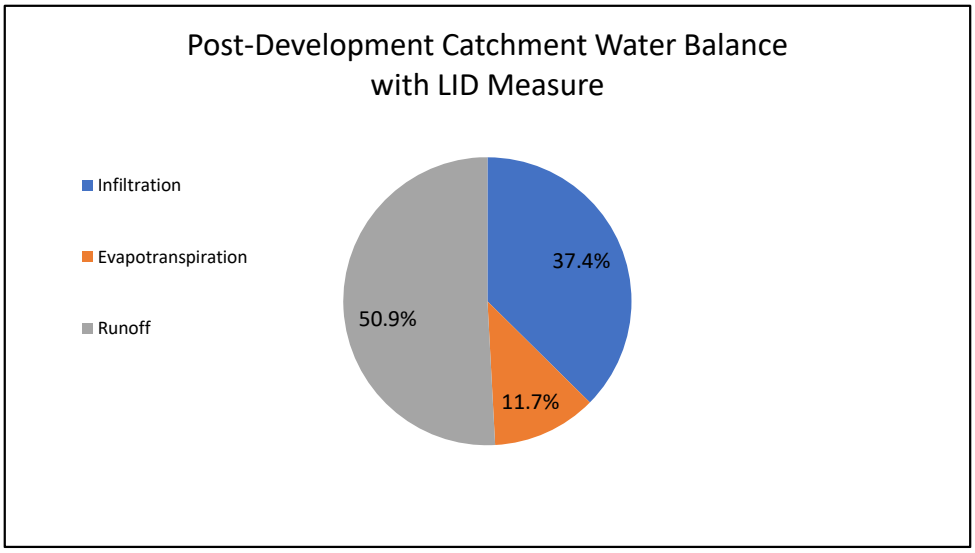

5. Post-development vs Pre-Development Water Balance

Hydrologic Cycle Components	Pre-Development Conditions		Post-Development Conditions without Mitigation Measures		Post-Development Conditions with Mitigation Measures	
	mm	%	mm	%	mm	%
Infiltration	316.0	***36.0%***	0.0	0.0%	328.1	***37.4%***
Evapotranspiration	410.0	46.8%	109.6	12.5%	102.9	***11.7%***
Runoff	151.0	17.2%	767.4	87.5%	446.0	***50.9%***
Precipitation	877.0	100.0%	877.0	100.0%	877.0	***100.0%***

The comparison of water balance reveals that the water recharge under post-development with LID measure will be greater than the pre-development level, though the runoff volume will increase due to the decrease of evapotranspiration.

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	Water Recharge Analysis _ Pre-Development Conditions			

Water Balance - Catchment 1200

1. Design Criteria and SWM Strategies

The site is not located in a Source Water Protection vulnerable area nor in a Significant Ground Water Recharge Area.

The implementation of best management practices is recommended to maintain pre-development recharge.

It is proposed best effort to conserve the hydrologic cycle.

LID measures such as an infiltration gallery is proposed to retain runoff to maximize water recharge

2 Pre-development Catchment Water Balance Analysis

The TRCA's online water balance tool gives the approximate recharge amount of the site location (see below).

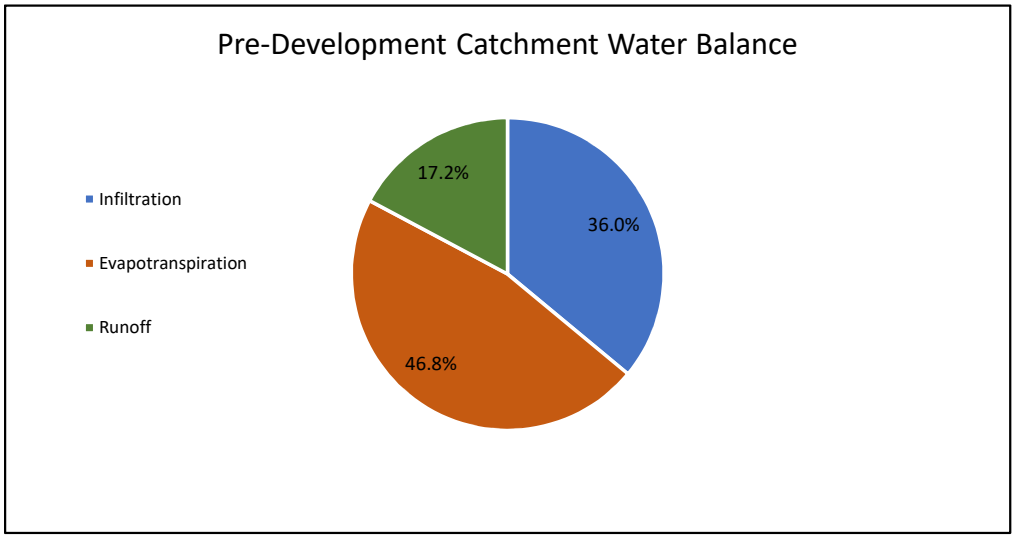
Annual Water Balance Average Function

TRCA tool

	(%)	(mm)
Infiltration	36.0	316.0
Evapotranspiration	46.8	410.0
Runoff	17.2	151.0
Precipitation	100.0	877.0

Pre-development Catchment Water Balance Relationship

Water Budget (mm/hr)	Impervious Area	Pervious Area	Catchment - Wide
% Land-Use Coverage	0.0%	100.0%	100.0%
Infiltration		316.0	36.0%
Evapotranspiration		410.0	46.8%
Runoff		151.0	17.2%
Precipitation		877.0	100%



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3. Post-development Catchment Water Balance Analysis _ without Mitigation Measures

Water balance analysis for post-development conditions without mitigation measures is carried out to evaluate the impacts due to the proposed development. It follows the procedure illustrated in the pre-development water balance analysis.

3.1 Water Balance Relationship for the Impervious Area

14.36 ha or 100.0%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	...
Evapotranspiration	12.5	109.6	*1 mm depression, refer to Figure 1a in City of Toronto WWFMGs.*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

3.2 Water Balance Relationship for the Pervious Area

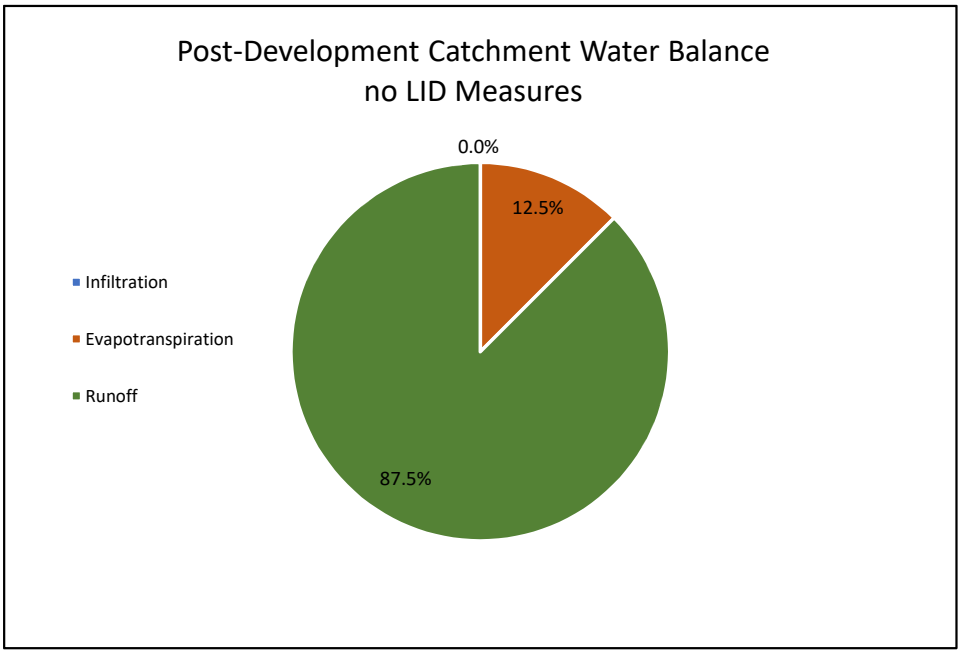
Under proposed conditions, the catchment pervious area is grassed area.

0.00 ha or 0.0%

	(%)	(mm)	
Infiltration	37.3	326.9	*(Precipitation - Evapotranspiration) * infiltration factor based on soil type found in Ontario Soils Map*
Evapotranspiration	60.1	527.0	
Runoff	2.6	23.1	
Precipitation	100.0	877.0	

3.3 Catchment Water Balance Relationship _ Post-development without Mitigation Measures

	Impervious Area	Pervious Area	Catchment - Wide	
% Land-Use Coverage	100.0%	0.0%	100.0%	
Infiltration	0.0	326.9	0.0	0.0%
Evapotranspira	109.6	527.0	109.6	12.5%
Runoff	767.4	23.1	767.4	87.5%
Precipitation	877.0	877.0	877.0	100.0%



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4. Post-development Catchment Water Balance Analysis

Under proposed development conditions, the current pervious area will be mainly impervious area.

Therefore, LID measures shall be incorporated into the site plan to make best effort for groundwater recharge.

4.1 Water Retention Strategies

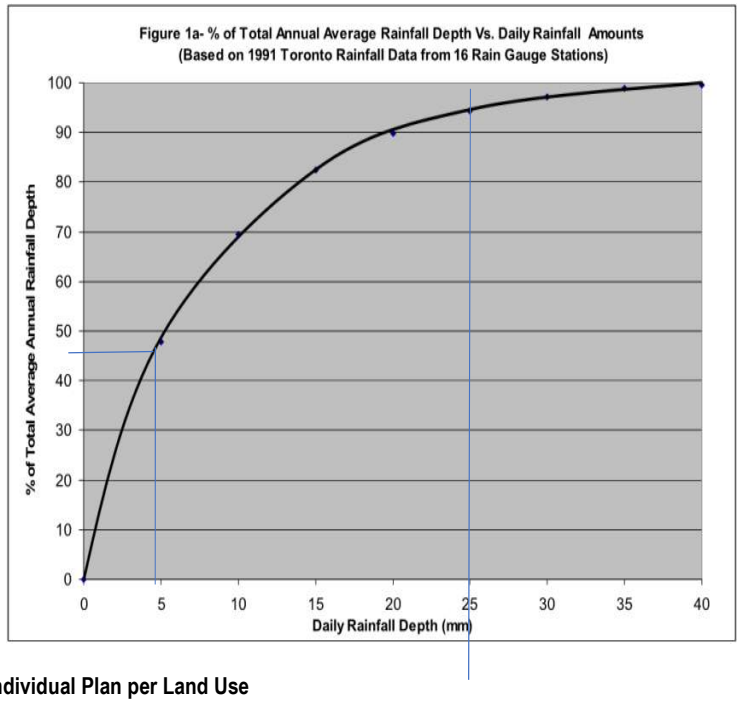
The proposed LID measures includes infiltration base of chamber system, and placement of minimum 300 mm deep absorbent soil at at-grade pervious areas.

The following assumptions are applied in the analysis.

1) All pervious area will have an initial abstraction of 10 mm.

2) All impervious area shall accept 1 mm rainfall prior to runoff generation due to shallow depressions.

Figure 1a in City of Toronto WWFMGs presents the relationship of the % of the total annual rainfall depth vs. the daily rainfall amounts. This relationship will be used to conduct the water balance analysis for the subject site from an annual basis.



4.2 Define Individual Plan per Land Use

Proposed Catchment Area to Chamber System

At Grade Impervious Area	95,235	m^2	66%
Roof Area to Chamber System	48,324	m^2	34%
Total Site Area	**143,559**	**m^2**	**100%**

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Project:	12892 Dixie Road	No.:	201-11545-00	
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Checked:	VN	Checked:		4

Water Recharge Analysis _ Post-Development with Mitigation Measures

1) At Grade Imervious Area - flows directly to pond

9.52 ha or 66.3%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	*No infiltration for at-grade areas*
Evapotranspiration	12.5	109.6	*1 mm depression*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

2) Runoff from Impervious Area to be retained through Infiltration Base

The provided Infiltration Storage 646.0 m^3 *consider 0.35m height of chamber*

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Total Catchment Area	143,559	4.5	1.0	3.5	646.0

	(%)	(mm)	Comments/Assumptions:
Infiltration	36.0	316.0	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	22.2	194.9	*1 mm abstraction of total rainfall depth assumed to evaporate*
Runoff	41.7	366.1	...
Precipitation	100.0	877.0	

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Roof Area	48,324	25.0	1.0	24.0	1159.8

	(%)	(mm)	Comments/Assumptions:
Infiltration	95.0	833.2	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	4.0	35.1	*1 mm depression*
Runoff	1.0	8.8	...
Precipitation	100.0	877.0	

4.3 Catchment Water Balance Relationship _ Post-development Conditions with Mitigation Measures

	At Grade Impervious Area	Roof Area to Chamber System	Catchment Water Balance Relationship	
% Land-Use Coverage	66.3%	33.7%	100.0%	
Infiltration	0.0	833.2	280.4	32.0%
Evapotranspiration	109.6	35.1	84.5	9.6%
Runoff	767.4	8.8	512.0	58.4%
Precipitation	877.0	877.0	877.0	100.0%

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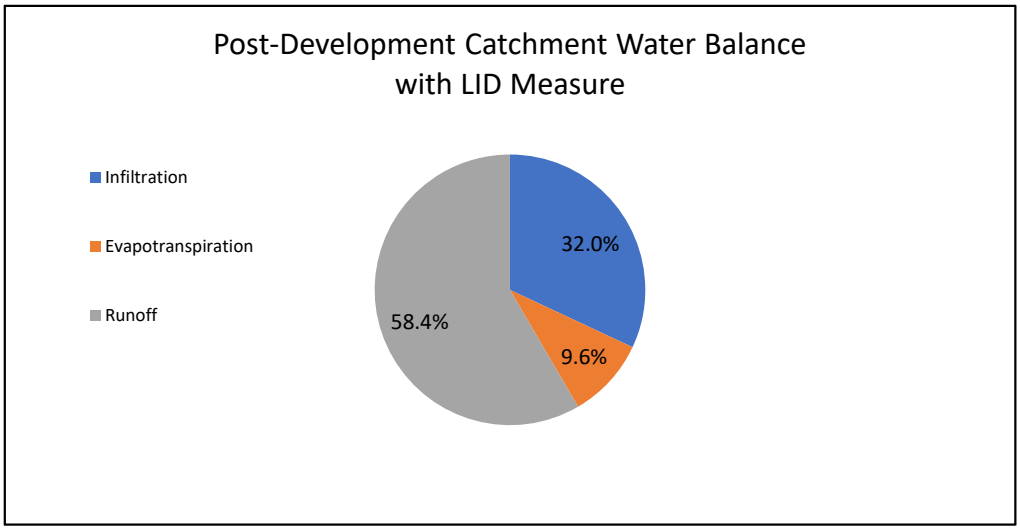

5. Post-development vs Pre-Development Water Balance

Hydrologic Cycle Components	Pre-Development Conditions		Post-Development Conditions without Mitigation Measures		Post-Development Conditions with Mitigation Measures	
	mm	%	mm	%	mm	%
Infiltration	316.0	***36.0%***	0.0	0.0%	280.4	***32.0%***
Evapotranspiration	410.0	46.8%	109.6	12.5%	84.5	***9.6%***
Runoff	151.0	17.2%	767.4	87.5%	512.0	***58.4%***
Precipitation	877.0	100.0%	877.0	100.0%	877.0	***100.0%***

The comparison of water balance reveals that the water recharge under post-development with LID measure will be greater than the pre-development level, though the runoff volume will increase due to the decrease of evapotranspiration.

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Project:	12892 Dixie Road	No.:	201-11545-00	
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	Water Recharge Analysis _ Pre-Development Conditions			

Water Balance - Catchment 1300

1. Design Criteria and SWM Strategies

The site is not located in a Source Water Protection vulnerable area nor in a Significant Ground Water Recharge Area.

The implementation of best management practices is recommended to maintain pre-development recharge.

It is proposed best effort to conserve the hydrologic cycle.

LID measures such as an infiltration gallery is proposed to retain runoff to maximize water recharge

2 Pre-development Catchment Water Balance Analysis

The TRCA's online water balance tool gives the approximate recharge amount of the site location (see below).

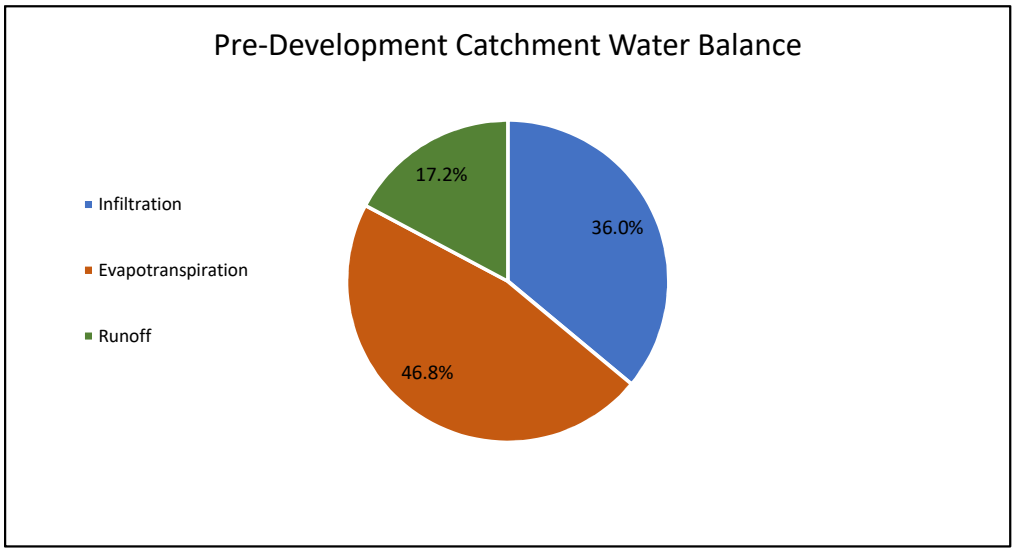
Annual Water Balance Average Function

TRCA tool

	(%)	(mm)
Infiltration	36.0	316.0
Evapotranspiration	46.8	410.0
Runoff	17.2	151.0
Precipitation	100.0	877.0

Pre-development Catchment Water Balance Relationship

Water Budget (mm/hr)	Impervious Area	Pervious Area	Catchment - Wide
% Land-Use Coverage	0.0%	100.0%	100.0%
Infiltration		316.0	36.0%
Evapotranspiration		410.0	46.8%
Runoff		151.0	17.2%
Precipitation		877.0	100%



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3. Post-development Catchment Water Balance Analysis _ without Mitigation Measures

Water balance analysis for post-development conditions without mitigation measures is carried out to evaluate the impacts due to the proposed development. It follows the procedure illustrated in the pre-development water balance analysis.

3.1 Water Balance Relationship for the Impervious Area

8.21 ha or 100.0%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	...
Evapotranspiration	12.5	109.6	*1 mm depression, refer to Figure 1a in City of Toronto WWFMGs.*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

3.2 Water Balance Relationship for the Pervious Area

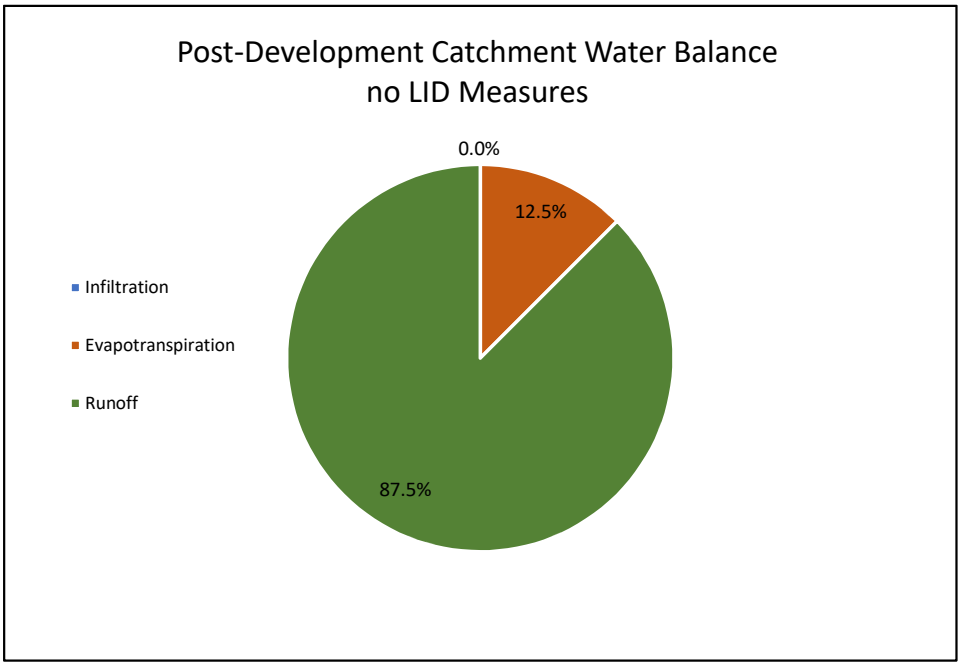
Under proposed conditions, the catchment pervious area is grassed area.

0.00 ha or 0.0%

	(%)	(mm)	
Infiltration	37.3	326.9	*(Precipitation - Evapotranspiration) * infiltration factor based on soil type found in Ontario Soils Map*
Evapotranspiration	60.1	527.0	
Runoff	2.6	23.1	
Precipitation	100.0	877.0	

3.3 Catchment Water Balance Relationship _ Post-development without Mitigation Measures

	Impervious Area	Pervious Area	Catchment - Wide	
% Land-Use Coverage	100.0%	0.0%	100.0%	
Infiltration	0.0	326.9	0.0	0.0%
Evapotranspira	109.6	527.0	109.6	12.5%
Runoff	767.4	23.1	767.4	87.5%
Precipitation	877.0	877.0	877.0	100.0%



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4. Post-development Catchment Water Balance Analysis

Under proposed development conditions, the current pervious area will be mainly impervious area.

Therefore, LID measures shall be incorporated into the site plan to make best effort for groundwater recharge.

4.1 Water Retention Strategies

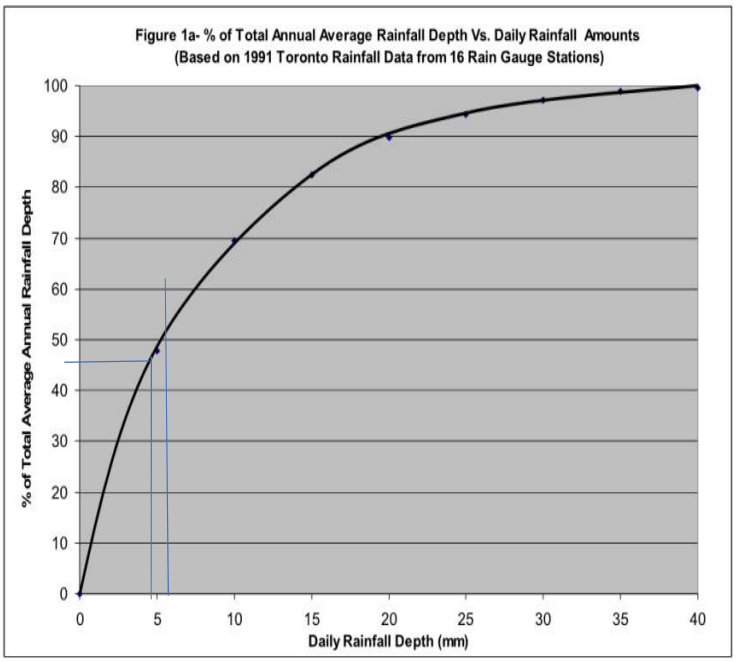
The proposed LID measures includes infiltration base of chamber system, and placement of minimum 300 mm deep absorbent soil at at-grade pervious areas.

The following assumptions are applied in the analysis.

1) All pervious area will have an initial abstraction of 10 mm.

2) All impervious area shall accept 1 mm rainfall prior to runoff generation due to shallow depressions.

Figure 1a in City of Toronto WWFMGs presents the relationship of the % of the total annual rainfall depth vs. the daily rainfall amounts. This relationship will be used to conduct the water balance analysis for the subject site from an annual basis.



4.2 Define Individual Plan per Land Use

Proposed Catchment Area to Chamber System

At Grade Pervious Area	0	m^2	0%
Area to Chamber System	82,104	m^2	100%
Total Site Area	**82,104**	**m^2**	**100%**

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Water Recharge Analysis _ Post-Development with Mitigation Measures

1) At Grade Pervious Area

0.00 ha or 0.0%

	(%)	(mm)	Comments/Assumptions:
Infiltration	0.0	0.0	*No infiltration for at-grade areas*
Evapotranspiration	12.5	109.6	*1 mm depression*
Runoff	87.5	767.4	...
Precipitation	100.0	877.0	

2) Runoff from Impervious Area to be retained through Infiltration Base

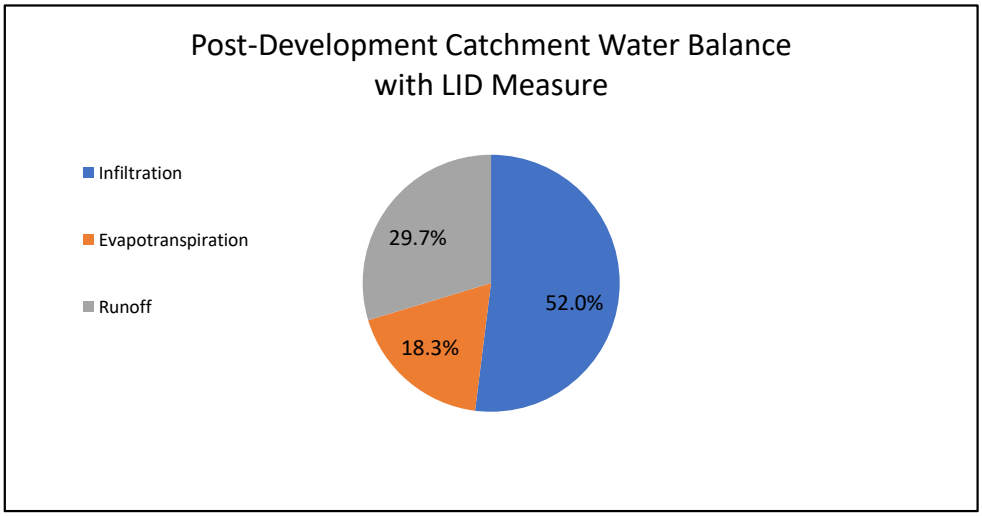
The provided Infiltration Storage 447.5 m^3 *consider 0.35m height of chamber*

Surface	Area (m^2)	Rainfall Depth (mm)	Initial Abstraction (mm)	Runoff Depth (mm)	Retention Volume (m^3)
Total Catchment Area	82,104	5.5	1.0	3.5	447.5

	(%)	(mm)	Comments/Assumptions:
Infiltration	52.0	456.0	*3.5 mm infiltration through the stone base of chamber system*
Evapotranspiration	18.3	160.9	*1 mm abstraction of total rainfall depth assumed to evaporate*
Runoff	29.7	260.0	...
Precipitation	100.0	877.0	

4.3 Catchment Water Balance Relationship _ Post-development Conditions with Mitigation Measures

	At Grade Pervious Area	Area to Chamber System	Catchment Water Balance Relationship	
% Land-Use Coverage	0.0%	100.0%	100.0%	
Infiltration	0.0	456.0	456.0	52.0%
Evapotranspiration	109.6	160.9	160.9	18.3%
Runoff	767.4	260.0	260.0	29.7%
Precipitation	877.0	877.0	877.0	100.0%



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5. Post-development vs Pre-Development Water Balance

Hydrologic Cycle Components	Pre-Development Conditions		Post-Development Conditions without Mitigation Measures		Post-Development Conditions with Mitigation Measures	
	mm	%	mm	%	mm	%
Infiltration	316.0	***36.0%***	0.0	0.0%	456.0	***52.0%***
Evapotranspiration	410.0	46.8%	109.6	12.5%	160.9	***18.3%***
Runoff	151.0	17.2%	767.4	87.5%	260.0	***29.7%***
Precipitation	877.0	100.0%	877.0	100.0%	877.0	***100.0%***

The comparison of water balance reveals that the water recharge under post-development with LID measure will be greater than the pre-development level, though the runoff volume will increase due to the decrease of evapotranspiration.

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APPENDIX

B HYDROLOGIC MODELLING OUTPUT

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EXISTING CONDITIONS - 6 HOUR AES STORM

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************************************
** SIMULATION:Run 01 2yr 6hr AES **
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--------------------
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| Ptotal= 36.00 mm |    Comments: 2yr/6hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  2.00   12.24 |  3.75    5.04 |  5.50    0.72
                0.50    0.72 |  2.25   12.24 |  4.00    2.88 |  5.75    0.72
                0.75    0.72 |  2.50   33.12 |  4.25    2.88 |  6.00    0.72
                1.00    0.72 |  2.75   33.12 |  4.50    1.44 |  6.25    0.72
                1.25    0.72 |  3.00    9.36 |  4.75    1.44 |
                1.50    4.32 |  3.25    9.36 |  5.00    0.72 |
                1.75    4.32 |  3.50    5.04 |  5.25    0.72 |

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
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--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 1.833    8.28 | 3.500    5.04 |  5.17    0.72
               0.333    0.36 | 2.000   12.24 | 3.667    5.04 |  5.33    0.72
               0.500    0.72 | 2.167   12.24 | 3.833    3.96 |  5.50    0.72
               0.667    0.72 | 2.333   22.68 | 4.000    2.88 |  5.67    0.72
               0.833    0.72 | 2.500   33.12 | 4.167    2.88 |  5.83    0.72
               1.000    0.72 | 2.667   33.12 | 4.333    2.16 |  6.00    0.72
               1.167    0.72 | 2.833   21.24 | 4.500    1.44 |  6.17    0.72
               1.333    2.52 | 3.000    9.36 | 4.667    1.44 |  6.33    0.36
               1.500    4.32 | 3.167    9.36 | 4.833    1.08 |
               1.667    4.32 | 3.333    7.20 | 5.000    0.72 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   0.511 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=   8.641
     TOTAL RAINFALL   (mm)=  36.000
     RUNOFF COEFFICIENT   =   0.240

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

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************************************
** SIMULATION:Run 02 5yr 6hr AES **
************************************

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                0.25    0.00 |  2.00   16.25 |  3.75    6.69 |  5.50    0.96
                0.50    0.96 |  2.25   16.25 |  4.00    3.82 |  5.75    0.96
                0.75    0.96 |  2.50   43.98 |  4.25    3.82 |  6.00    0.96
                1.00    0.96 |  2.75   43.98 |  4.50    1.91 |  6.25    0.96
                1.25    0.96 |  3.00   12.43 |  4.75    1.91 |
                1.50    5.74 |  3.25   12.43 |  5.00    0.96 |
                1.75    5.74 |  3.50    6.69 |  5.25    0.96 |

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| CALIB            |
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|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 1.833   10.99 | 3.500    6.69 |  5.17    0.96
               0.333    0.48 | 2.000   16.25 | 3.667    6.69 |  5.33    0.96
               0.500    0.96 | 2.167   16.25 | 3.833    5.25 |  5.50    0.96
               0.667    0.96 | 2.333   30.11 | 4.000    3.82 |  5.67    0.96
               0.833    0.96 | 2.500   43.98 | 4.167    3.82 |  5.83    0.96
               1.000    0.96 | 2.667   43.98 | 4.333    2.86 |  6.00    0.96
               1.167    0.96 | 2.833   28.20 | 4.500    1.91 |  6.17    0.96
               1.333    3.35 | 3.000   12.43 | 4.667    1.91 |  6.33    0.48
               1.500    5.74 | 3.167   12.43 | 4.833    1.43 |
               1.667    5.74 | 3.333    9.56 | 5.000    0.96 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   0.887 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  14.897
     TOTAL RAINFALL   (mm)=  47.810
     RUNOFF COEFFICIENT   =   0.312

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

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** SIMULATION:Run 03 10yr 6hr AES **
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                0.25    0.00 |  2.00   18.94 |  3.75    7.80 |  5.50    1.11
                0.50    1.11 |  2.25   18.94 |  4.00    4.46 |  5.75    1.11
                0.75    1.11 |  2.50   51.24 |  4.25    4.46 |  6.00    1.11
                1.00    1.11 |  2.75   51.24 |  4.50    2.23 |  6.25    1.11
                1.25    1.11 |  3.00   14.48 |  4.75    2.23 |
                1.50    6.68 |  3.25   14.48 |  5.00    1.11 |
                1.75    6.68 |  3.50    7.80 |  5.25    1.11 |

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--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 1.833   12.81 | 3.500    7.80 |  5.17    1.11
               0.333    0.56 | 2.000   18.94 | 3.667    7.80 |  5.33    1.11
               0.500    1.11 | 2.167   18.94 | 3.833    6.13 |  5.50    1.11
               0.667    1.11 | 2.333   35.09 | 4.000    4.46 |  5.67    1.11
               0.833    1.11 | 2.500   51.24 | 4.167    4.46 |  5.83    1.11
               1.000    1.11 | 2.667   51.24 | 4.333    3.34 |  6.00    1.11
               1.167    1.11 | 2.833   32.86 | 4.500    2.23 |  6.17    1.11
               1.333    3.89 | 3.000   14.48 | 4.667    2.23 |  6.33    0.56
               1.500    6.68 | 3.167   14.48 | 4.833    1.67 |
               1.667    6.68 | 3.333   11.14 | 5.000    1.11 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   1.172 (i)
     TIME TO PEAK    (hrs)=   4.000
     RUNOFF VOLUME    (mm)=  19.628
     TOTAL RAINFALL   (mm)=  55.690
     RUNOFF COEFFICIENT   =   0.352

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

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TOWN OF CALEDON
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** SIMULATION:Run 04 25yr 6hr AES **
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--------------------
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                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
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                0.50    1.31 |  2.25   22.30 |  4.00    5.25 |  5.75    1.31
                0.75    1.31 |  2.50   60.35 |  4.25    5.25 |  6.00    1.31
                1.00    1.31 |  2.75   60.35 |  4.50    2.62 |  6.25    1.31
                1.25    1.31 |  3.00   17.06 |  4.75    2.62 |
                1.50    7.87 |  3.25   17.06 |  5.00    1.31 |
                1.75    7.87 |  3.50    9.18 |  5.25    1.31 |

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         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 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
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               0.333    0.65 | 2.000   22.30 | 3.667    9.18 |  5.33    1.31
               0.500    1.31 | 2.167   22.30 | 3.833    7.21 |  5.50    1.31
               0.667    1.31 | 2.333   41.32 | 4.000    5.25 |  5.67    1.31
               0.833    1.31 | 2.500   60.35 | 4.167    5.25 |  5.83    1.31
               1.000    1.31 | 2.667   60.35 | 4.333    3.93 |  6.00    1.31
               1.167    1.31 | 2.833   38.70 | 4.500    2.62 |  6.17    1.31
               1.333    4.59 | 3.000   17.06 | 4.667    2.62 |  6.33    0.66
               1.500    7.87 | 3.167   17.06 | 4.833    1.97 |
               1.667    7.87 | 3.333   13.12 | 5.000    1.31 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   1.562 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  26.072
     TOTAL RAINFALL   (mm)=  65.590
     RUNOFF COEFFICIENT   =   0.398

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

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************************************
** SIMULATION:Run 05 50yr 6hr AES **
************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              b5a081e7-0eb7-4c33-8dfc-d2485ca0f551\6fadecc3
| Ptotal= 73.00 mm |    Comments: 50yr/6hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  2.00   24.82 |  3.75   10.22 |  5.50    1.46
                0.50    1.46 |  2.25   24.82 |  4.00    5.84 |  5.75    1.46
                0.75    1.46 |  2.50   67.16 |  4.25    5.84 |  6.00    1.46
                1.00    1.46 |  2.75   67.16 |  4.50    2.92 |  6.25    1.46
                1.25    1.46 |  3.00   18.98 |  4.75    2.92 |
                1.50    8.76 |  3.25   18.98 |  5.00    1.46 |
                1.75    8.76 |  3.50   10.22 |  5.25    1.46 |

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 1.833   16.79 | 3.500   10.22 |  5.17    1.46
               0.333    0.73 | 2.000   24.82 | 3.667   10.22 |  5.33    1.46
               0.500    1.46 | 2.167   24.82 | 3.833    8.03 |  5.50    1.46
               0.667    1.46 | 2.333   45.99 | 4.000    5.84 |  5.67    1.46
               0.833    1.46 | 2.500   67.16 | 4.167    5.84 |  5.83    1.46
               1.000    1.46 | 2.667   67.16 | 4.333    4.38 |  6.00    1.46
               1.167    1.46 | 2.833   43.07 | 4.500    2.92 |  6.17    1.46
               1.333    5.11 | 3.000   18.98 | 4.667    2.92 |  6.33    0.73
               1.500    8.76 | 3.167   18.98 | 4.833    2.19 |
               1.667    8.76 | 3.333   14.60 | 5.000    1.46 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   1.875 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  31.198
     TOTAL RAINFALL   (mm)=  73.000
     RUNOFF COEFFICIENT   =   0.427

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

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************************************
** SIMULATION:Run 06 100yr 6hr AES **
************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              b5a081e7-0eb7-4c33-8dfc-d2485ca0f551\ca56a851
| Ptotal= 80.31 mm |    Comments: 100yr/6hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  2.00   27.30 |  3.75   11.24 |  5.50    1.61
                0.50    1.61 |  2.25   27.30 |  4.00    6.42 |  5.75    1.61
                0.75    1.61 |  2.50   73.88 |  4.25    6.42 |  6.00    1.61
                1.00    1.61 |  2.75   73.88 |  4.50    3.21 |  6.25    1.61
                1.25    1.61 |  3.00   20.88 |  4.75    3.21 |
                1.50    9.64 |  3.25   20.88 |  5.00    1.61 |
                1.75    9.64 |  3.50   11.24 |  5.25    1.61 |

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 1.833   18.47 | 3.500   11.24 |  5.17    1.61
               0.333    0.81 | 2.000   27.30 | 3.667   11.24 |  5.33    1.61
               0.500    1.61 | 2.167   27.30 | 3.833    8.83 |  5.50    1.61
               0.667    1.61 | 2.333   50.59 | 4.000    6.42 |  5.67    1.61
               0.833    1.61 | 2.500   73.88 | 4.167    6.42 |  5.83    1.61
               1.000    1.61 | 2.667   73.88 | 4.333    4.81 |  6.00    1.61
               1.167    1.61 | 2.833   47.38 | 4.500    3.21 |  6.17    1.61
               1.333    5.62 | 3.000   20.88 | 4.667    3.21 |  6.33    0.81
               1.500    9.64 | 3.167   20.88 | 4.833    2.41 |
               1.667    9.64 | 3.333   16.06 | 5.000    1.61 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   2.198 (i)
     TIME TO PEAK    (hrs)=   3.833
     RUNOFF VOLUME    (mm)=  36.467
     TOTAL RAINFALL   (mm)=  80.310
     RUNOFF COEFFICIENT   =   0.454

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

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TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

EXISTING CONDITIONS - 12 HOUR AES STORM

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

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*************************************
** SIMULATION:Run 01 2yr 12hr AES **
*************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              f421df57-495c-42a8-9c8d-f7b9baf79fba\384f4442
| Ptotal= 42.00 mm |    Comments: 2yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	7.14	6.75	2.94	10.00	0.42
0.50	0.42	3.75	7.14	7.00	2.94	10.25	0.42
0.75	0.42	4.00	7.14	7.25	2.94	10.50	0.42
1.00	0.42	4.25	7.14	7.50	1.68	10.75	0.42
1.25	0.42	4.50	19.32	7.75	1.68	11.00	0.42
1.50	0.42	4.75	19.32	8.00	1.68	11.25	0.42
1.75	0.42	5.00	19.32	8.25	1.68	11.50	0.42
2.00	0.42	5.25	19.32	8.50	0.84	11.75	0.42
2.25	0.42	5.50	5.46	8.75	0.84	12.00	0.42
2.50	2.52	5.75	5.46	9.00	0.84	12.25	0.42
2.75	2.52	6.00	5.46	9.25	0.84		
3.00	2.52	6.25	5.46	9.50	0.42		
3.25	2.52	6.50	2.94	9.75	0.42		

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	3.333	4.83	6.500	2.94	9.67	0.42
0.333	0.21	3.500	7.14	6.667	2.94	9.83	0.42
0.500	0.42	3.667	7.14	6.833	2.94	10.00	0.42
0.667	0.42	3.833	7.14	7.000	2.94	10.17	0.42
0.833	0.42	4.000	7.14	7.167	2.94	10.33	0.42
1.000	0.42	4.167	7.14	7.333	2.31	10.50	0.42
1.167	0.42	4.333	13.23	7.500	1.68	10.67	0.42
1.333	0.42	4.500	19.32	7.667	1.68	10.83	0.42
1.500	0.42	4.667	19.32	7.833	1.68	11.00	0.42
1.667	0.42	4.833	19.32	8.000	1.68	11.17	0.42
1.833	0.42	5.000	19.32	8.167	1.68	11.33	0.42
2.000	0.42	5.167	19.32	8.333	1.26	11.50	0.42
2.167	0.42	5.333	12.39	8.500	0.84	11.67	0.42
2.333	1.47	5.500	5.46	8.667	0.84	11.83	0.42
2.500	2.52	5.667	5.46	8.833	0.84	12.00	0.42
2.667	2.52	5.833	5.46	9.000	0.84	12.17	0.42
2.833	2.52	6.000	5.46	9.167	0.84	12.33	0.21
3.000	2.52	6.167	5.46	9.333	0.63		
3.167	2.52	6.333	4.20	9.500	0.42		

```
     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   0.533 (i)
     TIME TO PEAK    (hrs)=   6.333
     RUNOFF VOLUME    (mm)=  11.679
     TOTAL RAINFALL   (mm)=  42.000
     RUNOFF COEFFICIENT   =   0.278

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

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*************************************
** SIMULATION:Run 02 5yr 12hr AES **
*************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              f421df57-495c-42a8-9c8d-f7b9baf79fba\545c1c68
| Ptotal= 54.38 mm |    Comments: 5yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	9.25	6.75	3.81	10.00	0.54
0.50	0.54	3.75	9.25	7.00	3.81	10.25	0.54
0.75	0.54	4.00	9.25	7.25	3.81	10.50	0.54
1.00	0.54	4.25	9.25	7.50	2.18	10.75	0.54
1.25	0.54	4.50	25.02	7.75	2.18	11.00	0.54
1.50	0.54	4.75	25.02	8.00	2.18	11.25	0.54
1.75	0.54	5.00	25.02	8.25	2.18	11.50	0.54
2.00	0.54	5.25	25.02	8.50	1.09	11.75	0.54
2.25	0.54	5.50	7.07	8.75	1.09	12.00	0.54
2.50	3.26	5.75	7.07	9.00	1.09	12.25	0.54
2.75	3.26	6.00	7.07	9.25	1.09		
3.00	3.26	6.25	7.07	9.50	0.54		
3.25	3.26	6.50	3.81	9.75	0.54		

```
--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	3.333	6.26	6.500	3.81	9.67	0.54
0.333	0.27	3.500	9.25	6.667	3.81	9.83	0.54
0.500	0.54	3.667	9.25	6.833	3.81	10.00	0.54
0.667	0.54	3.833	9.25	7.000	3.81	10.17	0.54
0.833	0.54	4.000	9.25	7.167	3.81	10.33	0.54
1.000	0.54	4.167	9.25	7.333	3.00	10.50	0.54
1.167	0.54	4.333	17.14	7.500	2.18	10.67	0.54
1.333	0.54	4.500	25.02	7.667	2.18	10.83	0.54
1.500	0.54	4.667	25.02	7.833	2.18	11.00	0.54
1.667	0.54	4.833	25.02	8.000	2.18	11.17	0.54
1.833	0.54	5.000	25.02	8.167	2.18	11.33	0.54
2.000	0.54	5.167	25.02	8.333	1.64	11.50	0.54
2.167	0.54	5.333	16.05	8.500	1.09	11.67	0.54
2.333	1.90	5.500	7.07	8.667	1.09	11.83	0.54
2.500	3.26	5.667	7.07	8.833	1.09	12.00	0.54
2.667	3.26	5.833	7.07	9.000	1.09	12.17	0.54
2.833	3.26	6.000	7.07	9.167	1.09	12.33	0.27
3.000	3.26	6.167	7.07	9.333	0.82		
3.167	3.26	6.333	5.44	9.500	0.54		

```
     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   0.868 (i)
     TIME TO PEAK    (hrs)=   6.333
     RUNOFF VOLUME    (mm)=  18.815
     TOTAL RAINFALL   (mm)=  54.380
     RUNOFF COEFFICIENT   =   0.346

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

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*************************************
** SIMULATION:Run 03 10yr 12hr AES **
*************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              f421df57-495c-42a8-9c8d-f7b9baf79fba\ca56f05e
| Ptotal= 62.71 mm |    Comments: 10yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	10.66	6.75	4.39	10.00	0.63
0.50	0.63	3.75	10.66	7.00	4.39	10.25	0.63
0.75	0.63	4.00	10.66	7.25	4.39	10.50	0.63
1.00	0.63	4.25	10.66	7.50	2.51	10.75	0.63
1.25	0.63	4.50	28.84	7.75	2.51	11.00	0.63
1.50	0.63	4.75	28.84	8.00	2.51	11.25	0.63
1.75	0.63	5.00	28.84	8.25	2.51	11.50	0.63
2.00	0.63	5.25	28.84	8.50	1.25	11.75	0.63
2.25	0.63	5.50	8.15	8.75	1.25	12.00	0.63
2.50	3.76	5.75	8.15	9.00	1.25	12.25	0.63
2.75	3.76	6.00	8.15	9.25	1.25		
3.00	3.76	6.25	8.15	9.50	0.63		
3.25	3.76	6.50	4.39	9.75	0.63		

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 3.333    7.21 | 6.500    4.39 |  9.67    0.63
               0.333    0.32 | 3.500   10.66 | 6.667    4.39 |  9.83    0.63
               0.500    0.63 | 3.667   10.66 | 6.833    4.39 | 10.00    0.63
               0.667    0.63 | 3.833   10.66 | 7.000    4.39 | 10.17    0.63
               0.833    0.63 | 4.000   10.66 | 7.167    4.39 | 10.33    0.63
               1.000    0.63 | 4.167   10.66 | 7.333    3.45 | 10.50    0.63
               1.167    0.63 | 4.333   19.75 | 7.500    2.51 | 10.67    0.63
               1.333    0.63 | 4.500   28.84 | 7.667    2.51 | 10.83    0.63
               1.500    0.63 | 4.667   28.84 | 7.833    2.51 | 11.00    0.63
               1.667    0.63 | 4.833   28.84 | 8.000    2.51 | 11.17    0.63
               1.833    0.63 | 5.000   28.84 | 8.167    2.51 | 11.33    0.63
               2.000    0.63 | 5.167   28.84 | 8.333    1.88 | 11.50    0.63
               2.167    0.63 | 5.333   18.50 | 8.500    1.25 | 11.67    0.63
               2.333    2.19 | 5.500    8.15 | 8.667    1.25 | 11.83    0.63
               2.500    3.76 | 5.667    8.15 | 8.833    1.25 | 12.00    0.63
               2.667    3.76 | 5.833    8.15 | 9.000    1.25 | 12.17    0.63
               2.833    3.76 | 6.000    8.15 | 9.167    1.25 | 12.33    0.31
               3.000    3.76 | 6.167    8.15 | 9.333    0.94 |
               3.167    3.76 | 6.333    6.27 | 9.500    0.63 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   1.121 (i)
     TIME TO PEAK    (hrs)=   6.167
     RUNOFF VOLUME    (mm)=  24.147
     TOTAL RAINFALL   (mm)=  62.710
     RUNOFF COEFFICIENT   =   0.385

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

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**************************************
** SIMULATION:Run 04 25yr 12hr AES **
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|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              f421df57-495c-42a8-9c8d-f7b9baf79fba\ec76e1ab
| Ptotal= 73.10 mm |    Comments: 25yr/12hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.00 |  3.50   12.43 |  6.75    5.12 | 10.00    0.73
               0.50    0.73 |  3.75   12.43 |  7.00    5.12 | 10.25    0.73
               0.75    0.73 |  4.00   12.43 |  7.25    5.12 | 10.50    0.73
               1.00    0.73 |  4.25   12.43 |  7.50    2.92 | 10.75    0.73
               1.25    0.73 |  4.50   33.63 |  7.75    2.92 | 11.00    0.73
               1.50    0.73 |  4.75   33.63 |  8.00    2.92 | 11.25    0.73
               1.75    0.73 |  5.00   33.63 |  8.25    2.92 | 11.50    0.73
               2.00    0.73 |  5.25   33.63 |  8.50    1.46 | 11.75    0.73
               2.25    0.73 |  5.50    9.50 |  8.75    1.46 | 12.00    0.73
               2.50    4.39 |  5.75    9.50 |  9.00    1.46 | 12.25    0.73
               2.75    4.39 |  6.00    9.50 |  9.25    1.46 |
               3.00    4.39 |  6.25    9.50 |  9.50    0.73 |
               3.25    4.39 |  6.50    5.12 |  9.75    0.73 |

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 3.333    8.41 | 6.500    5.12 |  9.67    0.73
               0.333    0.37 | 3.500   12.43 | 6.667    5.12 |  9.83    0.73
               0.500    0.73 | 3.667   12.43 | 6.833    5.12 | 10.00    0.73
               0.667    0.73 | 3.833   12.43 | 7.000    5.12 | 10.17    0.73
               0.833    0.73 | 4.000   12.43 | 7.167    5.12 | 10.33    0.73
               1.000    0.73 | 4.167   12.43 | 7.333    4.02 | 10.50    0.73
               1.167    0.73 | 4.333   23.03 | 7.500    2.92 | 10.67    0.73
               1.333    0.73 | 4.500   33.63 | 7.667    2.92 | 10.83    0.73
               1.500    0.73 | 4.667   33.63 | 7.833    2.92 | 11.00    0.73
               1.667    0.73 | 4.833   33.63 | 8.000    2.92 | 11.17    0.73
               1.833    0.73 | 5.000   33.63 | 8.167    2.92 | 11.33    0.73
               2.000    0.73 | 5.167   33.63 | 8.333    2.19 | 11.50    0.73
               2.167    0.73 | 5.333   21.57 | 8.500    1.46 | 11.67    0.73
               2.333    2.56 | 5.500    9.50 | 8.667    1.46 | 11.83    0.73
               2.500    4.39 | 5.667    9.50 | 8.833    1.46 | 12.00    0.73
               2.667    4.39 | 5.833    9.50 | 9.000    1.46 | 12.17    0.73
               2.833    4.39 | 6.000    9.50 | 9.167    1.46 | 12.33    0.36
               3.000    4.39 | 6.167    9.50 | 9.333    1.10 |
               3.167    4.39 | 6.333    7.31 | 9.500    0.73 |

     Unit Hyd Qpeak  (cms)=   2.068

     PEAK FLOW       (cms)=   1.463 (i)
     TIME TO PEAK    (hrs)=   6.167
     RUNOFF VOLUME    (mm)=  31.269
     TOTAL RAINFALL   (mm)=  73.100
     RUNOFF COEFFICIENT   =   0.428

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

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**************************************
** SIMULATION:Run 05 50yr 12hr AES **
**************************************

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|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              f421df57-495c-42a8-9c8d-f7b9baf79fba\114dc132
| Ptotal= 80.82 mm |    Comments: 50yr/12hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.00 |  3.50   13.74 |  6.75    5.66 | 10.00    0.81
               0.50    0.81 |  3.75   13.74 |  7.00    5.66 | 10.25    0.81
               0.75    0.81 |  4.00   13.74 |  7.25    5.66 | 10.50    0.81
               1.00    0.81 |  4.25   13.74 |  7.50    3.23 | 10.75    0.81
               1.25    0.81 |  4.50   37.17 |  7.75    3.23 | 11.00    0.81
               1.50    0.81 |  4.75   37.17 |  8.00    3.23 | 11.25    0.81
               1.75    0.81 |  5.00   37.17 |  8.25    3.23 | 11.50    0.81
               2.00    0.81 |  5.25   37.17 |  8.50    1.62 | 11.75    0.81
               2.25    0.81 |  5.50   10.50 |  8.75    1.62 | 12.00    0.81
               2.50    4.85 |  5.75   10.50 |  9.00    1.62 | 12.25    0.81
               2.75    4.85 |  6.00   10.50 |  9.25    1.62 |
               3.00    4.85 |  6.25   10.50 |  9.50    0.81 |
               3.25    4.85 |  6.50    5.66 |  9.75    0.81 |

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=  59.55   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   1.10

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.167    0.00 | 3.333    9.30 | 6.500    5.66 |  9.67    0.81
               0.333    0.41 | 3.500   13.74 | 6.667    5.66 |  9.83    0.81
               0.500    0.81 | 3.667   13.74 | 6.833    5.66 | 10.00    0.81
               0.667    0.81 | 3.833   13.74 | 7.000    5.66 | 10.17    0.81
               0.833    0.81 | 4.000   13.74 | 7.167    5.66 | 10.33    0.81
               1.000    0.81 | 4.167   13.74 | 7.333    4.45 | 10.50    0.81
               1.167    0.81 | 4.333   25.46 | 7.500    3.23 | 10.67    0.81
               1.333    0.81 | 4.500   37.17 | 7.667    3.23 | 10.83    0.81
               1.500    0.81 | 4.667   37.17 | 7.833    3.23 | 11.00    0.81
               1.667    0.81 | 4.833   37.17 | 8.000    3.23 | 11.17    0.81
               1.833    0.81 | 5.000   37.17 | 8.167    3.23 | 11.33    0.81
               2.000    0.81 | 5.167   37.17 | 8.333    2.43 | 11.50    0.81
```

TOWN OF CALEDON
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2.167	0.81	5.333	23.84	8.500	1.62	11.67	0.81
2.333	2.83	5.500	10.50	8.667	1.62	11.83	0.81
2.500	4.85	5.667	10.50	8.833	1.62	12.00	0.81
2.667	4.85	5.833	10.50	9.000	1.62	12.17	0.81
2.833	4.85	6.000	10.50	9.167	1.62	12.33	0.40
3.000	4.85	6.167	10.50	9.333	1.22		
3.167	4.85	6.333	8.08	9.500	0.81		

Unit Hyd Qpeak (cms)= 2.068

PEAK FLOW (cms)= 1.731 (i)
TIME TO PEAK (hrs)= 6.167
RUNOFF VOLUME (mm)= 36.842
TOTAL RAINFALL (mm)= 80.820
RUNOFF COEFFICIENT = 0.456

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

****
** SIMULATION:Run 06 100yr 12hr AES **
****

READ STORM	Filename: C:\Users\chanj\AppD ata\Local\Temp\ f421df57-495c-42a8-9c8d-f7b9baf79fba\ffd0dba4
Ptotal= 88.54 mm	Comments: 100yr/12hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	15.05	6.75	6.20	10.00	0.89
0.50	0.89	3.75	15.05	7.00	6.20	10.25	0.89
0.75	0.89	4.00	15.05	7.25	6.20	10.50	0.89
1.00	0.89	4.25	15.05	7.50	3.54	10.75	0.89
1.25	0.89	4.50	40.71	7.75	3.54	11.00	0.89
1.50	0.89	4.75	40.71	8.00	3.54	11.25	0.89
1.75	0.89	5.00	40.71	8.25	3.54	11.50	0.89
2.00	0.89	5.25	40.71	8.50	1.77	11.75	0.89
2.25	0.89	5.50	11.51	8.75	1.77	12.00	0.89
2.50	5.31	5.75	11.51	9.00	1.77	12.25	0.89
2.75	5.31	6.00	11.51	9.25	1.77		
3.00	5.31	6.25	11.51	9.50	0.89		
3.25	5.31	6.50	6.20	9.75	0.89		

CALIB NASHYD (0001) ID= 1 DT=10.0 min	Area (ha)= 59.55 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.10

NOTE: RAINFALL WAS TRANSFORMED TO 10.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	3.333	10.18	6.500	6.20	9.67	0.89
0.333	0.45	3.500	15.05	6.667	6.20	9.83	0.89
0.500	0.89	3.667	15.05	6.833	6.20	10.00	0.89
0.667	0.89	3.833	15.05	7.000	6.20	10.17	0.89
0.833	0.89	4.000	15.05	7.167	6.20	10.33	0.89
1.000	0.89	4.167	15.05	7.333	4.87	10.50	0.89
1.167	0.89	4.333	27.88	7.500	3.54	10.67	0.89
1.333	0.89	4.500	40.71	7.667	3.54	10.83	0.89
1.500	0.89	4.667	40.71	7.833	3.54	11.00	0.89
1.667	0.89	4.833	40.71	8.000	3.54	11.17	0.89
1.833	0.89	5.000	40.71	8.167	3.54	11.33	0.89
2.000	0.89	5.167	40.71	8.333	2.66	11.50	0.89
2.167	0.89	5.333	26.11	8.500	1.77	11.67	0.89
2.333	3.10	5.500	11.51	8.667	1.77	11.83	0.89
2.500	5.31	5.667	11.51	8.833	1.77	12.00	0.89
2.667	5.31	5.833	11.51	9.000	1.77	12.17	0.89
2.833	5.31	6.000	11.51	9.167	1.77	12.33	0.44
3.000	5.31	6.167	11.51	9.333	1.33		
3.167	5.31	6.333	8.86	9.500	0.89		

Unit Hyd Qpeak (cms)= 2.068

PEAK FLOW (cms)= 2.009 (i)
TIME TO PEAK (hrs)= 6.167
RUNOFF VOLUME (mm)= 42.618
TOTAL RAINFALL (mm)= 88.540
RUNOFF COEFFICIENT = 0.481

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

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EXISTING CONDITIONS - 25 MM AND REGIONAL STORM

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********************************
** SIMULATION:25mm 24hr       **
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|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              a8b6e3f8-5081-4775-95a5-19b4481440cb\453b902c
| Ptotal= 25.04 mm |    Comments: 25mm/24hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	6.50	2.12	12.75	0.88	19.00	0.13
0.50	0.13	6.75	2.12	13.00	0.88	19.25	0.13
0.75	0.13	7.00	2.12	13.25	0.88	19.50	0.13
1.00	0.13	7.25	2.12	13.50	0.88	19.75	0.13
1.25	0.13	7.50	2.12	13.75	0.88	20.00	0.13
1.50	0.13	7.75	2.12	14.00	0.88	20.25	0.13
1.75	0.13	8.00	2.12	14.25	0.88	20.50	0.13
2.00	0.13	8.25	2.12	14.50	0.50	20.75	0.13
2.25	0.13	8.50	5.75	14.75	0.50	21.00	0.13
2.50	0.13	8.75	5.75	15.00	0.50	21.25	0.13
2.75	0.13	9.00	5.75	15.25	0.50	21.50	0.13
3.00	0.13	9.25	5.75	15.50	0.50	21.75	0.13
3.25	0.13	9.50	5.75	15.75	0.50	22.00	0.13
3.50	0.13	9.75	5.75	16.00	0.50	22.25	0.13
3.75	0.13	10.00	5.75	16.25	0.50	22.50	0.13
4.00	0.13	10.25	5.75	16.50	0.25	22.75	0.13
4.25	0.13	10.50	1.62	16.75	0.25	23.00	0.13
4.50	0.75	10.75	1.62	17.00	0.25	23.25	0.13
4.75	0.75	11.00	1.62	17.25	0.25	23.50	0.13
5.00	0.75	11.25	1.62	17.50	0.25	23.75	0.13
5.25	0.75	11.50	1.62	17.75	0.25	24.00	0.13
5.50	0.75	11.75	1.62	18.00	0.25	24.25	0.13
5.75	0.75	12.00	1.62	18.25	0.25		
6.00	0.75	12.25	1.62	18.50	0.13		
6.25	0.75	12.50	0.88	18.75	0.13		

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--------------------
| CALIB            |
| NASHYD   (  1000)|   Area    (ha)=  20.28   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.64

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	6.333	1.43	12.500	0.88	18.67	0.13
0.333	0.07	6.500	2.12	12.667	0.88	18.83	0.13
0.500	0.13	6.667	2.12	12.833	0.88	19.00	0.13
0.667	0.13	6.833	2.12	13.000	0.88	19.17	0.13
0.833	0.13	7.000	2.12	13.167	0.88	19.33	0.13
1.000	0.13	7.167	2.12	13.333	0.88	19.50	0.13
1.167	0.13	7.333	2.12	13.500	0.88	19.67	0.13
1.333	0.13	7.500	2.12	13.667	0.88	19.83	0.13
1.500	0.13	7.667	2.12	13.833	0.88	20.00	0.13
1.667	0.13	7.833	2.12	14.000	0.88	20.17	0.13
1.833	0.13	8.000	2.12	14.167	0.88	20.33	0.13
2.000	0.13	8.167	2.12	14.333	0.69	20.50	0.13
2.167	0.13	8.333	3.93	14.500	0.50	20.67	0.13
2.333	0.13	8.500	5.75	14.667	0.50	20.83	0.13
2.500	0.13	8.667	5.75	14.833	0.50	21.00	0.13
2.667	0.13	8.833	5.75	15.000	0.50	21.17	0.13
2.833	0.13	9.000	5.75	15.167	0.50	21.33	0.13
3.000	0.13	9.167	5.75	15.333	0.50	21.50	0.13
3.167	0.13	9.333	5.75	15.500	0.50	21.67	0.13
3.333	0.13	9.500	5.75	15.667	0.50	21.83	0.13
3.500	0.13	9.667	5.75	15.833	0.50	22.00	0.13
3.667	0.13	9.833	5.75	16.000	0.50	22.17	0.13
3.833	0.13	10.000	5.75	16.167	0.50	22.33	0.13
4.000	0.13	10.167	5.75	16.333	0.37	22.50	0.13
4.167	0.13	10.333	3.68	16.500	0.25	22.67	0.13
4.333	0.44	10.500	1.62	16.667	0.25	22.83	0.13
4.500	0.75	10.667	1.62	16.833	0.25	23.00	0.13
4.667	0.75	10.833	1.62	17.000	0.25	23.17	0.13
4.833	0.75	11.000	1.62	17.167	0.25	23.33	0.13
5.000	0.75	11.167	1.62	17.333	0.25	23.50	0.13
5.167	0.75	11.333	1.62	17.500	0.25	23.67	0.13
5.333	0.75	11.500	1.62	17.667	0.25	23.83	0.13
5.500	0.75	11.667	1.62	17.833	0.25	24.00	0.13
5.667	0.75	11.833	1.62	18.000	0.25	24.17	0.13
5.833	0.75	12.000	1.62	18.167	0.25	24.33	0.07
6.000	0.75	12.167	1.62	18.333	0.19		
6.167	0.75	12.333	1.25	18.500	0.13		

```
     Unit Hyd Qpeak  (cms)=   1.210

     PEAK FLOW       (cms)=   0.056 (i)
     TIME TO PEAK    (hrs)=  10.500
     RUNOFF VOLUME    (mm)=   4.005
     TOTAL RAINFALL   (mm)=  25.040
     RUNOFF COEFFICIENT   =   0.160

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

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--------------------
| CALIB            |
| NASHYD   (  1100)|   Area    (ha)=  16.70   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.79

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	6.333	1.43	12.500	0.88	18.67	0.13
0.333	0.07	6.500	2.12	12.667	0.88	18.83	0.13
0.500	0.13	6.667	2.12	12.833	0.88	19.00	0.13
0.667	0.13	6.833	2.12	13.000	0.88	19.17	0.13
0.833	0.13	7.000	2.12	13.167	0.88	19.33	0.13
1.000	0.13	7.167	2.12	13.333	0.88	19.50	0.13
1.167	0.13	7.333	2.12	13.500	0.88	19.67	0.13
1.333	0.13	7.500	2.12	13.667	0.88	19.83	0.13
1.500	0.13	7.667	2.12	13.833	0.88	20.00	0.13
1.667	0.13	7.833	2.12	14.000	0.88	20.17	0.13
1.833	0.13	8.000	2.12	14.167	0.88	20.33	0.13
2.000	0.13	8.167	2.12	14.333	0.69	20.50	0.13
2.167	0.13	8.333	3.93	14.500	0.50	20.67	0.13
2.333	0.13	8.500	5.75	14.667	0.50	20.83	0.13
2.500	0.13	8.667	5.75	14.833	0.50	21.00	0.13
2.667	0.13	8.833	5.75	15.000	0.50	21.17	0.13
2.833	0.13	9.000	5.75	15.167	0.50	21.33	0.13
3.000	0.13	9.167	5.75	15.333	0.50	21.50	0.13
3.167	0.13	9.333	5.75	15.500	0.50	21.67	0.13
3.333	0.13	9.500	5.75	15.667	0.50	21.83	0.13
3.500	0.13	9.667	5.75	15.833	0.50	22.00	0.13
3.667	0.13	9.833	5.75	16.000	0.50	22.17	0.13
3.833	0.13	10.000	5.75	16.167	0.50	22.33	0.13
4.000	0.13	10.167	5.75	16.333	0.37	22.50	0.13
4.167	0.13	10.333	3.68	16.500	0.25	22.67	0.13
4.333	0.44	10.500	1.62	16.667	0.25	22.83	0.13
4.500	0.75	10.667	1.62	16.833	0.25	23.00	0.13
4.667	0.75	10.833	1.62	17.000	0.25	23.17	0.13
4.833	0.75	11.000	1.62	17.167	0.25	23.33	0.13
5.000	0.75	11.167	1.62	17.333	0.25	23.50	0.13
5.167	0.75	11.333	1.62	17.500	0.25	23.67	0.13
5.333	0.75	11.500	1.62	17.667	0.25	23.83	0.13
5.500	0.75	11.667	1.62	17.833	0.25	24.00	0.13
5.667	0.75	11.833	1.62	18.000	0.25	24.17	0.13
5.833	0.75	12.000	1.62	18.167	0.25	24.33	0.07
6.000	0.75	12.167	1.62	18.333	0.19		
6.167	0.75	12.333	1.25	18.500	0.13		

```
     Unit Hyd Qpeak  (cms)=   0.807

     PEAK FLOW       (cms)=   0.042 (i)
     TIME TO PEAK    (hrs)=  10.667
     RUNOFF VOLUME    (mm)=   4.005
     TOTAL RAINFALL   (mm)=  25.040
     RUNOFF COEFFICIENT   =   0.160

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

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--------------------
| CALIB            |
| NASHYD   (  1200)|   Area    (ha)=  14.36   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.61
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TOWN OF CALEDON
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NOTE: RAINFALL WAS TRANSFORMED TO 10.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	6.333	1.43	12.500	0.88	18.67	0.13
0.333	0.07	6.500	2.12	12.667	0.88	18.83	0.13
0.500	0.13	6.667	2.12	12.833	0.88	19.00	0.13
0.667	0.13	6.833	2.12	13.000	0.88	19.17	0.13
0.833	0.13	7.000	2.12	13.167	0.88	19.33	0.13
1.000	0.13	7.167	2.12	13.333	0.88	19.50	0.13
1.167	0.13	7.333	2.12	13.500	0.88	19.67	0.13
1.333	0.13	7.500	2.12	13.667	0.88	19.83	0.13
1.500	0.13	7.667	2.12	13.833	0.88	20.00	0.13
1.667	0.13	7.833	2.12	14.000	0.88	20.17	0.13
1.833	0.13	8.000	2.12	14.167	0.88	20.33	0.13
2.000	0.13	8.167	2.12	14.333	0.69	20.50	0.13
2.167	0.13	8.333	3.93	14.500	0.50	20.67	0.13
2.333	0.13	8.500	5.75	14.667	0.50	20.83	0.13
2.500	0.13	8.667	5.75	14.833	0.50	21.00	0.13
2.667	0.13	8.833	5.75	15.000	0.50	21.17	0.13
2.833	0.13	9.000	5.75	15.167	0.50	21.33	0.13
3.000	0.13	9.167	5.75	15.333	0.50	21.50	0.13
3.167	0.13	9.333	5.75	15.500	0.50	21.67	0.13
3.333	0.13	9.500	5.75	15.667	0.50	21.83	0.13
3.500	0.13	9.667	5.75	15.833	0.50	22.00	0.13
3.667	0.13	9.833	5.75	16.000	0.50	22.17	0.13
3.833	0.13	10.000	5.75	16.167	0.50	22.33	0.13
4.000	0.13	10.167	5.75	16.333	0.37	22.50	0.13
4.167	0.13	10.333	3.68	16.500	0.25	22.67	0.13
4.333	0.44	10.500	1.62	16.667	0.25	22.83	0.13
4.500	0.75	10.667	1.62	16.833	0.25	23.00	0.13
4.667	0.75	10.833	1.62	17.000	0.25	23.17	0.13
4.833	0.75	11.000	1.62	17.167	0.25	23.33	0.13
5.000	0.75	11.167	1.62	17.333	0.25	23.50	0.13
5.167	0.75	11.333	1.62	17.500	0.25	23.67	0.13
5.333	0.75	11.500	1.62	17.667	0.25	23.83	0.13
5.500	0.75	11.667	1.62	17.833	0.25	24.00	0.13
5.667	0.75	11.833	1.62	18.000	0.25	24.17	0.13
5.833	0.75	12.000	1.62	18.167	0.25	24.33	0.07
6.000	0.75	12.167	1.62	18.333	0.19		
6.167	0.75	12.333	1.25	18.500	0.13		

Unit Hyd Qpeak (cms)= 0.899

PEAK FLOW (cms)= 0.041 (i)
TIME TO PEAK (hrs)= 10.500
RUNOFF VOLUME (mm)= 4.004
TOTAL RAINFALL (mm)= 25.040
RUNOFF COEFFICIENT = 0.160

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

CALIB				
NASHYD (1300)	Area (ha)=	8.21	Curve Number (CN)=	76.0
ID= 1 DT=10.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.59		

NOTE: RAINFALL WAS TRANSFORMED TO 10.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	6.333	1.43	12.500	0.88	18.67	0.13
0.333	0.07	6.500	2.12	12.667	0.88	18.83	0.13
0.500	0.13	6.667	2.12	12.833	0.88	19.00	0.13
0.667	0.13	6.833	2.12	13.000	0.88	19.17	0.13
0.833	0.13	7.000	2.12	13.167	0.88	19.33	0.13
1.000	0.13	7.167	2.12	13.333	0.88	19.50	0.13
1.167	0.13	7.333	2.12	13.500	0.88	19.67	0.13
1.333	0.13	7.500	2.12	13.667	0.88	19.83	0.13
1.500	0.13	7.667	2.12	13.833	0.88	20.00	0.13
1.667	0.13	7.833	2.12	14.000	0.88	20.17	0.13
1.833	0.13	8.000	2.12	14.167	0.88	20.33	0.13
2.000	0.13	8.167	2.12	14.333	0.69	20.50	0.13
2.167	0.13	8.333	3.93	14.500	0.50	20.67	0.13
2.333	0.13	8.500	5.75	14.667	0.50	20.83	0.13
2.500	0.13	8.667	5.75	14.833	0.50	21.00	0.13
2.667	0.13	8.833	5.75	15.000	0.50	21.17	0.13
2.833	0.13	9.000	5.75	15.167	0.50	21.33	0.13
3.000	0.13	9.167	5.75	15.333	0.50	21.50	0.13
3.167	0.13	9.333	5.75	15.500	0.50	21.67	0.13
3.333	0.13	9.500	5.75	15.667	0.50	21.83	0.13
3.500	0.13	9.667	5.75	15.833	0.50	22.00	0.13
3.667	0.13	9.833	5.75	16.000	0.50	22.17	0.13
3.833	0.13	10.000	5.75	16.167	0.50	22.33	0.13
4.000	0.13	10.167	5.75	16.333	0.37	22.50	0.13
4.167	0.13	10.333	3.68	16.500	0.25	22.67	0.13
4.333	0.44	10.500	1.62	16.667	0.25	22.83	0.13
4.500	0.75	10.667	1.62	16.833	0.25	23.00	0.13
4.667	0.75	10.833	1.62	17.000	0.25	23.17	0.13
4.833	0.75	11.000	1.62	17.167	0.25	23.33	0.13
5.000	0.75	11.167	1.62	17.333	0.25	23.50	0.13
5.167	0.75	11.333	1.62	17.500	0.25	23.67	0.13
5.333	0.75	11.500	1.62	17.667	0.25	23.83	0.13
5.500	0.75	11.667	1.62	17.833	0.25	24.00	0.13
5.667	0.75	11.833	1.62	18.000	0.25	24.17	0.13
5.833	0.75	12.000	1.62	18.167	0.25	24.33	0.07
6.000	0.75	12.167	1.62	18.333	0.19		
6.167	0.75	12.333	1.25	18.500	0.13		

Unit Hyd Qpeak (cms)= 0.531

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 10.500
RUNOFF VOLUME (mm)= 4.004
TOTAL RAINFALL (mm)= 25.040
RUNOFF COEFFICIENT = 0.160

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

CALIB				
NASHYD (0001)	Area (ha)=	59.55	Curve Number (CN)=	76.0
ID= 1 DT=10.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	1.10		

NOTE: RAINFALL WAS TRANSFORMED TO 10.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	0.00	6.333	1.43	12.500	0.88	18.67	0.13
0.333	0.07	6.500	2.12	12.667	0.88	18.83	0.13
0.500	0.13	6.667	2.12	12.833	0.88	19.00	0.13
0.667	0.13	6.833	2.12	13.000	0.88	19.17	0.13
0.833	0.13	7.000	2.12	13.167	0.88	19.33	0.13
1.000	0.13	7.167	2.12	13.333	0.88	19.50	0.13
1.167	0.13	7.333	2.12	13.500	0.88	19.67	0.13
1.333	0.13	7.500	2.12	13.667	0.88	19.83	0.13
1.500	0.13	7.667	2.12	13.833	0.88	20.00	0.13
1.667	0.13	7.833	2.12	14.000	0.88	20.17	0.13
1.833	0.13	8.000	2.12	14.167	0.88	20.33	0.13
2.000	0.13	8.167	2.12	14.333	0.69	20.50	0.13
2.167	0.13	8.333	3.93	14.500	0.50	20.67	0.13
2.333	0.13	8.500	5.75	14.667	0.50	20.83	0.13
2.500	0.13	8.667	5.75	14.833	0.50	21.00	0.13
2.667	0.13	8.833	5.75	15.000	0.50	21.17	0.13
2.833	0.13	9.000	5.75	15.167	0.50	21.33	0.13
3.000	0.13	9.167	5.75	15.333	0.50	21.50	0.13
3.167	0.13	9.333	5.75	15.500	0.50	21.67	0.13
3.333	0.13	9.500	5.75	15.667	0.50	21.83	0.13
3.500	0.13	9.667	5.75	15.833	0.50	22.00	0.13
3.667	0.13	9.833	5.75	16.000	0.50	22.17	0.13
3.833	0.13	10.000	5.75	16.167	0.50	22.33	0.13
4.000	0.13	10.167	5.75	16.333	0.37	22.50	0.13
4.167	0.13	10.333	3.68	16.500	0.25	22.67	0.13
4.333	0.44	10.500	1.62	16.667	0.25	22.83	0.13
4.500	0.75	10.667	1.62	16.833	0.25	23.00	0.13
4.667	0.75	10.833	1.62	17.000	0.25	23.17	0.13
4.833	0.75	11.000	1.62	17.167	0.25	23.33	0.13
5.000	0.75	11.167	1.62	17.333	0.25	23.50	0.13
5.167	0.75	11.333	1.62	17.500	0.25	23.67	0.13
5.333	0.75	11.500	1.62	17.667	0.25	23.83	0.13
5.500	0.75	11.667	1.62	17.833	0.25	24.00	0.13
5.667	0.75	11.833	1.62	18.000	0.25	24.17	0.13
5.833	0.75	12.000	1.62	18.167	0.25	24.33	0.07
6.000	0.75	12.167	1.62	18.333	0.19		
6.167	0.75	12.333	1.25	18.500	0.13		

Unit Hyd Qpeak (cms)= 2.068

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     PEAK FLOW       (cms)=   0.128 (i)
     TIME TO PEAK    (hrs)=  11.000
     RUNOFF VOLUME    (mm)=   4.006
     TOTAL RAINFALL   (mm)=  25.040
     RUNOFF COEFFICIENT   =   0.160

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

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*********************************
** SIMULATION:hurrhazel       **
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|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              a8b6e3f8-5081-4775-95a5-19b4481440cb\629303c6
| Ptotal=212.00 mm |    Comments: HURRICANE HAZEL DESIGN STORM:
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    6.00 |  3.25   13.00 |   6.25   23.00 |  9.25   53.00
                 0.50    6.00 |  3.50   13.00 |   6.50   23.00 |  9.50   53.00
                 0.75    6.00 |  3.75   13.00 |   6.75   23.00 |  9.75   53.00
                 1.00    6.00 |  4.00   13.00 |   7.00   23.00 | 10.00   53.00
                 1.25    4.00 |  4.25   17.00 |   7.25   13.00 | 10.25   38.00
                 1.50    4.00 |  4.50   17.00 |   7.50   13.00 | 10.50   38.00
                 1.75    4.00 |  4.75   17.00 |   7.75   13.00 | 10.75   38.00
                 2.00    4.00 |  5.00   17.00 |   8.00   13.00 | 11.00   38.00
                 2.25    6.00 |  5.25   13.00 |   8.25   13.00 | 11.25   13.00
                 2.50    6.00 |  5.50   13.00 |   8.50   13.00 | 11.50   13.00
                 2.75    6.00 |  5.75   13.00 |   8.75   13.00 | 11.75   13.00
                 3.00    6.00 |  6.00   13.00 |   9.00   13.00 | 12.00   13.00

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| CALIB            |
| NASHYD   (  1000)|   Area    (ha)=  20.28   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.64

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
                0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
                0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
                0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
                0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
                1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
                1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
                1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
                1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
                1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
                1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
                2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
                2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
                2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
                2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
                2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
                2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
                3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   1.210

     PEAK FLOW       (cms)=   2.128 (i)
     TIME TO PEAK    (hrs)=  10.500
     RUNOFF VOLUME    (mm)= 149.145
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.704

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

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| CALIB            |
| NASHYD   (  1100)|   Area    (ha)=  16.70   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.79

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
                0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
                0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
                0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
                0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
                1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
                1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
                1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
                1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
                1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
                1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
                2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
                2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
                2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
                2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
                2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
                2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
                3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   0.807

     PEAK FLOW       (cms)=   1.670 (i)
     TIME TO PEAK    (hrs)=  11.000
     RUNOFF VOLUME    (mm)= 149.171
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.704

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

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--------------------
| CALIB            |
| NASHYD   (  1200)|   Area    (ha)=  14.36   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.61

         NOTE:  RAINFALL WAS TRANSFORMED TO  10.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
                0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
                0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
                0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
                0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
                1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   53.00
                1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
                1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
                1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
                1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
                1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
                2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   38.00
                2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
                2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
                2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
                2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
                2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
                3.000    6.00 | 6.000   13.00 | 9.000   13.00 | 12.00   13.00

     Unit Hyd Qpeak  (cms)=   0.899

     PEAK FLOW       (cms)=   1.524 (i)
     TIME TO PEAK    (hrs)=  10.500
     RUNOFF VOLUME    (mm)= 149.136
     TOTAL RAINFALL   (mm)= 212.000
     RUNOFF COEFFICIENT   =   0.703

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

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| CALIB            |
| NASHYD   (  1300)|   Area    (ha)=   8.21   Curve Number   (CN)= 76.0
|ID= 1 DT=10.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59
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NOTE: RAINFALL WAS TRANSFORMED TO 10.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 0.531

PEAK FLOW (cms)= 0.878 (i)
TIME TO PEAK (hrs)= 10.333
RUNOFF VOLUME (mm)= 149.128
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.703

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

CALIB NASHYD (0001) ID= 1 DT=10.0 min	Area (ha)= 59.55 Curve Number (CN)= 76.0 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 1.10

NOTE: RAINFALL WAS TRANSFORMED TO 10.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Unit Hyd Qpeak (cms)= 2.068

PEAK FLOW (cms)= 5.432 (i)
TIME TO PEAK (hrs)= 11.167
RUNOFF VOLUME (mm)= 149.185
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.704

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

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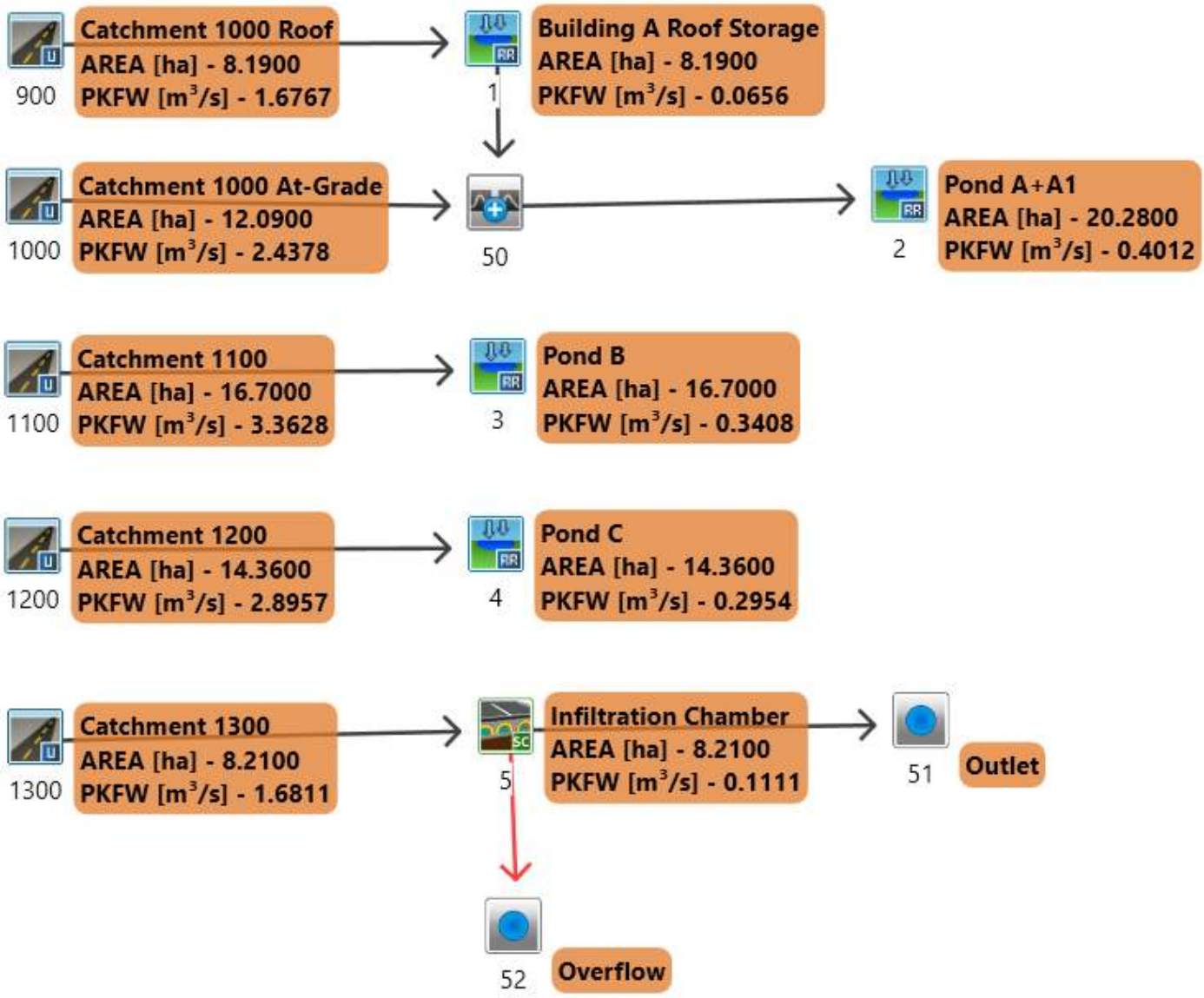
PROPOSED CONDITIONS
-
STORAGE REQUIREMENT FOR 6-HOUR AES STORM



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************************************
** SIMULATION:Run 01 2yr 6hr AES **
************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              ad768157-8d6b-45b9-886e-ee6b263b8ba1\f4a7b4fa
| Ptotal= 36.00 mm |    Comments: 2yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	2.00	12.24	3.75	5.04	5.50	0.72
0.50	0.72	2.25	12.24	4.00	2.88	5.75	0.72
0.75	0.72	2.50	33.12	4.25	2.88	6.00	0.72
1.00	0.72	2.75	33.12	4.50	1.44	6.25	0.72
1.25	0.72	3.00	9.36	4.75	1.44		
1.50	4.32	3.25	9.36	5.00	0.72		
1.75	4.32	3.50	5.04	5.25	0.72		

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.76          0.33
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      283.90         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

```
     Max.Eff.Inten.(mm/hr)=      33.12        10.67
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       7.43 (ii)   10.05 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.15         0.11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.06         0.01        1.066 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.83         2.73
     RUNOFF VOLUME    (mm)=      35.00         8.64        34.29
     TOTAL RAINFALL   (mm)=      36.00        36.00        36.00
     RUNOFF COEFFICIENT   =       0.97         0.24         0.95


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.18         0.01
     Dep. Storage     (mm)=        1.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      233.67        40.00
     Mannings n          =        0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72

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1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

```
     Max.Eff.Inten.(mm/hr)=      33.12        10.67
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       6.61 (ii)    7.31 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.18         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.74         0.00          0.744 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77           2.73
     RUNOFF VOLUME    (mm)=      35.00         8.64          34.97
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.24           0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190     0.744      2.73      34.97
   OUTFLOW: ID= 1 (  0001)      8.190     0.029      4.83      32.42

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.89
                   TIME SHIFT OF PEAK FLOW         (min)=126.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.2542

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.029     4.83    32.42
      + ID2= 2 (  1000):    12.09   1.066     2.73    34.29
        ===================================================
        ID = 3 (  0050):    20.28   1.083     2.73    33.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6450
                          0.1489     0.3600   |   0.4118      0.7130
                          0.2279     0.4770   |   0.4654      0.7790
                          0.2804     0.5520   |   0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280     1.083      2.73      33.53
   OUTFLOW: ID= 1 (  0002)     20.280     0.134      4.07      33.14

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.37
                   TIME SHIFT OF PEAK FLOW         (min)= 80.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.3239

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--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     16.30          0.40
     Dep. Storage     (mm)=      1.00          5.00
     Average Slope     (%)=      1.00          2.00
     Length           (m)=     333.67         40.00
     Mannings n          =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033   0.00 | 1.600    4.32 | 3.167    9.36 |  4.73    1.44
                0.067   0.00 | 1.633    4.32 | 3.200    9.36 |  4.77    1.08
                0.100   0.00 | 1.667    4.32 | 3.233    9.36 |  4.80    0.72
                0.133   0.00 | 1.700    4.32 | 3.267    7.20 |  4.83    0.72
                0.167   0.00 | 1.733    4.32 | 3.300    5.04 |  4.87    0.72
                0.200   0.00 | 1.767    8.28 | 3.333    5.04 |  4.90    0.72
                0.233   0.00 | 1.800   12.24 | 3.367    5.04 |  4.93    0.72
                0.267   0.36 | 1.833   12.24 | 3.400    5.04 |  4.97    0.72
                0.300   0.72 | 1.867   12.24 | 3.433    5.04 |  5.00    0.72
                0.333   0.72 | 1.900   12.24 | 3.467    5.04 |  5.03    0.72
                0.367   0.72 | 1.933   12.24 | 3.500    5.04 |  5.07    0.72
                0.400   0.72 | 1.967   12.24 | 3.533    5.04 |  5.10    0.72
                0.433   0.72 | 2.000   12.24 | 3.567    5.04 |  5.13    0.72
                0.467   0.72 | 2.033   12.24 | 3.600    5.04 |  5.17    0.72
                0.500   0.72 | 2.067   12.24 | 3.633    5.04 |  5.20    0.72
                0.533   0.72 | 2.100   12.24 | 3.667    5.04 |  5.23    0.72
                0.567   0.72 | 2.133   12.24 | 3.700    5.04 |  5.27    0.72
                0.600   0.72 | 2.167   12.24 | 3.733    5.04 |  5.30    0.72
                0.633   0.72 | 2.200   12.24 | 3.767    3.96 |  5.33    0.72
                0.667   0.72 | 2.233   12.24 | 3.800    2.88 |  5.37    0.72
                0.700   0.72 | 2.267   22.68 | 3.833    2.88 |  5.40    0.72
                0.733   0.72 | 2.300   33.12 | 3.867    2.88 |  5.43    0.72
                0.767   0.72 | 2.333   33.12 | 3.900    2.88 |  5.47    0.72
                0.800   0.72 | 2.367   33.12 | 3.933    2.88 |  5.50    0.72
                0.833   0.72 | 2.400   33.12 | 3.967    2.88 |  5.53    0.72
                0.867   0.72 | 2.433   33.12 | 4.000    2.88 |  5.57    0.72
                0.900   0.72 | 2.467   33.12 | 4.033    2.88 |  5.60    0.72
                0.933   0.72 | 2.500   33.12 | 4.067    2.88 |  5.63    0.72
                0.967   0.72 | 2.533   33.12 | 4.100    2.88 |  5.67    0.72
                1.000   0.72 | 2.567   33.12 | 4.133    2.88 |  5.70    0.72
                1.033   0.72 | 2.600   33.12 | 4.167    2.88 |  5.73    0.72
                1.067   0.72 | 2.633   33.12 | 4.200    2.88 |  5.77    0.72
                1.100   0.72 | 2.667   33.12 | 4.233    2.88 |  5.80    0.72
                1.133   0.72 | 2.700   33.12 | 4.267    2.16 |  5.83    0.72
                1.167   0.72 | 2.733   33.12 | 4.300    1.44 |  5.87    0.72
                1.200   0.72 | 2.767   21.24 | 4.333    1.44 |  5.90    0.72
                1.233   0.72 | 2.800    9.36 | 4.367    1.44 |  5.93    0.72
                1.267   2.52 | 2.833    9.36 | 4.400    1.44 |  5.97    0.72
                1.300   4.32 | 2.867    9.36 | 4.433    1.44 |  6.00    0.72
                1.333   4.32 | 2.900    9.36 | 4.467    1.44 |  6.03    0.72
                1.367   4.32 | 2.933    9.36 | 4.500    1.44 |  6.07    0.72
                1.400   4.32 | 2.967    9.36 | 4.533    1.44 |  6.10    0.72
                1.433   4.32 | 3.000    9.36 | 4.567    1.44 |  6.13    0.72
                1.467   4.32 | 3.033    9.36 | 4.600    1.44 |  6.17    0.72
                1.500   4.32 | 3.067    9.36 | 4.633    1.44 |  6.20    0.72
                1.533   4.32 | 3.100    9.36 | 4.667    1.44 |  6.23    0.72
                1.567   4.32 | 3.133    9.36 | 4.700    1.44 |  6.27    0.36

     Max.Eff.Inten.(mm/hr)=      33.12        10.67
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       8.19 (ii)   10.68 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.14         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.46         0.01          1.464 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.83           2.73
     RUNOFF VOLUME    (mm)=      35.00         8.64          34.37
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.24           0.95


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962      0.9400
                          0.1249     0.5210   |   0.3457      1.0420
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0.1913	0.6910	0.3906	1.1420
0.2353	0.8020	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1100)	16.700	1.464	2.73	34.37
OUTFLOW: ID= 1 (0003)	16.700	0.113	4.37	34.23

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.70
TIME SHIFT OF PEAK FLOW (min)= 98.00
MAXIMUM STORAGE USED (ha.m.)= 0.4702

CALIB STANDHYD (1200) ID= 1 DT= 2.0 min	Area (ha)= 14.36 Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)=		33.12	10.67
	over (min)	8.00	12.00
Storage Coeff.	(min)=	7.83 (ii)	10.32 (ii)
Unit Hyd. Tpeak	(min)=	8.00	12.00
Unit Hyd. peak	(cms)=	0.14	0.10

				TOTALS
PEAK FLOW	(cms)=	1.26	0.01	1.264 (iii)
TIME TO PEAK	(hrs)=	2.73	2.83	2.73
RUNOFF VOLUME	(mm)=	35.00	8.64	34.37
TOTAL RAINFALL	(mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT	=	0.97	0.24	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2584	0.8100
0.1090	0.4490	0.3017	0.8990
0.1669	0.5960	0.3408	0.9850
0.2053	0.6920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1200)	14.360	1.264	2.73	34.37
OUTFLOW: ID= 1 (0004)	14.360	0.098	4.37	34.24

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.75
TIME SHIFT OF PEAK FLOW (min)= 98.00
MAXIMUM STORAGE USED (ha.m.)= 0.4037

CALIB STANDHYD (1300) ID= 1 DT= 2.0 min	Area (ha)= 8.21 Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.20	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.95	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72

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1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)=	33.12	17.42	
over (min)	6.00	8.00	
Storage Coeff. (min)=	6.62 (ii)	7.31 (ii)	
Unit Hyd. Tpeak (min)=	6.00	8.00	
Unit Hyd. peak (cms)=	0.18	0.15	
			TOTALS
PEAK FLOW (cms)=	0.75	0.00	0.746 (iii)
TIME TO PEAK (hrs)=	2.73	2.77	2.73
RUNOFF VOLUME (mm)=	35.00	13.94	34.98
TOTAL RAINFALL (mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT =	0.97	0.39	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 87.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CHAMBER(0005)	OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
IN= 2--> OUT= 3	CHAMBER:
DT= 1.0 min	MAX STO VOL (cu.m.)= 6506.94 Bottom Area(m2) = 4870.00

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.746	2.73	34.98
OUTFLOW:ID= 1	8.21	0.063	4.05	24.78
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)=	29.15
Time to reach Max storage (Hr)=	4.05
Volume of water for drawdown in LID (cu.m.)=	1793.25
Volume of maximum water storage (cu.m.)=	2234.01
Calculated Drawdown Time (Hr)=	28.17

Junction Command(0052)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0005)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0052)	0.00	0.00	0.00	0.00

Junction Command(0051)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0005)	8.21	0.06	4.05	24.78
OUTFLOW: ID= 2(0051)	8.21	0.06	4.05	24.78

****
** SIMULATION:Run 02 5yr 6hr AES **
****

READ STORM	Filename: C:\Users\chanj\AppD ata\Local\Temp\ ad768157-8d6b-45b9-886e-ee6b263b8ba1\2df8acb1
Ptotal= 47.81 mm	Comments: 5yr/6hr

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	2.00	16.25	3.75	6.69	5.50	0.96
0.50	0.96	2.25	16.25	4.00	3.82	5.75	0.96
0.75	0.96	2.50	43.98	4.25	3.82	6.00	0.96
1.00	0.96	2.75	43.98	4.50	1.91	6.25	0.96
1.25	0.96	3.00	12.43	4.75	1.91		
1.50	5.74	3.25	12.43	5.00	0.96		
1.75	5.74	3.50	6.69	5.25	0.96		

CALIB STANDHYD (1000) ID= 1 DT= 2.0 min	Area (ha)= 12.09 Total Imp(%)= 97.30 Dir. Conn.(%)= 97.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

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NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	5.74	3.167	12.43	4.73	1.91
0.067	0.00	1.633	5.74	3.200	12.43	4.77	1.44
0.100	0.00	1.667	5.74	3.233	12.43	4.80	0.96
0.133	0.00	1.700	5.74	3.267	9.56	4.83	0.96
0.167	0.00	1.733	5.74	3.300	6.69	4.87	0.96
0.200	0.00	1.767	10.99	3.333	6.69	4.90	0.96
0.233	0.00	1.800	16.25	3.367	6.69	4.93	0.96
0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

Max.Eff.Inten.(mm/hr)=	43.98	18.16	
over (min)	6.00	10.00	
Storage Coeff. (min)=	6.64 (ii)	8.97 (ii)	
Unit Hyd. Tpeak (min)=	6.00	10.00	
Unit Hyd. peak (cms)=	0.18	0.12	
			TOTALS
PEAK FLOW (cms)=	1.42	0.01	1.433 (iii)
TIME TO PEAK (hrs)=	2.73	2.80	2.73
RUNOFF VOLUME (mm)=	46.81	14.90	45.95
TOTAL RAINFALL (mm)=	47.81	47.81	47.81
RUNOFF COEFFICIENT =	0.98	0.31	0.96

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. 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 (0900)	Area (ha)= 8.19	
ID= 1 DT= 2.0 min	Total Imp(%)= 99.90	Dir. Conn.(%)= 99.90

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	8.18	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00

Length (m)=	233.67	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	5.74	3.167	12.43	4.73	1.91
0.067	0.00	1.633	5.74	3.200	12.43	4.77	1.44
0.100	0.00	1.667	5.74	3.233	12.43	4.80	0.96
0.133	0.00	1.700	5.74	3.267	9.56	4.83	0.96
0.167	0.00	1.733	5.74	3.300	6.69	4.87	0.96
0.200	0.00	1.767	10.99	3.333	6.69	4.90	0.96
0.233	0.00	1.800	16.25	3.367	6.69	4.93	0.96
0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

Max.Eff.Inten.(mm/hr)=	43.98	18.16	
over (min)	6.00	8.00	
Storage Coeff. (min)=	5.90 (ii)	6.52 (ii)	
Unit Hyd. Tpeak (min)=	6.00	8.00	
Unit Hyd. peak (cms)=	0.19	0.16	
			TOTALS
PEAK FLOW (cms)=	0.99	0.00	0.993 (iii)
TIME TO PEAK (hrs)=	2.73	2.77	2.73
RUNOFF VOLUME (mm)=	46.81	14.90	46.78
TOTAL RAINFALL (mm)=	47.81	47.81	47.81
RUNOFF COEFFICIENT =	0.98	0.31	0.98

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 4.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0700	0.6145

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                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190     0.993      2.73      46.78
   OUTFLOW: ID= 1 (  0001)      8.190     0.039      4.80      43.36

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.90
                  TIME SHIFT OF PEAK FLOW         (min)=124.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3399

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.039     4.80    43.36
      + ID2= 2 (  1000):     12.09    1.433     2.73    45.95
        ==================================================
        ID = 3 (  0050):     20.28    1.457     2.73    44.90

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6450
                          0.1489     0.3600   |   0.4118      0.7130
                          0.2279     0.4770   |   0.4654      0.7790
                          0.2804     0.5520   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280     1.457      2.73      44.90
   OUTFLOW: ID= 1 (  0002)     20.280     0.196      3.93      44.38

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.42
                  TIME SHIFT OF PEAK FLOW         (min)= 72.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4292

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--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    5.74 | 3.167   12.43 |  4.73    1.91
               0.067    0.00 | 1.633    5.74 | 3.200   12.43 |  4.77    1.44
               0.100    0.00 | 1.667    5.74 | 3.233   12.43 |  4.80    0.96
               0.133    0.00 | 1.700    5.74 | 3.267    9.56 |  4.83    0.96
               0.167    0.00 | 1.733    5.74 | 3.300    6.69 |  4.87    0.96
               0.200    0.00 | 1.767   10.99 | 3.333    6.69 |  4.90    0.96
               0.233    0.00 | 1.800   16.25 | 3.367    6.69 |  4.93    0.96
               0.267    0.48 | 1.833   16.25 | 3.400    6.69 |  4.97    0.96
               0.300    0.96 | 1.867   16.25 | 3.433    6.69 |  5.00    0.96
               0.333    0.96 | 1.900   16.25 | 3.467    6.69 |  5.03    0.96
               0.367    0.96 | 1.933   16.25 | 3.500    6.69 |  5.07    0.96
               0.400    0.96 | 1.967   16.25 | 3.533    6.69 |  5.10    0.96
               0.433    0.96 | 2.000   16.25 | 3.567    6.69 |  5.13    0.96
               0.467    0.96 | 2.033   16.25 | 3.600    6.69 |  5.17    0.96
               0.500    0.96 | 2.067   16.25 | 3.633    6.69 |  5.20    0.96
               0.533    0.96 | 2.100   16.25 | 3.667    6.69 |  5.23    0.96
               0.567    0.96 | 2.133   16.25 | 3.700    6.69 |  5.27    0.96
               0.600    0.96 | 2.167   16.25 | 3.733    6.69 |  5.30    0.96
               0.633    0.96 | 2.200   16.25 | 3.767    5.26 |  5.33    0.96
               0.667    0.96 | 2.233   16.25 | 3.800    3.82 |  5.37    0.96
               0.700    0.96 | 2.267   30.11 | 3.833    3.82 |  5.40    0.96
               0.733    0.96 | 2.300   43.98 | 3.867    3.82 |  5.43    0.96
               0.767    0.96 | 2.333   43.98 | 3.900    3.82 |  5.47    0.96
               0.800    0.96 | 2.367   43.98 | 3.933    3.82 |  5.50    0.96
               0.833    0.96 | 2.400   43.98 | 3.967    3.82 |  5.53    0.96
               0.867    0.96 | 2.433   43.98 | 4.000    3.82 |  5.57    0.96
               0.900    0.96 | 2.467   43.98 | 4.033    3.82 |  5.60    0.96
               0.933    0.96 | 2.500   43.98 | 4.067    3.82 |  5.63    0.96
               0.967    0.96 | 2.533   43.98 | 4.100    3.82 |  5.67    0.96
               1.000    0.96 | 2.567   43.98 | 4.133    3.82 |  5.70    0.96
               1.033    0.96 | 2.600   43.98 | 4.167    3.82 |  5.73    0.96
               1.067    0.96 | 2.633   43.98 | 4.200    3.82 |  5.77    0.96
               1.100    0.96 | 2.667   43.98 | 4.233    3.82 |  5.80    0.96
               1.133    0.96 | 2.700   43.98 | 4.267    2.87 |  5.83    0.96
               1.167    0.96 | 2.733   43.98 | 4.300    1.91 |  5.87    0.96
               1.200    0.96 | 2.767   28.21 | 4.333    1.91 |  5.90    0.96
               1.233    0.96 | 2.800   12.43 | 4.367    1.91 |  5.93    0.96
               1.267    3.35 | 2.833   12.43 | 4.400    1.91 |  5.97    0.96
               1.300    5.74 | 2.867   12.43 | 4.433    1.91 |  6.00    0.96
               1.333    5.74 | 2.900   12.43 | 4.467    1.91 |  6.03    0.96
               1.367    5.74 | 2.933   12.43 | 4.500    1.91 |  6.07    0.96
               1.400    5.74 | 2.967   12.43 | 4.533    1.91 |  6.10    0.96
               1.433    5.74 | 3.000   12.43 | 4.567    1.91 |  6.13    0.96
               1.467    5.74 | 3.033   12.43 | 4.600    1.91 |  6.17    0.96
               1.500    5.74 | 3.067   12.43 | 4.633    1.91 |  6.20    0.96
               1.533    5.74 | 3.100   12.43 | 4.667    1.91 |  6.23    0.96
               1.567    5.74 | 3.133   12.43 | 4.700    1.91 |  6.27    0.48

     Max.Eff.Inten.(mm/hr)=      43.98        18.16
                over (min)        8.00        10.00
     Storage Coeff.  (min)=       7.31 (ii)    9.54 (ii)
     Unit Hyd. Tpeak (min)=       8.00        10.00
     Unit Hyd. peak  (cms)=       0.15         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.95         0.02        1.967 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.80         2.73
     RUNOFF VOLUME    (mm)=      46.81        14.90        46.04
     TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
     RUNOFF COEFFICIENT   =       0.98         0.31         0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962      0.9400
                          0.1249     0.5210   |   0.3457      1.0420
                          0.1913     0.6910   |   0.3906      1.1420
                          0.2353     0.8020   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700     1.967      2.73      46.04
   OUTFLOW: ID= 1 (  0003)     16.700     0.165      4.30      45.86

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.41
                  TIME SHIFT OF PEAK FLOW         (min)= 94.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6246

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--------------------
| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     309.41        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    5.74 | 3.167   12.43 |  4.73    1.91
               0.067    0.00 | 1.633    5.74 | 3.200   12.43 |  4.77    1.44
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0.100	0.00	1.667	5.74	3.233	12.43	4.80	0.96
0.133	0.00	1.700	5.74	3.267	9.56	4.83	0.96
0.167	0.00	1.733	5.74	3.300	6.69	4.87	0.96
0.200	0.00	1.767	10.99	3.333	6.69	4.90	0.96
0.233	0.00	1.800	16.25	3.367	6.69	4.93	0.96
0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

```
Max.Eff.Inten.(mm/hr)=      43.98        18.16
           over (min)        6.00        10.00
Storage Coeff.  (min)=       6.99 (ii)    9.21 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.17         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.69         0.01        1.701 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      46.81        14.90        46.04
TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
RUNOFF COEFFICIENT   =       0.98         0.31         0.96


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584     0.8100
                          0.1090     0.4490   |   0.3017     0.8990
                          0.1669     0.5960   |   0.3408     0.9850
                          0.2053     0.6920   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1200)     14.360     1.701      2.73      46.04
   OUTFLOW: ID= 1 (  0004)     14.360     0.143      4.30      45.87

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.43
                  TIME SHIFT OF PEAK FLOW         (min)= 94.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5363
```

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	5.74	3.167	12.43	4.73	1.91
0.067	0.00	1.633	5.74	3.200	12.43	4.77	1.44
0.100	0.00	1.667	5.74	3.233	12.43	4.80	0.96
0.133	0.00	1.700	5.74	3.267	9.56	4.83	0.96
0.167	0.00	1.733	5.74	3.300	6.69	4.87	0.96
0.200	0.00	1.767	10.99	3.333	6.69	4.90	0.96
0.233	0.00	1.800	16.25	3.367	6.69	4.93	0.96
0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

```
Max.Eff.Inten.(mm/hr)=      43.98        27.71
           over (min)        6.00         8.00
Storage Coeff.  (min)=       5.91 (ii)    6.53 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.19         0.16
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.99         0.00        0.995 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      46.81        22.69        46.79
TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
RUNOFF COEFFICIENT   =       0.98         0.47         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

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

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------------------
| CHAMBER(  0005)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.995	2.73	46.79
OUTFLOW:ID= 1	8.21	0.077	4.28	35.66
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=       23.78
Time to reach Max storage              (Hr)=        4.28
Volume of water for drawdown in LID (cu.m.)=     2542.59
Volume of maximum water storage     (cu.m.)=     3044.54
Calculated Drawdown Time               (Hr)=       31.22

-------------------------
| Junction Command(0052) |
-------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0005)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0052)	0.00	0.00	0.00	0.00

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| Junction Command(0051) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0005)	8.21	0.08	4.28	35.66
OUTFLOW: ID= 2(0051)	8.21	0.08	4.28	35.66

```
--------------------------------------------------------------------------------
************************************
** SIMULATION:Run 03 10yr 6hr AES **
************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              ad768157-8d6b-45b9-886e-ee6b263b8ba1\2cf98f01
| Ptotal= 55.69 mm |    Comments: 10yr/6hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	2.00	18.94	3.75	7.80	5.50	1.11
0.50	1.11	2.25	18.94	4.00	4.46	5.75	1.11
0.75	1.11	2.50	51.24	4.25	4.46	6.00	1.11
1.00	1.11	2.75	51.24	4.50	2.23	6.25	1.11
1.25	1.11	3.00	14.48	4.75	2.23		
1.50	6.68	3.25	14.48	5.00	1.11		
1.75	6.68	3.50	7.80	5.25	1.11		

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11

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0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

```
Max.Eff.Inten.(mm/hr)=      51.24        23.77
          over (min)         6.00        10.00
Storage Coeff.  (min)=       6.24 (ii)    8.44 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.18         0.13
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.66         0.02        1.677 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      54.69        19.63        53.74
TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
RUNOFF COEFFICIENT   =       0.98         0.35         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. 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 (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=        8.18          0.01
Dep. Storage     (mm)=        1.00          5.00
Average Slope     (%)=        1.00          2.00
Length            (m)=      233.67         40.00
Mannings n           =       0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11

0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

```
Max.Eff.Inten.(mm/hr)=      51.24        23.77
          over (min)         6.00         8.00
Storage Coeff.  (min)=       5.55 (ii)    6.14 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.20         0.17
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.16         0.00        1.159 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      54.69        19.63        54.65
TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
RUNOFF COEFFICIENT   =       0.98         0.35         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0900)      8.190     1.159      2.73      54.65
  OUTFLOW: ID= 1 (  0001)      8.190     0.045      4.80      50.67

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.90
                TIME SHIFT OF PEAK FLOW         (min)=124.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.3972

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.045     4.80    50.67
      + ID2= 2 (  1000):     12.09    1.677     2.73    53.74
        ==================================================
        ID = 3 (  0050):     20.28    1.705     2.73    52.50

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529     0.6450
                          0.1489     0.3600   |   0.4118     0.7130
                          0.2279     0.4770   |   0.4654     0.7790
                          0.2804     0.5520   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
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	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0050)	20.280	1.705	2.73	52.50
OUTFLOW: ID= 1 (0002)	20.280	0.242	3.87	51.89

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.17
TIME SHIFT OF PEAK FLOW (min)= 68.00
MAXIMUM STORAGE USED (ha.m.)= 0.4967

CALIB STANDHYD (1100) ID= 1 DT= 2.0 min	Area (ha)= 16.70 Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	16.30	0.40
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	333.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

Max.Eff.Inten.(mm/hr)=		51.24	23.77	
over (min)		6.00	10.00	
Storage Coeff. (min)=		6.88 (ii)	8.97 (ii)	
Unit Hyd. Tpeak (min)=		6.00	10.00	
Unit Hyd. peak (cms)=		0.17	0.12	
				TOTALS
PEAK FLOW	(cms)=	2.29	0.02	2.310 (iii)
TIME TO PEAK	(hrs)=	2.73	2.80	2.73
RUNOFF VOLUME	(mm)=	54.69	19.63	53.85
TOTAL RAINFALL	(mm)=	55.69	55.69	55.69
RUNOFF COEFFICIENT	=	0.98	0.35	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2962	0.9400
	0.1249	0.5210	0.3457	1.0420
	0.1913	0.6910	0.3906	1.1420
	0.2353	0.8020	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1100)	16.700	2.310	2.73	53.85
OUTFLOW: ID= 1 (0003)	16.700	0.205	4.27	53.64

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.85
TIME SHIFT OF PEAK FLOW (min)= 92.00
MAXIMUM STORAGE USED (ha.m.)= 0.7244

CALIB STANDHYD (1200) ID= 1 DT= 2.0 min	Area (ha)= 14.36 Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11

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1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

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Max.Eff.Inten.(mm/hr)=      51.24        23.77
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.57 (ii)    8.67 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.18         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.97         0.02        1.991 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      54.69        19.63        53.85
TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
RUNOFF COEFFICIENT   =       0.98         0.35         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584     0.8100
                          0.1090     0.4490   |   0.3017     0.8990
                          0.1669     0.5960   |   0.3408     0.9850
                          0.2053     0.6920   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  1200)     14.360     1.991      2.73      53.85
  OUTFLOW: ID= 1 (  0004)     14.360     0.177      4.23      53.65

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.90
                 TIME SHIFT OF PEAK FLOW         (min)= 90.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.6219

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    6.68 | 3.167   14.48 |  4.73    2.23
               0.067    0.00 | 1.633    6.68 | 3.200   14.48 |  4.77    1.67
               0.100    0.00 | 1.667    6.68 | 3.233   14.48 |  4.80    1.11
               0.133    0.00 | 1.700    6.68 | 3.267   11.14 |  4.83    1.11
               0.167    0.00 | 1.733    6.68 | 3.300    7.80 |  4.87    1.11
               0.200    0.00 | 1.767   12.81 | 3.333    7.80 |  4.90    1.11
               0.233    0.00 | 1.800   18.94 | 3.367    7.80 |  4.93    1.11
               0.267    0.56 | 1.833   18.94 | 3.400    7.80 |  4.97    1.11
               0.300    1.11 | 1.867   18.94 | 3.433    7.80 |  5.00    1.11
               0.333    1.11 | 1.900   18.94 | 3.467    7.80 |  5.03    1.11
               0.367    1.11 | 1.933   18.94 | 3.500    7.80 |  5.07    1.11
               0.400    1.11 | 1.967   18.94 | 3.533    7.80 |  5.10    1.11
               0.433    1.11 | 2.000   18.94 | 3.567    7.80 |  5.13    1.11
```

0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

```
Max.Eff.Inten.(mm/hr)=      51.24        34.91
            over (min)       6.00         8.00
Storage Coeff.  (min)=       5.56 (ii)    6.14 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.20         0.17
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.16         0.00        1.162 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      54.69        28.99        54.66
TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
RUNOFF COEFFICIENT   =       0.98         0.52         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0005)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
                     DEPTH       STORAGE          |   DEPTH      STORAGE
                     (mm)        (cu.m.)          |   (mm)       (cu.m.)
                       0.00          0.00          |   1041.00      3759.30
                      25.00         49.47          |   1067.00      3854.08
                      51.00         98.94          |   1092.00      3948.08
                      76.00        148.40          |   1118.00      4041.25
                     102.00        197.87          |   1143.00      4133.57
                     127.00        247.34          |   1168.00      4225.00
                     152.00        296.81          |   1194.00      4315.50
                     178.00        346.27          |   1219.00      4405.03
                     203.00        395.74          |   1245.00      4493.56
                     229.00        445.21          |   1270.00      4581.02
                     254.00        554.10          |   1295.00      4667.39
                     279.00        662.70          |   1321.00      4752.59
                     305.00        771.11          |   1346.00      4836.57
                     330.00        879.30          |   1372.00      4919.26
                     356.00        987.27          |   1397.00      5000.60
                     381.00       1095.00          |   1422.00      5080.50
                     406.00       1202.48          |   1448.00      5158.85
                     432.00       1309.70          |   1473.00      5235.54
                     457.00       1416.63          |   1499.00      5310.45
                     483.00       1523.27          |   1524.00      5383.37
                     508.00       1629.60          |   1549.00      5454.08
                     533.00       1735.60          |   1575.00      5522.23
```

TOWN OF CALEDON
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```
             559.00        1841.25        |  1600.00       5587.25
             584.00        1946.55        |  1626.00       5647.31
             610.00        2051.46        |  1651.00       5703.06
             635.00        2155.99        |  1676.00       5757.41
             660.00        2260.10        |  1702.00       5810.73
             686.00        2363.78        |  1727.00       5862.91
             711.00        2467.02        |  1753.00       5913.33
             737.00        2569.79        |  1778.00       5962.80
             762.00        2672.07        |  1803.00       6012.26
             787.00        2773.85        |  1829.00       6061.73
             813.00        2875.11        |  1854.00       6111.20
             838.00        2975.83        |  1880.00       6160.67
             864.00        3075.97        |  1905.00       6210.14
             889.00        3175.53        |  1930.00       6259.60
             914.00        3274.49        |  1956.00       6309.07
             940.00        3372.81        |  1981.00       6358.54
             965.00        3470.48        |  2007.00       6408.01
             991.00        3567.46        |  2032.00       6457.47
            1016.00        3663.75        |  2057.00       6506.94

            DEPTH       DISCHARGE       |  DEPTH       DISCHARGE
             (m)          (cms)         |   (m)          (cms)
            0.000         0.000         |  0.460         0.066
            0.010         0.011         |  0.510         0.069
            0.060         0.024         |  0.560         0.072
            0.110         0.032         |  0.610         0.075
            0.160         0.039         |  0.660         0.079
            0.210         0.045         |  0.710         0.081
            0.260         0.049         |  0.760         0.084
            0.310         0.054         |  0.810         0.087
            0.360         0.058         |  0.860         0.090
            0.410         0.062         |  0.910         0.092

           NATIVE SOIL LAYER:
           Infiltration (m/hr) = 0.0051

              AREA         QPEAK           TPEAK          R.V.
              (ha)         (cms)           (hrs)          (mm)
     INFLOW:ID= 2   8.21         1.162            2.73          54.66
    OUTFLOW:ID= 1   8.21         0.085            4.30          42.98
   OVERFLOW:ID= 3   0.00         0.000            0.00           0.00

         Volume Reduction Rate[(RVin-RVout)/RVin](%)=        21.37
         Time to reach Max storage              (Hr)=         4.30
         Volume of water for drawdown in LID (cu.m.)=      3051.46
         Volume of maximum water storage     (cu.m.)=      3593.81
         Calculated Drawdown Time               (Hr)=        33.00

  --------------------------
  | Junction Command(0052) |
  --------------------------

                              AREA     QPEAK    TPEAK     R.V.
                              (ha)     (cms)     (hrs)    (mm)
  INFLOW : ID= 3(  0005)      0.00     0.00     0.00     0.00
  OUTFLOW: ID= 2(  0052)      0.00     0.00     0.00     0.00

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

  --------------------------
  | Junction Command(0051) |
  --------------------------

                              AREA     QPEAK    TPEAK     R.V.
                              (ha)     (cms)     (hrs)    (mm)
  INFLOW : ID= 1(  0005)      8.21     0.08     4.30    42.98
  OUTFLOW: ID= 2(  0051)      8.21     0.08     4.30    42.98

  -------------------------------------------------------------------------------
 ************************************
 ** SIMULATION:Run 04 25yr 6hr AES **
 ************************************

 --------------------
 |    READ STORM    |     Filename: C:\Users\chanj\AppD
 |                  |               ata\Local\Temp\
 |                  |               ad768157-8d6b-45b9-886e-ee6b263b8ba1\64693e58
 | Ptotal= 65.59 mm |     Comments: 25yr/6hr
 --------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   22.30 |  3.75    9.18 |  5.50    1.31
                 0.50    1.31 |  2.25   22.30 |  4.00    5.25 |  5.75    1.31
                 0.75    1.31 |  2.50   60.35 |  4.25    5.25 |  6.00    1.31
                 1.00    1.31 |  2.75   60.35 |  4.50    2.62 |  6.25    1.31
                 1.25    1.31 |  3.00   17.06 |  4.75    2.62 |
                 1.50    7.87 |  3.25   17.06 |  5.00    1.31 |
                 1.75    7.87 |  3.50    9.18 |  5.25    1.31 |

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 | CALIB            |
 | STANDHYD (  1000)|   Area     (ha)=  12.09
 |ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
 --------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=      11.76          0.33
     Dep. Storage      (mm)=       1.00          5.00
     Average Slope      (%)=       1.00          2.00
     Length             (m)=     283.90         40.00
     Mannings n           =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.

                      ---- TRANSFORMED HYETOGRAPH ----
          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
         0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
         0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
         0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
         0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
         0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
         0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
         0.233    0.00 | 1.800   22.30 | 3.367    9.18 |  4.93    1.31
         0.267    0.66 | 1.833   22.30 | 3.400    9.18 |  4.97    1.31
         0.300    1.31 | 1.867   22.30 | 3.433    9.18 |  5.00    1.31
         0.333    1.31 | 1.900   22.30 | 3.467    9.18 |  5.03    1.31
         0.367    1.31 | 1.933   22.30 | 3.500    9.18 |  5.07    1.31
         0.400    1.31 | 1.967   22.30 | 3.533    9.18 |  5.10    1.31
         0.433    1.31 | 2.000   22.30 | 3.567    9.18 |  5.13    1.31
         0.467    1.31 | 2.033   22.30 | 3.600    9.18 |  5.17    1.31
         0.500    1.31 | 2.067   22.30 | 3.633    9.18 |  5.20    1.31
         0.533    1.31 | 2.100   22.30 | 3.667    9.18 |  5.23    1.31
         0.567    1.31 | 2.133   22.30 | 3.700    9.18 |  5.27    1.31
         0.600    1.31 | 2.167   22.30 | 3.733    9.18 |  5.30    1.31
         0.633    1.31 | 2.200   22.30 | 3.767    7.22 |  5.33    1.31
         0.667    1.31 | 2.233   22.30 | 3.800    5.25 |  5.37    1.31
         0.700    1.31 | 2.267   41.32 | 3.833    5.25 |  5.40    1.31
         0.733    1.31 | 2.300   60.35 | 3.867    5.25 |  5.43    1.31
         0.767    1.31 | 2.333   60.35 | 3.900    5.25 |  5.47    1.31
         0.800    1.31 | 2.367   60.35 | 3.933    5.25 |  5.50    1.31
         0.833    1.31 | 2.400   60.35 | 3.967    5.25 |  5.53    1.31
         0.867    1.31 | 2.433   60.35 | 4.000    5.25 |  5.57    1.31
         0.900    1.31 | 2.467   60.35 | 4.033    5.25 |  5.60    1.31
         0.933    1.31 | 2.500   60.35 | 4.067    5.25 |  5.63    1.31
         0.967    1.31 | 2.533   60.35 | 4.100    5.25 |  5.67    1.31
         1.000    1.31 | 2.567   60.35 | 4.133    5.25 |  5.70    1.31
         1.033    1.31 | 2.600   60.35 | 4.167    5.25 |  5.73    1.31
         1.067    1.31 | 2.633   60.35 | 4.200    5.25 |  5.77    1.31
         1.100    1.31 | 2.667   60.35 | 4.233    5.25 |  5.80    1.31
         1.133    1.31 | 2.700   60.35 | 4.267    3.94 |  5.83    1.31
         1.167    1.31 | 2.733   60.35 | 4.300    2.62 |  5.87    1.31
         1.200    1.31 | 2.767   38.71 | 4.333    2.62 |  5.90    1.31
         1.233    1.31 | 2.800   17.06 | 4.367    2.62 |  5.93    1.31
         1.267    4.59 | 2.833   17.06 | 4.400    2.62 |  5.97    1.31
         1.300    7.87 | 2.867   17.06 | 4.433    2.62 |  6.00    1.31
         1.333    7.87 | 2.900   17.06 | 4.467    2.62 |  6.03    1.31
         1.367    7.87 | 2.933   17.06 | 4.500    2.62 |  6.07    1.31
         1.400    7.87 | 2.967   17.06 | 4.533    2.62 |  6.10    1.31
         1.433    7.87 | 3.000   17.06 | 4.567    2.62 |  6.13    1.31
         1.467    7.87 | 3.033   17.06 | 4.600    2.62 |  6.17    1.31
         1.500    7.87 | 3.067   17.06 | 4.633    2.62 |  6.20    1.31
         1.533    7.87 | 3.100   17.06 | 4.667    2.62 |  6.23    1.31
         1.567    7.87 | 3.133   17.06 | 4.700    2.62 |  6.27    0.66

     Max.Eff.Inten.(mm/hr)=      60.35        31.31
               over (min)        6.00          8.00
     Storage Coeff.  (min)=       5.85 (ii)     7.91 (ii)
     Unit Hyd. Tpeak (min)=       6.00          8.00
     Unit Hyd. peak  (cms)=       0.19          0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.96          0.03      1.983 (iii)
     TIME TO PEAK    (hrs)=       2.73          2.77       2.73
     RUNOFF VOLUME    (mm)=      64.59         26.07      63.55
     TOTAL RAINFALL   (mm)=      65.59         65.59      65.59
     RUNOFF COEFFICIENT   =       0.98          0.40       0.97
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TOWN OF CALEDON
PLANNING
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```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  76.0    Ia = Dep. 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 (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.67         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
               0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
               0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
               0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
               0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
               0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
               0.233    0.00 | 1.800   22.30 | 3.367    9.18 |  4.93    1.31
               0.267    0.66 | 1.833   22.30 | 3.400    9.18 |  4.97    1.31
               0.300    1.31 | 1.867   22.30 | 3.433    9.18 |  5.00    1.31
               0.333    1.31 | 1.900   22.30 | 3.467    9.18 |  5.03    1.31
               0.367    1.31 | 1.933   22.30 | 3.500    9.18 |  5.07    1.31
               0.400    1.31 | 1.967   22.30 | 3.533    9.18 |  5.10    1.31
               0.433    1.31 | 2.000   22.30 | 3.567    9.18 |  5.13    1.31
               0.467    1.31 | 2.033   22.30 | 3.600    9.18 |  5.17    1.31
               0.500    1.31 | 2.067   22.30 | 3.633    9.18 |  5.20    1.31
               0.533    1.31 | 2.100   22.30 | 3.667    9.18 |  5.23    1.31
               0.567    1.31 | 2.133   22.30 | 3.700    9.18 |  5.27    1.31
               0.600    1.31 | 2.167   22.30 | 3.733    9.18 |  5.30    1.31
               0.633    1.31 | 2.200   22.30 | 3.767    7.22 |  5.33    1.31
               0.667    1.31 | 2.233   22.30 | 3.800    5.25 |  5.37    1.31
               0.700    1.31 | 2.267   41.32 | 3.833    5.25 |  5.40    1.31
               0.733    1.31 | 2.300   60.35 | 3.867    5.25 |  5.43    1.31
               0.767    1.31 | 2.333   60.35 | 3.900    5.25 |  5.47    1.31
               0.800    1.31 | 2.367   60.35 | 3.933    5.25 |  5.50    1.31
               0.833    1.31 | 2.400   60.35 | 3.967    5.25 |  5.53    1.31
               0.867    1.31 | 2.433   60.35 | 4.000    5.25 |  5.57    1.31
               0.900    1.31 | 2.467   60.35 | 4.033    5.25 |  5.60    1.31
               0.933    1.31 | 2.500   60.35 | 4.067    5.25 |  5.63    1.31
               0.967    1.31 | 2.533   60.35 | 4.100    5.25 |  5.67    1.31
               1.000    1.31 | 2.567   60.35 | 4.133    5.25 |  5.70    1.31
               1.033    1.31 | 2.600   60.35 | 4.167    5.25 |  5.73    1.31
               1.067    1.31 | 2.633   60.35 | 4.200    5.25 |  5.77    1.31
               1.100    1.31 | 2.667   60.35 | 4.233    5.25 |  5.80    1.31
               1.133    1.31 | 2.700   60.35 | 4.267    3.94 |  5.83    1.31
               1.167    1.31 | 2.733   60.35 | 4.300    2.62 |  5.87    1.31
               1.200    1.31 | 2.767   38.71 | 4.333    2.62 |  5.90    1.31
               1.233    1.31 | 2.800   17.06 | 4.367    2.62 |  5.93    1.31
               1.267    4.59 | 2.833   17.06 | 4.400    2.62 |  5.97    1.31
               1.300    7.87 | 2.867   17.06 | 4.433    2.62 |  6.00    1.31
               1.333    7.87 | 2.900   17.06 | 4.467    2.62 |  6.03    1.31
               1.367    7.87 | 2.933   17.06 | 4.500    2.62 |  6.07    1.31
               1.400    7.87 | 2.967   17.06 | 4.533    2.62 |  6.10    1.31
               1.433    7.87 | 3.000   17.06 | 4.567    2.62 |  6.13    1.31
               1.467    7.87 | 3.033   17.06 | 4.600    2.62 |  6.17    1.31
               1.500    7.87 | 3.067   17.06 | 4.633    2.62 |  6.20    1.31
               1.533    7.87 | 3.100   17.06 | 4.667    2.62 |  6.23    1.31
               1.567    7.87 | 3.133   17.06 | 4.700    2.62 |  6.27    0.66

     Max.Eff.Inten.(mm/hr)=      60.35         31.31
                over (min)        6.00          6.00
     Storage Coeff.  (min)=       5.20 (ii)     5.75 (ii)
     Unit Hyd. Tpeak (min)=       6.00          6.00
     Unit Hyd. peak  (cms)=       0.21          0.19
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.37          0.00        1.367 (iii)
     TIME TO PEAK    (hrs)=       2.73          2.77         2.73
     RUNOFF VOLUME    (mm)=      64.59         26.07        64.55
     TOTAL RAINFALL   (mm)=      65.59         65.59        65.59
     RUNOFF COEFFICIENT   =       0.98          0.40         0.98

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  76.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190      1.367      2.73      64.55
   OUTFLOW: ID= 1 (  0001)      8.190      0.053      4.80      59.84

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.91
                  TIME SHIFT OF PEAK FLOW         (min)=124.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4691

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.053     4.80    59.84
      + ID2= 2 (  1000):    12.09    1.983     2.73    63.55
        ==================================================
        ID = 3 (  0050):    20.28    2.017     2.73    62.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529     0.6450
                          0.1489     0.3600   |   0.4118     0.7130
                          0.2279     0.4770   |   0.4654     0.7790
                          0.2804     0.5520   |   0.0000     0.0000

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280      2.017      2.73      62.05
   OUTFLOW: ID= 1 (  0002)     20.280      0.302      3.83      61.33

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.99
                  TIME SHIFT OF PEAK FLOW         (min)= 66.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5801

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--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30          0.40
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     333.67         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
               0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
               0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
               0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
               0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
               0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
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0.233	0.00	1.800	22.30	3.367	9.18	4.93	1.31
0.267	0.66	1.833	22.30	3.400	9.18	4.97	1.31
0.300	1.31	1.867	22.30	3.433	9.18	5.00	1.31
0.333	1.31	1.900	22.30	3.467	9.18	5.03	1.31
0.367	1.31	1.933	22.30	3.500	9.18	5.07	1.31
0.400	1.31	1.967	22.30	3.533	9.18	5.10	1.31
0.433	1.31	2.000	22.30	3.567	9.18	5.13	1.31
0.467	1.31	2.033	22.30	3.600	9.18	5.17	1.31
0.500	1.31	2.067	22.30	3.633	9.18	5.20	1.31
0.533	1.31	2.100	22.30	3.667	9.18	5.23	1.31
0.567	1.31	2.133	22.30	3.700	9.18	5.27	1.31
0.600	1.31	2.167	22.30	3.733	9.18	5.30	1.31
0.633	1.31	2.200	22.30	3.767	7.22	5.33	1.31
0.667	1.31	2.233	22.30	3.800	5.25	5.37	1.31
0.700	1.31	2.267	41.32	3.833	5.25	5.40	1.31
0.733	1.31	2.300	60.35	3.867	5.25	5.43	1.31
0.767	1.31	2.333	60.35	3.900	5.25	5.47	1.31
0.800	1.31	2.367	60.35	3.933	5.25	5.50	1.31
0.833	1.31	2.400	60.35	3.967	5.25	5.53	1.31
0.867	1.31	2.433	60.35	4.000	5.25	5.57	1.31
0.900	1.31	2.467	60.35	4.033	5.25	5.60	1.31
0.933	1.31	2.500	60.35	4.067	5.25	5.63	1.31
0.967	1.31	2.533	60.35	4.100	5.25	5.67	1.31
1.000	1.31	2.567	60.35	4.133	5.25	5.70	1.31
1.033	1.31	2.600	60.35	4.167	5.25	5.73	1.31
1.067	1.31	2.633	60.35	4.200	5.25	5.77	1.31
1.100	1.31	2.667	60.35	4.233	5.25	5.80	1.31
1.133	1.31	2.700	60.35	4.267	3.94	5.83	1.31
1.167	1.31	2.733	60.35	4.300	2.62	5.87	1.31
1.200	1.31	2.767	38.71	4.333	2.62	5.90	1.31
1.233	1.31	2.800	17.06	4.367	2.62	5.93	1.31
1.267	4.59	2.833	17.06	4.400	2.62	5.97	1.31
1.300	7.87	2.867	17.06	4.433	2.62	6.00	1.31
1.333	7.87	2.900	17.06	4.467	2.62	6.03	1.31
1.367	7.87	2.933	17.06	4.500	2.62	6.07	1.31
1.400	7.87	2.967	17.06	4.533	2.62	6.10	1.31
1.433	7.87	3.000	17.06	4.567	2.62	6.13	1.31
1.467	7.87	3.033	17.06	4.600	2.62	6.17	1.31
1.500	7.87	3.067	17.06	4.633	2.62	6.20	1.31
1.533	7.87	3.100	17.06	4.667	2.62	6.23	1.31
1.567	7.87	3.133	17.06	4.700	2.62	6.27	0.66

```
Max.Eff.Inten.(mm/hr)=      60.35        31.31
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.44 (ii)    8.40 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.18         0.13
                                                    *TOTALS*
PEAK FLOW       (cms)=       2.70         0.03        2.733 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      64.59        26.07        63.67
TOTAL RAINFALL   (mm)=      65.59        65.59        65.59
RUNOFF COEFFICIENT   =       0.98         0.40         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962     0.9400
                          0.1249     0.5210   |   0.3457     1.0420
                          0.1913     0.6910   |   0.3906     1.1420
                          0.2353     0.8020   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700     2.733      2.73      63.67
   OUTFLOW: ID= 1 (  0003)     16.700     0.256      4.07      63.43

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.37
                  TIME SHIFT OF PEAK FLOW         (min)= 80.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8490

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--------------------
| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02          0.34
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     309.41         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	7.87	3.167	17.06	4.73	2.62
0.067	0.00	1.633	7.87	3.200	17.06	4.77	1.97
0.100	0.00	1.667	7.87	3.233	17.06	4.80	1.31
0.133	0.00	1.700	7.87	3.267	13.12	4.83	1.31
0.167	0.00	1.733	7.87	3.300	9.18	4.87	1.31
0.200	0.00	1.767	15.08	3.333	9.18	4.90	1.31
0.233	0.00	1.800	22.30	3.367	9.18	4.93	1.31
0.267	0.66	1.833	22.30	3.400	9.18	4.97	1.31
0.300	1.31	1.867	22.30	3.433	9.18	5.00	1.31
0.333	1.31	1.900	22.30	3.467	9.18	5.03	1.31
0.367	1.31	1.933	22.30	3.500	9.18	5.07	1.31
0.400	1.31	1.967	22.30	3.533	9.18	5.10	1.31
0.433	1.31	2.000	22.30	3.567	9.18	5.13	1.31
0.467	1.31	2.033	22.30	3.600	9.18	5.17	1.31
0.500	1.31	2.067	22.30	3.633	9.18	5.20	1.31
0.533	1.31	2.100	22.30	3.667	9.18	5.23	1.31
0.567	1.31	2.133	22.30	3.700	9.18	5.27	1.31
0.600	1.31	2.167	22.30	3.733	9.18	5.30	1.31
0.633	1.31	2.200	22.30	3.767	7.22	5.33	1.31
0.667	1.31	2.233	22.30	3.800	5.25	5.37	1.31
0.700	1.31	2.267	41.32	3.833	5.25	5.40	1.31
0.733	1.31	2.300	60.35	3.867	5.25	5.43	1.31
0.767	1.31	2.333	60.35	3.900	5.25	5.47	1.31
0.800	1.31	2.367	60.35	3.933	5.25	5.50	1.31
0.833	1.31	2.400	60.35	3.967	5.25	5.53	1.31
0.867	1.31	2.433	60.35	4.000	5.25	5.57	1.31
0.900	1.31	2.467	60.35	4.033	5.25	5.60	1.31
0.933	1.31	2.500	60.35	4.067	5.25	5.63	1.31
0.967	1.31	2.533	60.35	4.100	5.25	5.67	1.31
1.000	1.31	2.567	60.35	4.133	5.25	5.70	1.31
1.033	1.31	2.600	60.35	4.167	5.25	5.73	1.31
1.067	1.31	2.633	60.35	4.200	5.25	5.77	1.31
1.100	1.31	2.667	60.35	4.233	5.25	5.80	1.31
1.133	1.31	2.700	60.35	4.267	3.94	5.83	1.31
1.167	1.31	2.733	60.35	4.300	2.62	5.87	1.31
1.200	1.31	2.767	38.71	4.333	2.62	5.90	1.31
1.233	1.31	2.800	17.06	4.367	2.62	5.93	1.31
1.267	4.59	2.833	17.06	4.400	2.62	5.97	1.31
1.300	7.87	2.867	17.06	4.433	2.62	6.00	1.31
1.333	7.87	2.900	17.06	4.467	2.62	6.03	1.31
1.367	7.87	2.933	17.06	4.500	2.62	6.07	1.31
1.400	7.87	2.967	17.06	4.533	2.62	6.10	1.31
1.433	7.87	3.000	17.06	4.567	2.62	6.13	1.31
1.467	7.87	3.033	17.06	4.600	2.62	6.17	1.31
1.500	7.87	3.067	17.06	4.633	2.62	6.20	1.31
1.533	7.87	3.100	17.06	4.667	2.62	6.23	1.31
1.567	7.87	3.133	17.06	4.700	2.62	6.27	0.66

```
Max.Eff.Inten.(mm/hr)=      60.35        31.31
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.16 (ii)    8.12 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.18         0.13
                                                    *TOTALS*
PEAK FLOW       (cms)=       2.33         0.03        2.354 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      64.59        26.07        63.67
TOTAL RAINFALL   (mm)=      65.59        65.59        65.59
RUNOFF COEFFICIENT   =       0.98         0.40         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584     0.8100
                          0.1090     0.4490   |   0.3017     0.8990
                          0.1669     0.5960   |   0.3408     0.9850
                          0.2053     0.6920   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1200)     14.360     2.354      2.73      63.67
   OUTFLOW: ID= 1 (  0004)     14.360     0.222      4.03      63.45

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.43
                  TIME SHIFT OF PEAK FLOW         (min)= 78.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7290

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
                0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
                0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
                0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
                0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
                0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
                0.233    0.00 | 1.800   22.30 | 3.367    9.18 |  4.93    1.31
                0.267    0.66 | 1.833   22.30 | 3.400    9.18 |  4.97    1.31
                0.300    1.31 | 1.867   22.30 | 3.433    9.18 |  5.00    1.31
                0.333    1.31 | 1.900   22.30 | 3.467    9.18 |  5.03    1.31
                0.367    1.31 | 1.933   22.30 | 3.500    9.18 |  5.07    1.31
                0.400    1.31 | 1.967   22.30 | 3.533    9.18 |  5.10    1.31
                0.433    1.31 | 2.000   22.30 | 3.567    9.18 |  5.13    1.31
                0.467    1.31 | 2.033   22.30 | 3.600    9.18 |  5.17    1.31
                0.500    1.31 | 2.067   22.30 | 3.633    9.18 |  5.20    1.31
                0.533    1.31 | 2.100   22.30 | 3.667    9.18 |  5.23    1.31
                0.567    1.31 | 2.133   22.30 | 3.700    9.18 |  5.27    1.31
                0.600    1.31 | 2.167   22.30 | 3.733    9.18 |  5.30    1.31
                0.633    1.31 | 2.200   22.30 | 3.767    7.22 |  5.33    1.31
                0.667    1.31 | 2.233   22.30 | 3.800    5.25 |  5.37    1.31
                0.700    1.31 | 2.267   41.32 | 3.833    5.25 |  5.40    1.31
                0.733    1.31 | 2.300   60.35 | 3.867    5.25 |  5.43    1.31
                0.767    1.31 | 2.333   60.35 | 3.900    5.25 |  5.47    1.31
                0.800    1.31 | 2.367   60.35 | 3.933    5.25 |  5.50    1.31
                0.833    1.31 | 2.400   60.35 | 3.967    5.25 |  5.53    1.31
                0.867    1.31 | 2.433   60.35 | 4.000    5.25 |  5.57    1.31
                0.900    1.31 | 2.467   60.35 | 4.033    5.25 |  5.60    1.31
                0.933    1.31 | 2.500   60.35 | 4.067    5.25 |  5.63    1.31
                0.967    1.31 | 2.533   60.35 | 4.100    5.25 |  5.67    1.31
                1.000    1.31 | 2.567   60.35 | 4.133    5.25 |  5.70    1.31
                1.033    1.31 | 2.600   60.35 | 4.167    5.25 |  5.73    1.31
                1.067    1.31 | 2.633   60.35 | 4.200    5.25 |  5.77    1.31
                1.100    1.31 | 2.667   60.35 | 4.233    5.25 |  5.80    1.31
                1.133    1.31 | 2.700   60.35 | 4.267    3.94 |  5.83    1.31
                1.167    1.31 | 2.733   60.35 | 4.300    2.62 |  5.87    1.31
                1.200    1.31 | 2.767   38.71 | 4.333    2.62 |  5.90    1.31
                1.233    1.31 | 2.800   17.06 | 4.367    2.62 |  5.93    1.31
                1.267    4.59 | 2.833   17.06 | 4.400    2.62 |  5.97    1.31
                1.300    7.87 | 2.867   17.06 | 4.433    2.62 |  6.00    1.31
                1.333    7.87 | 2.900   17.06 | 4.467    2.62 |  6.03    1.31
                1.367    7.87 | 2.933   17.06 | 4.500    2.62 |  6.07    1.31
                1.400    7.87 | 2.967   17.06 | 4.533    2.62 |  6.10    1.31
                1.433    7.87 | 3.000   17.06 | 4.567    2.62 |  6.13    1.31
                1.467    7.87 | 3.033   17.06 | 4.600    2.62 |  6.17    1.31
                1.500    7.87 | 3.067   17.06 | 4.633    2.62 |  6.20    1.31
                1.533    7.87 | 3.100   17.06 | 4.667    2.62 |  6.23    1.31
                1.567    7.87 | 3.133   17.06 | 4.700    2.62 |  6.27    0.66

     Max.Eff.Inten.(mm/hr)=      60.35        44.18
                over (min)        6.00         6.00
     Storage Coeff.  (min)=       5.21 (ii)    5.75 (ii)
     Unit Hyd. Tpeak (min)=       6.00         6.00
     Unit Hyd. peak  (cms)=       0.21         0.19
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.37         0.00        1.370 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.73         2.73
     RUNOFF VOLUME    (mm)=      64.59        37.25        64.56
     TOTAL RAINFALL   (mm)=      65.59        65.59        65.59
     RUNOFF COEFFICIENT   =       0.98         0.57         0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0005)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
                       DEPTH       STORAGE          |   DEPTH      STORAGE
                       (mm)        (cu.m.)          |   (mm)       (cu.m.)
                        0.00          0.00          |  1041.00      3759.30
                       25.00         49.47          |  1067.00      3854.08
                       51.00         98.94          |  1092.00      3948.08
                       76.00        148.40          |  1118.00      4041.25
                      102.00        197.87          |  1143.00      4133.57
                      127.00        247.34          |  1168.00      4225.00
                      152.00        296.81          |  1194.00      4315.50
                      178.00        346.27          |  1219.00      4405.03
                      203.00        395.74          |  1245.00      4493.56
                      229.00        445.21          |  1270.00      4581.02
                      254.00        554.10          |  1295.00      4667.39
                      279.00        662.70          |  1321.00      4752.59
                      305.00        771.11          |  1346.00      4836.57
                      330.00        879.30          |  1372.00      4919.26
                      356.00        987.27          |  1397.00      5000.60
                      381.00       1095.00          |  1422.00      5080.50
                      406.00       1202.48          |  1448.00      5158.85
                      432.00       1309.70          |  1473.00      5235.54
                      457.00       1416.63          |  1499.00      5310.45
                      483.00       1523.27          |  1524.00      5383.37
                      508.00       1629.60          |  1549.00      5454.08
                      533.00       1735.60          |  1575.00      5522.23
                      559.00       1841.25          |  1600.00      5587.25
                      584.00       1946.55          |  1626.00      5647.31
                      610.00       2051.46          |  1651.00      5703.06
                      635.00       2155.99          |  1676.00      5757.41
                      660.00       2260.10          |  1702.00      5810.73
                      686.00       2363.78          |  1727.00      5862.91
                      711.00       2467.02          |  1753.00      5913.33
                      737.00       2569.79          |  1778.00      5962.80
                      762.00       2672.07          |  1803.00      6012.26
                      787.00       2773.85          |  1829.00      6061.73
                      813.00       2875.11          |  1854.00      6111.20
                      838.00       2975.83          |  1880.00      6160.67
                      864.00       3075.97          |  1905.00      6210.14
                      889.00       3175.53          |  1930.00      6259.60
                      914.00       3274.49          |  1956.00      6309.07
                      940.00       3372.81          |  1981.00      6358.54
                      965.00       3470.48          |  2007.00      6408.01
                      991.00       3567.46          |  2032.00      6457.47
                     1016.00       3663.75          |  2057.00      6506.94

                    DEPTH       DISCHARGE        |   DEPTH      DISCHARGE
                     (m)          (cms)          |    (m)        (cms)
                   0.000         0.000           |  0.460        0.066
                   0.010         0.011           |  0.510        0.069
                   0.060         0.024           |  0.560        0.072
                   0.110         0.032           |  0.610        0.075
                   0.160         0.039           |  0.660        0.079
                   0.210         0.045           |  0.710        0.081
                   0.260         0.049           |  0.760        0.084
                   0.310         0.054           |  0.810        0.087
                   0.360         0.058           |  0.860        0.090
                   0.410         0.062           |  0.910        0.092
```

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```
                    NATIVE SOIL LAYER:
                    Infiltration (m/hr) = 0.0051

                       AREA        QPEAK           TPEAK         R.V.
                       (ha)        (cms)           (hrs)         (mm)
     INFLOW:ID= 2      8.21        1.370            2.73        64.56
    OUTFLOW:ID= 1      8.21        0.095            4.32        52.22
   OVERFLOW:ID= 3      0.00        0.000            0.00         0.00

              Volume Reduction Rate[(RVin-RVout)/RVin](%)=       19.12
              Time to reach Max storage              (Hr)=        4.32
              Volume of water for drawdown in LID (cu.m.)=     3710.27
              Volume of maximum water storage     (cu.m.)=     4287.17
              Calculated Drawdown Time               (Hr)=       35.07

  --------------------------
  | Junction Command(0052) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0005)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0052)   0.00     0.00    0.00     0.00

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

  --------------------------
  | Junction Command(0051) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 1(  0005)   8.21     0.09    4.32    52.22
  OUTFLOW: ID= 2(  0051)   8.21     0.09    4.32    52.22

  ------------------------------------------------------------------------------
************************************
** SIMULATION:Run 05 50yr 6hr AES **
************************************

--------------------
|    READ STORM    |     Filename: C:\Users\chanj\AppD
|                  |               ata\Local\Temp\
|                  |               ad768157-8d6b-45b9-886e-ee6b263b8ba1\6fadecc3
| Ptotal= 73.00 mm |     Comments: 50yr/6hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  2.00   24.82 |   3.75   10.22 |  5.50    1.46
                 0.50    1.46 |  2.25   24.82 |   4.00    5.84 |  5.75    1.46
                 0.75    1.46 |  2.50   67.16 |   4.25    5.84 |  6.00    1.46
                 1.00    1.46 |  2.75   67.16 |   4.50    2.92 |  6.25    1.46
                 1.25    1.46 |  3.00   18.98 |   4.75    2.92 |
                 1.50    8.76 |  3.25   18.98 |   5.00    1.46 |
                 1.75    8.76 |  3.50   10.22 |   5.25    1.46 |

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76         0.33
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     283.90        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    8.76 | 3.167   18.98 |  4.73    2.92
                0.067    0.00 | 1.633    8.76 | 3.200   18.98 |  4.77    2.19
                0.100    0.00 | 1.667    8.76 | 3.233   18.98 |  4.80    1.46
                0.133    0.00 | 1.700    8.76 | 3.267   14.60 |  4.83    1.46
                0.167    0.00 | 1.733    8.76 | 3.300   10.22 |  4.87    1.46
                0.200    0.00 | 1.767   16.79 | 3.333   10.22 |  4.90    1.46
                0.233    0.00 | 1.800   24.82 | 3.367   10.22 |  4.93    1.46
                0.267    0.73 | 1.833   24.82 | 3.400   10.22 |  4.97    1.46
                0.300    1.46 | 1.867   24.82 | 3.433   10.22 |  5.00    1.46
                0.333    1.46 | 1.900   24.82 | 3.467   10.22 |  5.03    1.46
                0.367    1.46 | 1.933   24.82 | 3.500   10.22 |  5.07    1.46
                0.400    1.46 | 1.967   24.82 | 3.533   10.22 |  5.10    1.46
                0.433    1.46 | 2.000   24.82 | 3.567   10.22 |  5.13    1.46
                0.467    1.46 | 2.033   24.82 | 3.600   10.22 |  5.17    1.46
                0.500    1.46 | 2.067   24.82 | 3.633   10.22 |  5.20    1.46
                0.533    1.46 | 2.100   24.82 | 3.667   10.22 |  5.23    1.46
                0.567    1.46 | 2.133   24.82 | 3.700   10.22 |  5.27    1.46
                0.600    1.46 | 2.167   24.82 | 3.733   10.22 |  5.30    1.46
                0.633    1.46 | 2.200   24.82 | 3.767    8.03 |  5.33    1.46
                0.667    1.46 | 2.233   24.82 | 3.800    5.84 |  5.37    1.46
                0.700    1.46 | 2.267   45.99 | 3.833    5.84 |  5.40    1.46
                0.733    1.46 | 2.300   67.16 | 3.867    5.84 |  5.43    1.46
                0.767    1.46 | 2.333   67.16 | 3.900    5.84 |  5.47    1.46
                0.800    1.46 | 2.367   67.16 | 3.933    5.84 |  5.50    1.46
                0.833    1.46 | 2.400   67.16 | 3.967    5.84 |  5.53    1.46
                0.867    1.46 | 2.433   67.16 | 4.000    5.84 |  5.57    1.46
                0.900    1.46 | 2.467   67.16 | 4.033    5.84 |  5.60    1.46
                0.933    1.46 | 2.500   67.16 | 4.067    5.84 |  5.63    1.46
                0.967    1.46 | 2.533   67.16 | 4.100    5.84 |  5.67    1.46
                1.000    1.46 | 2.567   67.16 | 4.133    5.84 |  5.70    1.46
                1.033    1.46 | 2.600   67.16 | 4.167    5.84 |  5.73    1.46
                1.067    1.46 | 2.633   67.16 | 4.200    5.84 |  5.77    1.46
                1.100    1.46 | 2.667   67.16 | 4.233    5.84 |  5.80    1.46
                1.133    1.46 | 2.700   67.16 | 4.267    4.38 |  5.83    1.46
                1.167    1.46 | 2.733   67.16 | 4.300    2.92 |  5.87    1.46
                1.200    1.46 | 2.767   43.07 | 4.333    2.92 |  5.90    1.46
                1.233    1.46 | 2.800   18.98 | 4.367    2.92 |  5.93    1.46
                1.267    5.11 | 2.833   18.98 | 4.400    2.92 |  5.97    1.46
                1.300    8.76 | 2.867   18.98 | 4.433    2.92 |  6.00    1.46
                1.333    8.76 | 2.900   18.98 | 4.467    2.92 |  6.03    1.46
                1.367    8.76 | 2.933   18.98 | 4.500    2.92 |  6.07    1.46
                1.400    8.76 | 2.967   18.98 | 4.533    2.92 |  6.10    1.46
                1.433    8.76 | 3.000   18.98 | 4.567    2.92 |  6.13    1.46
                1.467    8.76 | 3.033   18.98 | 4.600    2.92 |  6.17    1.46
                1.500    8.76 | 3.067   18.98 | 4.633    2.92 |  6.20    1.46
                1.533    8.76 | 3.100   18.98 | 4.667    2.92 |  6.23    1.46
                1.567    8.76 | 3.133   18.98 | 4.700    2.92 |  6.27    0.73

     Max.Eff.Inten.(mm/hr)=      67.16        37.25
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.60 (ii)    7.58 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.20         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.18         0.03        2.212 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77         2.73
     RUNOFF VOLUME    (mm)=      72.00        31.20        70.90
     TOTAL RAINFALL   (mm)=      73.00        73.00        73.00
     RUNOFF COEFFICIENT   =       0.99         0.43         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. 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 (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.67        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    8.76 | 3.167   18.98 |  4.73    2.92
                0.067    0.00 | 1.633    8.76 | 3.200   18.98 |  4.77    2.19
                0.100    0.00 | 1.667    8.76 | 3.233   18.98 |  4.80    1.46
                0.133    0.00 | 1.700    8.76 | 3.267   14.60 |  4.83    1.46
                0.167    0.00 | 1.733    8.76 | 3.300   10.22 |  4.87    1.46
                0.200    0.00 | 1.767   16.79 | 3.333   10.22 |  4.90    1.46
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0.233	0.00	1.800	24.82	3.367	10.22	4.93	1.46
0.267	0.73	1.833	24.82	3.400	10.22	4.97	1.46
0.300	1.46	1.867	24.82	3.433	10.22	5.00	1.46
0.333	1.46	1.900	24.82	3.467	10.22	5.03	1.46
0.367	1.46	1.933	24.82	3.500	10.22	5.07	1.46
0.400	1.46	1.967	24.82	3.533	10.22	5.10	1.46
0.433	1.46	2.000	24.82	3.567	10.22	5.13	1.46
0.467	1.46	2.033	24.82	3.600	10.22	5.17	1.46
0.500	1.46	2.067	24.82	3.633	10.22	5.20	1.46
0.533	1.46	2.100	24.82	3.667	10.22	5.23	1.46
0.567	1.46	2.133	24.82	3.700	10.22	5.27	1.46
0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

```
Max.Eff.Inten.(mm/hr)=      67.16        37.25
            over (min)       5.00         6.00
Storage Coeff.  (min)=       4.98 (ii)    5.51 (ii)
Unit Hyd. Tpeak (min)=       4.00         6.00
Unit Hyd. peak  (cms)=       0.24         0.20
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.52         0.00        1.523 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      72.00        31.20        71.96
TOTAL RAINFALL   (mm)=      73.00        73.00        73.00
RUNOFF COEFFICIENT   =       0.99         0.43         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190     1.523      2.73      71.96
   OUTFLOW: ID= 1 (  0001)      8.190     0.060      4.80      66.71

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.91
                  TIME SHIFT OF PEAK FLOW         (min)=124.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5229

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)

        ID1= 1 (  0001):     8.19   0.060     4.80    66.71
      + ID2= 2 (  1000):    12.09   2.212     2.73    70.90
        ==================================================
        ID = 3 (  0050):    20.28   2.251     2.73    69.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6450
                          0.1489     0.3600   |   0.4118      0.7130
                          0.2279     0.4770   |   0.4654      0.7790
                          0.2804     0.5520   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280     2.251      2.73      69.21
   OUTFLOW: ID= 1 (  0002)     20.280     0.350      3.83      68.40

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.56
                  TIME SHIFT OF PEAK FLOW         (min)= 66.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6416

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.30          0.40
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      333.67         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    8.76 | 3.167   18.98 |  4.73    2.92
               0.067    0.00 | 1.633    8.76 | 3.200   18.98 |  4.77    2.19
               0.100    0.00 | 1.667    8.76 | 3.233   18.98 |  4.80    1.46
               0.133    0.00 | 1.700    8.76 | 3.267   14.60 |  4.83    1.46
               0.167    0.00 | 1.733    8.76 | 3.300   10.22 |  4.87    1.46
               0.200    0.00 | 1.767   16.79 | 3.333   10.22 |  4.90    1.46
               0.233    0.00 | 1.800   24.82 | 3.367   10.22 |  4.93    1.46
               0.267    0.73 | 1.833   24.82 | 3.400   10.22 |  4.97    1.46
               0.300    1.46 | 1.867   24.82 | 3.433   10.22 |  5.00    1.46
               0.333    1.46 | 1.900   24.82 | 3.467   10.22 |  5.03    1.46
               0.367    1.46 | 1.933   24.82 | 3.500   10.22 |  5.07    1.46
               0.400    1.46 | 1.967   24.82 | 3.533   10.22 |  5.10    1.46
               0.433    1.46 | 2.000   24.82 | 3.567   10.22 |  5.13    1.46
               0.467    1.46 | 2.033   24.82 | 3.600   10.22 |  5.17    1.46
               0.500    1.46 | 2.067   24.82 | 3.633   10.22 |  5.20    1.46
               0.533    1.46 | 2.100   24.82 | 3.667   10.22 |  5.23    1.46
               0.567    1.46 | 2.133   24.82 | 3.700   10.22 |  5.27    1.46
               0.600    1.46 | 2.167   24.82 | 3.733   10.22 |  5.30    1.46
               0.633    1.46 | 2.200   24.82 | 3.767    8.03 |  5.33    1.46
               0.667    1.46 | 2.233   24.82 | 3.800    5.84 |  5.37    1.46
               0.700    1.46 | 2.267   45.99 | 3.833    5.84 |  5.40    1.46
               0.733    1.46 | 2.300   67.16 | 3.867    5.84 |  5.43    1.46
               0.767    1.46 | 2.333   67.16 | 3.900    5.84 |  5.47    1.46
               0.800    1.46 | 2.367   67.16 | 3.933    5.84 |  5.50    1.46
               0.833    1.46 | 2.400   67.16 | 3.967    5.84 |  5.53    1.46
               0.867    1.46 | 2.433   67.16 | 4.000    5.84 |  5.57    1.46
               0.900    1.46 | 2.467   67.16 | 4.033    5.84 |  5.60    1.46
               0.933    1.46 | 2.500   67.16 | 4.067    5.84 |  5.63    1.46
               0.967    1.46 | 2.533   67.16 | 4.100    5.84 |  5.67    1.46
               1.000    1.46 | 2.567   67.16 | 4.133    5.84 |  5.70    1.46
               1.033    1.46 | 2.600   67.16 | 4.167    5.84 |  5.73    1.46
               1.067    1.46 | 2.633   67.16 | 4.200    5.84 |  5.77    1.46
               1.100    1.46 | 2.667   67.16 | 4.233    5.84 |  5.80    1.46
               1.133    1.46 | 2.700   67.16 | 4.267    4.38 |  5.83    1.46
               1.167    1.46 | 2.733   67.16 | 4.300    2.92 |  5.87    1.46
               1.200    1.46 | 2.767   43.07 | 4.333    2.92 |  5.90    1.46
               1.233    1.46 | 2.800   18.98 | 4.367    2.92 |  5.93    1.46
               1.267    5.11 | 2.833   18.98 | 4.400    2.92 |  5.97    1.46
               1.300    8.76 | 2.867   18.98 | 4.433    2.92 |  6.00    1.46
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1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

```
Max.Eff.Inten.(mm/hr)=      67.16        37.25
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.17 (ii)    8.05 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.18         0.13
                                                    *TOTALS*
PEAK FLOW       (cms)=       3.01         0.04        3.049 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      72.00        31.20        71.02
TOTAL RAINFALL   (mm)=      73.00        73.00        73.00
RUNOFF COEFFICIENT   =       0.99         0.43         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962      0.9400
                          0.1249     0.5210   |   0.3457      1.0420
                          0.1913     0.6910   |   0.3906      1.1420
                          0.2353     0.8020   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700     3.049      2.73      71.02
   OUTFLOW: ID= 1 (  0003)     16.700     0.297      4.00      70.77

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.74
                  TIME SHIFT OF PEAK FLOW         (min)= 76.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.9415

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--------------------
| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     309.41        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    8.76 | 3.167   18.98 |  4.73    2.92
               0.067    0.00 | 1.633    8.76 | 3.200   18.98 |  4.77    2.19
               0.100    0.00 | 1.667    8.76 | 3.233   18.98 |  4.80    1.46
               0.133    0.00 | 1.700    8.76 | 3.267   14.60 |  4.83    1.46
               0.167    0.00 | 1.733    8.76 | 3.300   10.22 |  4.87    1.46
               0.200    0.00 | 1.767   16.79 | 3.333   10.22 |  4.90    1.46
               0.233    0.00 | 1.800   24.82 | 3.367   10.22 |  4.93    1.46
               0.267    0.73 | 1.833   24.82 | 3.400   10.22 |  4.97    1.46
               0.300    1.46 | 1.867   24.82 | 3.433   10.22 |  5.00    1.46
               0.333    1.46 | 1.900   24.82 | 3.467   10.22 |  5.03    1.46
               0.367    1.46 | 1.933   24.82 | 3.500   10.22 |  5.07    1.46
               0.400    1.46 | 1.967   24.82 | 3.533   10.22 |  5.10    1.46
               0.433    1.46 | 2.000   24.82 | 3.567   10.22 |  5.13    1.46
               0.467    1.46 | 2.033   24.82 | 3.600   10.22 |  5.17    1.46
               0.500    1.46 | 2.067   24.82 | 3.633   10.22 |  5.20    1.46
               0.533    1.46 | 2.100   24.82 | 3.667   10.22 |  5.23    1.46
               0.567    1.46 | 2.133   24.82 | 3.700   10.22 |  5.27    1.46
```

0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

```
Max.Eff.Inten.(mm/hr)=      67.16        37.25
            over (min)       6.00         8.00
Storage Coeff.  (min)=       5.90 (ii)    7.78 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.19         0.14
                                                    *TOTALS*
PEAK FLOW       (cms)=       2.60         0.03        2.627 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      72.00        31.20        71.02
TOTAL RAINFALL   (mm)=      73.00        73.00        73.00
RUNOFF COEFFICIENT   =       0.99         0.43         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584      0.8100
                          0.1090     0.4490   |   0.3017      0.8990
                          0.1669     0.5960   |   0.3408      0.9850
                          0.2053     0.6920   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1200)     14.360     2.627      2.73      71.02
   OUTFLOW: ID= 1 (  0004)     14.360     0.258      3.97      70.78

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.81
                  TIME SHIFT OF PEAK FLOW         (min)= 74.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8084

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.95        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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TOWN OF CALEDON
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	8.76	3.167	18.98	4.73	2.92
0.067	0.00	1.633	8.76	3.200	18.98	4.77	2.19
0.100	0.00	1.667	8.76	3.233	18.98	4.80	1.46
0.133	0.00	1.700	8.76	3.267	14.60	4.83	1.46
0.167	0.00	1.733	8.76	3.300	10.22	4.87	1.46
0.200	0.00	1.767	16.79	3.333	10.22	4.90	1.46
0.233	0.00	1.800	24.82	3.367	10.22	4.93	1.46
0.267	0.73	1.833	24.82	3.400	10.22	4.97	1.46
0.300	1.46	1.867	24.82	3.433	10.22	5.00	1.46
0.333	1.46	1.900	24.82	3.467	10.22	5.03	1.46
0.367	1.46	1.933	24.82	3.500	10.22	5.07	1.46
0.400	1.46	1.967	24.82	3.533	10.22	5.10	1.46
0.433	1.46	2.000	24.82	3.567	10.22	5.13	1.46
0.467	1.46	2.033	24.82	3.600	10.22	5.17	1.46
0.500	1.46	2.067	24.82	3.633	10.22	5.20	1.46
0.533	1.46	2.100	24.82	3.667	10.22	5.23	1.46
0.567	1.46	2.133	24.82	3.700	10.22	5.27	1.46
0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

Max.Eff.Inten.(mm/hr)=	67.16	51.20	
over (min)	5.00	6.00	
Storage Coeff. (min)=	4.99 (ii)	5.51 (ii)	
Unit Hyd. Tpeak (min)=	4.00	6.00	
Unit Hyd. peak (cms)=	0.24	0.20	
			TOTALS
PEAK FLOW (cms)=	1.53	0.00	1.527 (iii)
TIME TO PEAK (hrs)=	2.73	2.73	2.73
RUNOFF VOLUME (mm)=	72.00	43.64	71.97
TOTAL RAINFALL (mm)=	73.00	73.00	73.00
RUNOFF COEFFICIENT =	0.99	0.60	0.99

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 87.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CHAMBER(0005)	OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON
IN= 2--> OUT= 3	CHAMBER:
DT= 1.0 min	MAX STO VOL (cu.m.)= 6506.94 Bottom Area(m2) = 4870.00

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	1.527	2.73	71.97
OUTFLOW:ID= 1	8.21	0.103	4.30	59.18
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)=	17.77
Time to reach Max storage (Hr)=	4.30
Volume of water for drawdown in LID (cu.m.)=	4200.69
Volume of maximum water storage (cu.m.)=	4807.36
Calculated Drawdown Time (Hr)=	36.48

Junction Command(0052)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0005)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0052)	0.00	0.00	0.00	0.00

Junction Command(0051)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0005)	8.21	0.10	4.30	59.18

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  OUTFLOW: ID= 2(  0051)    8.21     0.10    4.30    59.18

  ---------------------------------------------------------------------------------
****************************************
** SIMULATION:Run 06 100yr 6hr AES **
****************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              ad768157-8d6b-45b9-886e-ee6b263b8ba1\ca56a851
| Ptotal= 80.31 mm |    Comments: 100yr/6hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.00 |  2.00   27.30 |   3.75   11.24 |  5.50    1.61
                0.50    1.61 |  2.25   27.30 |   4.00    6.42 |  5.75    1.61
                0.75    1.61 |  2.50   73.88 |   4.25    6.42 |  6.00    1.61
                1.00    1.61 |  2.75   73.88 |   4.50    3.21 |  6.25    1.61
                1.25    1.61 |  3.00   20.88 |   4.75    3.21 |
                1.50    9.64 |  3.25   20.88 |   5.00    1.61 |
                1.75    9.64 |  3.50   11.24 |   5.25    1.61 |

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.76          0.33
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      283.90         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    9.64 | 3.167   20.88 |  4.73    3.21
               0.067    0.00 | 1.633    9.64 | 3.200   20.88 |  4.77    2.41
               0.100    0.00 | 1.667    9.64 | 3.233   20.88 |  4.80    1.61
               0.133    0.00 | 1.700    9.64 | 3.267   16.06 |  4.83    1.61
               0.167    0.00 | 1.733    9.64 | 3.300   11.24 |  4.87    1.61
               0.200    0.00 | 1.767   18.47 | 3.333   11.24 |  4.90    1.61
               0.233    0.00 | 1.800   27.30 | 3.367   11.24 |  4.93    1.61
               0.267    0.81 | 1.833   27.30 | 3.400   11.24 |  4.97    1.61
               0.300    1.61 | 1.867   27.30 | 3.433   11.24 |  5.00    1.61
               0.333    1.61 | 1.900   27.30 | 3.467   11.24 |  5.03    1.61
               0.367    1.61 | 1.933   27.30 | 3.500   11.24 |  5.07    1.61
               0.400    1.61 | 1.967   27.30 | 3.533   11.24 |  5.10    1.61
               0.433    1.61 | 2.000   27.30 | 3.567   11.24 |  5.13    1.61
               0.467    1.61 | 2.033   27.30 | 3.600   11.24 |  5.17    1.61
               0.500    1.61 | 2.067   27.30 | 3.633   11.24 |  5.20    1.61
               0.533    1.61 | 2.100   27.30 | 3.667   11.24 |  5.23    1.61
               0.567    1.61 | 2.133   27.30 | 3.700   11.24 |  5.27    1.61
               0.600    1.61 | 2.167   27.30 | 3.733   11.24 |  5.30    1.61
               0.633    1.61 | 2.200   27.30 | 3.767    8.83 |  5.33    1.61
               0.667    1.61 | 2.233   27.30 | 3.800    6.42 |  5.37    1.61
               0.700    1.61 | 2.267   50.59 | 3.833    6.42 |  5.40    1.61
               0.733    1.61 | 2.300   73.88 | 3.867    6.42 |  5.43    1.61
               0.767    1.61 | 2.333   73.88 | 3.900    6.42 |  5.47    1.61
               0.800    1.61 | 2.367   73.88 | 3.933    6.42 |  5.50    1.61
               0.833    1.61 | 2.400   73.88 | 3.967    6.42 |  5.53    1.61
               0.867    1.61 | 2.433   73.88 | 4.000    6.42 |  5.57    1.61
               0.900    1.61 | 2.467   73.88 | 4.033    6.42 |  5.60    1.61
               0.933    1.61 | 2.500   73.88 | 4.067    6.42 |  5.63    1.61
               0.967    1.61 | 2.533   73.88 | 4.100    6.42 |  5.67    1.61
               1.000    1.61 | 2.567   73.88 | 4.133    6.42 |  5.70    1.61
               1.033    1.61 | 2.600   73.88 | 4.167    6.42 |  5.73    1.61
               1.067    1.61 | 2.633   73.88 | 4.200    6.42 |  5.77    1.61
               1.100    1.61 | 2.667   73.88 | 4.233    6.42 |  5.80    1.61
               1.133    1.61 | 2.700   73.88 | 4.267    4.82 |  5.83    1.61
               1.167    1.61 | 2.733   73.88 | 4.300    3.21 |  5.87    1.61
               1.200    1.61 | 2.767   47.38 | 4.333    3.21 |  5.90    1.61
               1.233    1.61 | 2.800   20.88 | 4.367    3.21 |  5.93    1.61
               1.267    5.63 | 2.833   20.88 | 4.400    3.21 |  5.97    1.61
               1.300    9.64 | 2.867   20.88 | 4.433    3.21 |  6.00    1.61
               1.333    9.64 | 2.900   20.88 | 4.467    3.21 |  6.03    1.61
               1.367    9.64 | 2.933   20.88 | 4.500    3.21 |  6.07    1.61
               1.400    9.64 | 2.967   20.88 | 4.533    3.21 |  6.10    1.61
               1.433    9.64 | 3.000   20.88 | 4.567    3.21 |  6.13    1.61
               1.467    9.64 | 3.033   20.88 | 4.600    3.21 |  6.17    1.61
               1.500    9.64 | 3.067   20.88 | 4.633    3.21 |  6.20    1.61
               1.533    9.64 | 3.100   20.88 | 4.667    3.21 |  6.23    1.61
               1.567    9.64 | 3.133   20.88 | 4.700    3.21 |  6.27    0.81

     Max.Eff.Inten.(mm/hr)=      73.88        43.31
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.39 (ii)    7.29 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.20         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.40         0.04        2.438 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77         2.73
     RUNOFF VOLUME    (mm)=      79.31        36.47        78.15
     TOTAL RAINFALL   (mm)=      80.31        80.31        80.31
     RUNOFF COEFFICIENT   =       0.99         0.45         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. 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 (  0900)|   Area    (ha)=   8.19
  |ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
  --------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.18          0.01
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      233.67         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    9.64 | 3.167   20.88 |  4.73    3.21
               0.067    0.00 | 1.633    9.64 | 3.200   20.88 |  4.77    2.41
               0.100    0.00 | 1.667    9.64 | 3.233   20.88 |  4.80    1.61
               0.133    0.00 | 1.700    9.64 | 3.267   16.06 |  4.83    1.61
               0.167    0.00 | 1.733    9.64 | 3.300   11.24 |  4.87    1.61
               0.200    0.00 | 1.767   18.47 | 3.333   11.24 |  4.90    1.61
               0.233    0.00 | 1.800   27.30 | 3.367   11.24 |  4.93    1.61
               0.267    0.81 | 1.833   27.30 | 3.400   11.24 |  4.97    1.61
               0.300    1.61 | 1.867   27.30 | 3.433   11.24 |  5.00    1.61
               0.333    1.61 | 1.900   27.30 | 3.467   11.24 |  5.03    1.61
               0.367    1.61 | 1.933   27.30 | 3.500   11.24 |  5.07    1.61
               0.400    1.61 | 1.967   27.30 | 3.533   11.24 |  5.10    1.61
               0.433    1.61 | 2.000   27.30 | 3.567   11.24 |  5.13    1.61
               0.467    1.61 | 2.033   27.30 | 3.600   11.24 |  5.17    1.61
               0.500    1.61 | 2.067   27.30 | 3.633   11.24 |  5.20    1.61
               0.533    1.61 | 2.100   27.30 | 3.667   11.24 |  5.23    1.61
               0.567    1.61 | 2.133   27.30 | 3.700   11.24 |  5.27    1.61
               0.600    1.61 | 2.167   27.30 | 3.733   11.24 |  5.30    1.61
               0.633    1.61 | 2.200   27.30 | 3.767    8.83 |  5.33    1.61
               0.667    1.61 | 2.233   27.30 | 3.800    6.42 |  5.37    1.61
               0.700    1.61 | 2.267   50.59 | 3.833    6.42 |  5.40    1.61
               0.733    1.61 | 2.300   73.88 | 3.867    6.42 |  5.43    1.61
               0.767    1.61 | 2.333   73.88 | 3.900    6.42 |  5.47    1.61
               0.800    1.61 | 2.367   73.88 | 3.933    6.42 |  5.50    1.61
               0.833    1.61 | 2.400   73.88 | 3.967    6.42 |  5.53    1.61
               0.867    1.61 | 2.433   73.88 | 4.000    6.42 |  5.57    1.61
               0.900    1.61 | 2.467   73.88 | 4.033    6.42 |  5.60    1.61
               0.933    1.61 | 2.500   73.88 | 4.067    6.42 |  5.63    1.61
               0.967    1.61 | 2.533   73.88 | 4.100    6.42 |  5.67    1.61
               1.000    1.61 | 2.567   73.88 | 4.133    6.42 |  5.70    1.61
               1.033    1.61 | 2.600   73.88 | 4.167    6.42 |  5.73    1.61
               1.067    1.61 | 2.633   73.88 | 4.200    6.42 |  5.77    1.61
               1.100    1.61 | 2.667   73.88 | 4.233    6.42 |  5.80    1.61
               1.133    1.61 | 2.700   73.88 | 4.267    4.82 |  5.83    1.61
               1.167    1.61 | 2.733   73.88 | 4.300    3.21 |  5.87    1.61
               1.200    1.61 | 2.767   47.38 | 4.333    3.21 |  5.90    1.61
               1.233    1.61 | 2.800   20.88 | 4.367    3.21 |  5.93    1.61
               1.267    5.63 | 2.833   20.88 | 4.400    3.21 |  5.97    1.61
               1.300    9.64 | 2.867   20.88 | 4.433    3.21 |  6.00    1.61
```

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1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.567	9.64	3.133	20.88	4.700	3.21	6.27	0.81

```
     Max.Eff.Inten.(mm/hr)=      73.88        43.31
                over (min)        5.00         6.00
     Storage Coeff.  (min)=       4.80 (ii)    5.30 (ii)
     Unit Hyd. Tpeak (min)=       4.00         6.00
     Unit Hyd. peak  (cms)=       0.25         0.20
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.68         0.00         1.677 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.73          2.73
     RUNOFF VOLUME    (mm)=      79.31        36.47         79.27
     TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
     RUNOFF COEFFICIENT   =       0.99         0.45          0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190      1.677      2.73      79.27
   OUTFLOW: ID= 1 (  0001)      8.190      0.066      4.80      73.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.91
                  TIME SHIFT OF PEAK FLOW         (min)=124.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5759

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


--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.066     4.80    73.49
      + ID2= 2 (  1000):     12.09    2.438     2.73    78.15
        ===================================================
        ID = 3 (  0050):     20.28    2.481     2.73    76.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6450
                          0.1489     0.3600   |   0.4118      0.7130
                          0.2279     0.4770   |   0.4654      0.7790
                          0.2804     0.5520   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280      2.481      2.73      76.27
   OUTFLOW: ID= 1 (  0002)     20.280      0.401      3.80      75.38

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.17
                  TIME SHIFT OF PEAK FLOW         (min)= 64.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7008

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                             IMPERVIOUS    PERVIOUS (i)
```

```
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	2.41
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.133	0.00	1.700	9.64	3.267	16.06	4.83	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.200	0.00	1.767	18.47	3.333	11.24	4.90	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.267	0.81	1.833	27.30	3.400	11.24	4.97	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.633	1.61	2.200	27.30	3.767	8.83	5.33	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.700	1.61	2.267	50.59	3.833	6.42	5.40	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.133	1.61	2.700	73.88	4.267	4.82	5.83	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.200	1.61	2.767	47.38	4.333	3.21	5.90	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.267	5.63	2.833	20.88	4.400	3.21	5.97	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.567	9.64	3.133	20.88	4.700	3.21	6.27	0.81

```
     Max.Eff.Inten.(mm/hr)=      73.88        43.31
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.94 (ii)    7.75 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.19         0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       3.32         0.04         3.363 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77          2.73
     RUNOFF VOLUME    (mm)=      79.31        36.47         78.28
     TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
     RUNOFF COEFFICIENT   =       0.99         0.45          0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
```

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(cms)	(ha.m.)	(cms)	(ha.m.)
0.0000	0.0000	0.2962	0.9400
0.1249	0.5210	0.3457	1.0420
0.1913	0.6910	0.3906	1.1420
0.2353	0.8020	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1100)	16.700	3.363	2.73	78.28
OUTFLOW: ID= 1 (0003)	16.700	0.341	3.97	78.01

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.13
TIME SHIFT OF PEAK FLOW (min)= 74.00
MAXIMUM STORAGE USED (ha.m.)= 1.0318

CALIB STANDHYD (1200) ID= 1 DT= 2.0 min	Area (ha)= 14.36 Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	2.41
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.133	0.00	1.700	9.64	3.267	16.06	4.83	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.200	0.00	1.767	18.47	3.333	11.24	4.90	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.267	0.81	1.833	27.30	3.400	11.24	4.97	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.633	1.61	2.200	27.30	3.767	8.83	5.33	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.700	1.61	2.267	50.59	3.833	6.42	5.40	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.133	1.61	2.700	73.88	4.267	4.82	5.83	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.200	1.61	2.767	47.38	4.333	3.21	5.90	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.267	5.63	2.833	20.88	4.400	3.21	5.97	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.567	9.64	3.133	20.88	4.700	3.21	6.27	0.81

Max.Eff.Inten.(mm/hr)=		73.88	43.31
over (min)		6.00	8.00

Storage Coeff.	(min)=	5.68 (ii)	7.49 (ii)	
Unit Hyd. Tpeak	(min)=	6.00	8.00	
Unit Hyd. peak	(cms)=	0.19	0.15	
				TOTALS
PEAK FLOW	(cms)=	2.86	0.04	2.896 (iii)
TIME TO PEAK	(hrs)=	2.73	2.77	2.73
RUNOFF VOLUME	(mm)=	79.31	36.47	78.28
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.99	0.45	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2584	0.8100
0.1090	0.4490	0.3017	0.8990
0.1669	0.5960	0.3408	0.9850
0.2053	0.6920	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1200)	14.360	2.896	2.73	78.28
OUTFLOW: ID= 1 (0004)	14.360	0.295	3.93	78.03

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.20
TIME SHIFT OF PEAK FLOW (min)= 72.00
MAXIMUM STORAGE USED (ha.m.)= 0.8860

CALIB STANDHYD (1300) ID= 1 DT= 2.0 min	Area (ha)= 8.21 Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.20	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.95	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	2.41
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.133	0.00	1.700	9.64	3.267	16.06	4.83	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.200	0.00	1.767	18.47	3.333	11.24	4.90	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.267	0.81	1.833	27.30	3.400	11.24	4.97	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.633	1.61	2.200	27.30	3.767	8.83	5.33	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.700	1.61	2.267	50.59	3.833	6.42	5.40	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61

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0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.133	1.61	2.700	73.88	4.267	4.82	5.83	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.200	1.61	2.767	47.38	4.333	3.21	5.90	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.267	5.63	2.833	20.88	4.400	3.21	5.97	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.567	9.64	3.133	20.88	4.700	3.21	6.27	0.81

```
Max.Eff.Inten.(mm/hr)=      73.88        58.19
            over (min)       5.00         6.00
Storage Coeff.  (min)=       4.80 (ii)    5.30 (ii)
Unit Hyd. Tpeak (min)=       4.00         6.00
Unit Hyd. peak  (cms)=       0.25         0.20
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.68         0.00        1.681 (iii)
TIME TO PEAK    (hrs)=       2.73         2.73         2.73
RUNOFF VOLUME    (mm)=      79.31        50.07        79.28
TOTAL RAINFALL   (mm)=      80.31        80.31        80.31
RUNOFF COEFFICIENT   =       0.99         0.62         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0005)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	1.681	2.73	79.28
OUTFLOW:ID= 1	8.21	0.111	4.30	66.09
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=       16.64
Time to reach Max storage              (Hr)=        4.30
Volume of water for drawdown in LID (cu.m.)=     4673.31
Volume of maximum water storage     (cu.m.)=     5318.08
Calculated Drawdown Time               (Hr)=       37.75

-------------------------
| Junction Command(0052) |
-------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0005)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0052)	0.00	0.00	0.00	0.00

```
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-------------------------
| Junction Command(0051) |
-------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0005)	8.21	0.11	4.30	66.09
OUTFLOW: ID= 2(0051)	8.21	0.11	4.30	66.09

```
--------------------------------------------------------------------------------
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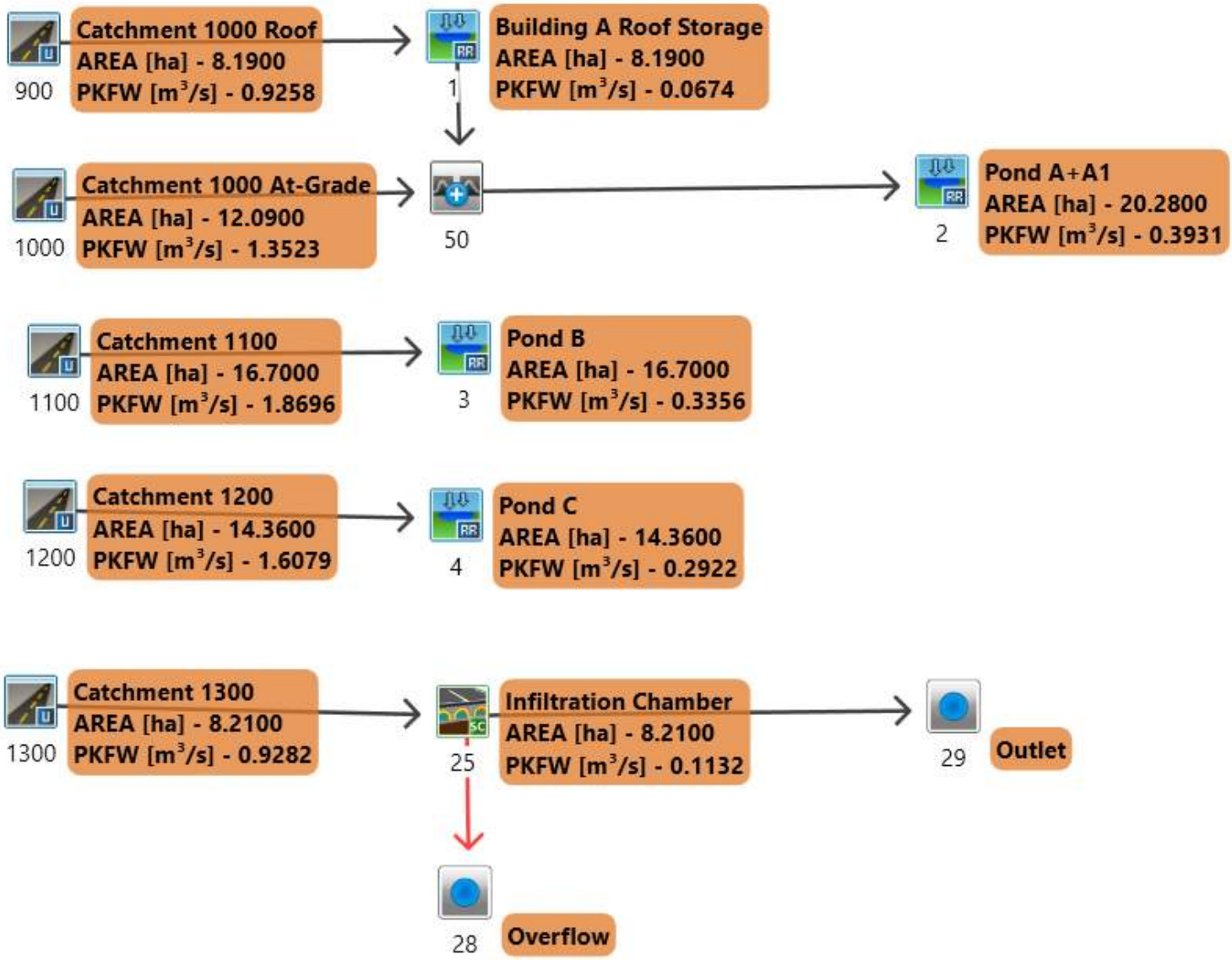
PROPOSED CONDITIONS
-
STORAGE REQUIREMENT FOR 12-HOUR AES STORM



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```
************************************
** SIMULATION:Run 01 2yr 12hr AES **
************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              c47f3f7d-cf90-47dc-99e2-4833ae267791\384f4442
| Ptotal= 42.00 mm |    Comments: 2yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	7.14	6.75	2.94	10.00	0.42
0.50	0.42	3.75	7.14	7.00	2.94	10.25	0.42
0.75	0.42	4.00	7.14	7.25	2.94	10.50	0.42
1.00	0.42	4.25	7.14	7.50	1.68	10.75	0.42
1.25	0.42	4.50	19.32	7.75	1.68	11.00	0.42
1.50	0.42	4.75	19.32	8.00	1.68	11.25	0.42
1.75	0.42	5.00	19.32	8.25	1.68	11.50	0.42
2.00	0.42	5.25	19.32	8.50	0.84	11.75	0.42
2.25	0.42	5.50	5.46	8.75	0.84	12.00	0.42
2.50	2.52	5.75	5.46	9.00	0.84	12.25	0.42
2.75	2.52	6.00	5.46	9.25	0.84		
3.00	2.52	6.25	5.46	9.50	0.42		
3.25	2.52	6.50	2.94	9.75	0.42		

```
--------------------
| CALIB            |
| STANDHYD ( 1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	16.30	0.40
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	333.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

			TOTALS
Max.Eff.Inten.(mm/hr)=	19.32	7.62	
over (min)	10.00	14.00	
Storage Coeff. (min)=	10.16 (ii)	13.26 (ii)	
Unit Hyd. Tpeak (min)=	10.00	14.00	
Unit Hyd. peak (cms)=	0.11	0.08	
PEAK FLOW (cms)=	0.87	0.01	0.879 (iii)
TIME TO PEAK (hrs)=	5.23	5.30	5.23
RUNOFF VOLUME (mm)=	41.00	11.68	40.30
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.98	0.28	0.96

```
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
     CN* = 76.0    Ia = Dep. Storage  (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
     THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------
| RESERVOIR( 0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 2.0 min     |
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OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2962	0.9330
0.1249	0.5470	0.3457	1.0260
0.1913	0.7040	0.3906	1.1190
0.2353	0.8050	0.0000	0.0000

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1100)	16.700	0.879	5.23	40.30
OUTFLOW: ID= 1 (0003)	16.700	0.114	7.40	40.03

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.92
TIME SHIFT OF PEAK FLOW (min)=130.00
MAXIMUM STORAGE USED (ha.m.)= 0.4973

CALIB	
STANDHYD (1200)	Area (ha)= 14.36
ID= 1 DT= 2.0 min	Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

Max.Eff.Inten.(mm/hr)=		19.32	7.62	
over (min)		10.00	14.00	
Storage Coeff.	(min)=	9.71 (ii)	12.81 (ii)	
Unit Hyd. Tpeak	(min)=	10.00	14.00	
Unit Hyd. peak	(cms)=	0.12	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.75	0.01	0.756 (iii)
TIME TO PEAK	(hrs)=	5.23	5.30	5.23
RUNOFF VOLUME	(mm)=	41.00	11.68	40.30
TOTAL RAINFALL	(mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT	=	0.98	0.28	0.96

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 2.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2584	0.8010
0.1090	0.4690	0.3017	0.8810
0.1669	0.6040	0.3408	0.9600
0.2053	0.6910	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1200)	14.360	0.756	5.23	40.30
OUTFLOW: ID= 1 (0004)	14.360	0.099	7.40	40.05

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.09
TIME SHIFT OF PEAK FLOW (min)=130.00
MAXIMUM STORAGE USED (ha.m.)= 0.4262

CALIB	
STANDHYD (1000)	Area (ha)= 12.09
ID= 1 DT= 2.0 min	Total Imp(%)= 97.30 Dir. Conn.(%)= 97.30

IMPERVIOUS PERVIOUS (i)

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Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

Max.Eff.Inten.(mm/hr)=		19.32	7.62
over (min)		10.00	14.00
Storage Coeff. (min)=		9.22 (ii)	12.47 (ii)
Unit Hyd. Tpeak (min)=		10.00	14.00
Unit Hyd. peak (cms)=		0.12	0.09
			TOTALS
PEAK FLOW	(cms)=	0.63	0.01	0.636 (iii)
TIME TO PEAK	(hrs)=	5.23	5.30	5.23
RUNOFF VOLUME	(mm)=	41.00	11.68	40.21
TOTAL RAINFALL	(mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT	=	0.98	0.28	0.96

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. 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 (0900) ID= 1 DT= 2.0 min	Area (ha)= 8.19 Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.18	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42

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0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

```
Max.Eff.Inten.(mm/hr)=      19.32         7.62
           over (min)        8.00        10.00
Storage Coeff.  (min)=       8.21 (ii)    9.07 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.14         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.44         0.00        0.439 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      41.00        11.68        40.97
TOTAL RAINFALL   (mm)=      42.00        42.00        42.00
RUNOFF COEFFICIENT   =       0.98         0.28         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

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

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)     8.190      0.439      5.23      40.97
   OUTFLOW: ID= 1 (  0001)     8.190      0.032      8.37      37.65

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.19
                  TIME SHIFT OF PEAK FLOW         (min)=188.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2772

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.032     8.37    37.65
      + ID2= 2 (  1000):    12.09    0.636     5.23    40.21
        ==================================================
        ID = 3 (  0050):    20.28    0.658     5.23    39.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6280
                          0.1489     0.3700   |   0.4118      0.6880
                          0.2279     0.4770   |   0.4654      0.7430
                          0.2804     0.5450   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)    20.280      0.658      5.23      39.17
   OUTFLOW: ID= 1 (  0002)    20.280      0.135      6.70      38.64

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.52
                  TIME SHIFT OF PEAK FLOW         (min)= 88.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3357

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    2.52 | 6.167    5.46 |  9.23    0.84
               0.067    0.00 | 3.133    2.52 | 6.200    5.46 |  9.27    0.63
               0.100    0.00 | 3.167    2.52 | 6.233    5.46 |  9.30    0.42
               0.133    0.00 | 3.200    2.52 | 6.267    4.20 |  9.33    0.42
               0.167    0.00 | 3.233    2.52 | 6.300    2.94 |  9.37    0.42
               0.200    0.00 | 3.267    4.83 | 6.333    2.94 |  9.40    0.42
               0.233    0.00 | 3.300    7.14 | 6.367    2.94 |  9.43    0.42
               0.267    0.21 | 3.333    7.14 | 6.400    2.94 |  9.47    0.42
               0.300    0.42 | 3.367    7.14 | 6.433    2.94 |  9.50    0.42
               0.333    0.42 | 3.400    7.14 | 6.467    2.94 |  9.53    0.42
               0.367    0.42 | 3.433    7.14 | 6.500    2.94 |  9.57    0.42
               0.400    0.42 | 3.467    7.14 | 6.533    2.94 |  9.60    0.42
               0.433    0.42 | 3.500    7.14 | 6.567    2.94 |  9.63    0.42
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0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

```
Max.Eff.Inten.(mm/hr)=      19.32         11.80
           over (min)        8.00         10.00
Storage Coeff.  (min)=       8.21 (ii)     9.07 (ii)
Unit Hyd. Tpeak (min)=       8.00         10.00
```

```
Unit Hyd. peak  (cms)=       0.14         0.12
                                                        *TOTALS*
PEAK FLOW       (cms)=       0.44         0.00          0.440 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27           5.23
RUNOFF VOLUME    (mm)=      41.00        18.26          40.98
TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
RUNOFF COEFFICIENT   =       0.98         0.43           0.98

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  87.0    Ia = Dep. 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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| CHAMBER(  0025)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6204.18  Bottom Area(m2)   = 4645.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3584.20
25.00	47.18	1067.00	3674.57
51.00	94.36	1092.00	3764.19
76.00	141.55	1118.00	3853.02
102.00	188.73	1143.00	3941.03
127.00	235.91	1168.00	4028.20
152.00	283.09	1194.00	4114.48
178.00	330.28	1219.00	4199.84
203.00	377.46	1245.00	4284.24
229.00	424.64	1270.00	4367.63
254.00	528.45	1295.00	4449.97
279.00	631.99	1321.00	4531.20
305.00	735.34	1346.00	4611.27
330.00	838.49	1372.00	4690.11
356.00	941.43	1397.00	4767.66
381.00	1044.14	1422.00	4843.83
406.00	1146.61	1448.00	4918.54
432.00	1248.83	1473.00	4991.66
457.00	1350.78	1499.00	5063.08
483.00	1452.44	1524.00	5132.61
508.00	1553.81	1549.00	5200.03
533.00	1654.87	1575.00	5265.01
559.00	1755.60	1600.00	5327.01
584.00	1855.98	1626.00	5384.28
610.00	1956.00	1651.00	5437.45
635.00	2055.65	1676.00	5489.29
660.00	2154.91	1702.00	5540.14
686.00	2253.76	1727.00	5589.90
711.00	2352.18	1753.00	5637.99
737.00	2450.16	1778.00	5685.18
762.00	2547.68	1803.00	5732.36
787.00	2644.71	1829.00	5779.54
813.00	2741.25	1854.00	5826.72
838.00	2837.27	1880.00	5873.91
864.00	2932.74	1905.00	5921.09
889.00	3027.66	1930.00	5968.27
914.00	3122.00	1956.00	6015.45
940.00	3215.74	1981.00	6062.64
965.00	3308.85	2007.00	6109.82
991.00	3401.32	2032.00	6157.00
1016.00	3493.11	2057.00	6204.18

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.440	5.23	40.98

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

```
    OUTFLOW:ID= 1     8.21         0.066             6.63        30.44
   OVERFLOW:ID= 3     0.00         0.000             0.00         0.00

              Volume Reduction Rate[(RVin-RVout)/RVin](%)=       25.71
              Time to reach Max storage              (Hr)=        6.63
              Volume of water for drawdown in LID (cu.m.)=     1321.64
              Volume of maximum water storage     (cu.m.)=     2276.91
              Calculated Drawdown Time               (Hr)=       25.90

  --------------------------
  | Junction Command(0028) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0025)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0028)   0.00     0.00    0.00     0.00

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

  --------------------------
  | Junction Command(0029) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 1(  0025)   8.21     0.07    6.63    30.44
  OUTFLOW: ID= 2(  0029)   8.21     0.07    6.63    30.44

  ------------------------------------------------------------------------------
**************************************
** SIMULATION:Run 02 5yr 12 hr AES **
**************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              c47f3f7d-cf90-47dc-99e2-4833ae267791\545c1c68
| Ptotal= 54.38 mm |    Comments: 5yr/12hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  3.50    9.25 |  6.75    3.81 | 10.00    0.54
                 0.50    0.54 |  3.75    9.25 |  7.00    3.81 | 10.25    0.54
                 0.75    0.54 |  4.00    9.25 |  7.25    3.81 | 10.50    0.54
                 1.00    0.54 |  4.25    9.25 |  7.50    2.18 | 10.75    0.54
                 1.25    0.54 |  4.50   25.02 |  7.75    2.18 | 11.00    0.54
                 1.50    0.54 |  4.75   25.02 |  8.00    2.18 | 11.25    0.54
                 1.75    0.54 |  5.00   25.02 |  8.25    2.18 | 11.50    0.54
                 2.00    0.54 |  5.25   25.02 |  8.50    1.09 | 11.75    0.54
                 2.25    0.54 |  5.50    7.07 |  8.75    1.09 | 12.00    0.54
                 2.50    3.26 |  5.75    7.07 |  9.00    1.09 | 12.25    0.54
                 2.75    3.26 |  6.00    7.07 |  9.25    1.09 |
                 3.00    3.26 |  6.25    7.07 |  9.50    0.54 |
                 3.25    3.26 |  6.50    3.81 |  9.75    0.54 |

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

--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 3.100    3.26 | 6.167    7.07 |  9.23    1.09
                0.067    0.00 | 3.133    3.26 | 6.200    7.07 |  9.27    0.81
                0.100    0.00 | 3.167    3.26 | 6.233    7.07 |  9.30    0.54
                0.133    0.00 | 3.200    3.26 | 6.267    5.44 |  9.33    0.54
                0.167    0.00 | 3.233    3.26 | 6.300    3.81 |  9.37    0.54
                0.200    0.00 | 3.267    6.25 | 6.333    3.81 |  9.40    0.54
                0.233    0.00 | 3.300    9.25 | 6.367    3.81 |  9.43    0.54
                0.267    0.27 | 3.333    9.25 | 6.400    3.81 |  9.47    0.54
                0.300    0.54 | 3.367    9.25 | 6.433    3.81 |  9.50    0.54
                0.333    0.54 | 3.400    9.25 | 6.467    3.81 |  9.53    0.54
                0.367    0.54 | 3.433    9.25 | 6.500    3.81 |  9.57    0.54
                0.400    0.54 | 3.467    9.25 | 6.533    3.81 |  9.60    0.54
                0.433    0.54 | 3.500    9.25 | 6.567    3.81 |  9.63    0.54
                0.467    0.54 | 3.533    9.25 | 6.600    3.81 |  9.67    0.54
                0.500    0.54 | 3.567    9.25 | 6.633    3.81 |  9.70    0.54
                0.533    0.54 | 3.600    9.25 | 6.667    3.81 |  9.73    0.54
                0.567    0.54 | 3.633    9.25 | 6.700    3.81 |  9.77    0.54
                0.600    0.54 | 3.667    9.25 | 6.733    3.81 |  9.80    0.54
                0.633    0.54 | 3.700    9.25 | 6.767    3.81 |  9.83    0.54
                0.667    0.54 | 3.733    9.25 | 6.800    3.81 |  9.87    0.54
                0.700    0.54 | 3.767    9.25 | 6.833    3.81 |  9.90    0.54
                0.733    0.54 | 3.800    9.25 | 6.867    3.81 |  9.93    0.54
                0.767    0.54 | 3.833    9.25 | 6.900    3.81 |  9.97    0.54
                0.800    0.54 | 3.867    9.25 | 6.933    3.81 | 10.00    0.54
                0.833    0.54 | 3.900    9.25 | 6.967    3.81 | 10.03    0.54
                0.867    0.54 | 3.933    9.25 | 7.000    3.81 | 10.07    0.54
                0.900    0.54 | 3.967    9.25 | 7.033    3.81 | 10.10    0.54
                0.933    0.54 | 4.000    9.25 | 7.067    3.81 | 10.13    0.54
                0.967    0.54 | 4.033    9.25 | 7.100    3.81 | 10.17    0.54
                1.000    0.54 | 4.067    9.25 | 7.133    3.81 | 10.20    0.54
                1.033    0.54 | 4.100    9.25 | 7.167    3.81 | 10.23    0.54
                1.067    0.54 | 4.133    9.25 | 7.200    3.81 | 10.27    0.54
                1.100    0.54 | 4.167    9.25 | 7.233    3.81 | 10.30    0.54
                1.133    0.54 | 4.200    9.25 | 7.267    3.00 | 10.33    0.54
                1.167    0.54 | 4.233    9.25 | 7.300    2.18 | 10.37    0.54
                1.200    0.54 | 4.267   17.13 | 7.333    2.18 | 10.40    0.54
                1.233    0.54 | 4.300   25.02 | 7.367    2.18 | 10.43    0.54
                1.267    0.54 | 4.333   25.02 | 7.400    2.18 | 10.47    0.54
                1.300    0.54 | 4.367   25.02 | 7.433    2.18 | 10.50    0.54
                1.333    0.54 | 4.400   25.02 | 7.467    2.18 | 10.53    0.54
                1.367    0.54 | 4.433   25.02 | 7.500    2.18 | 10.57    0.54
                1.400    0.54 | 4.467   25.02 | 7.533    2.18 | 10.60    0.54
                1.433    0.54 | 4.500   25.02 | 7.567    2.18 | 10.63    0.54
                1.467    0.54 | 4.533   25.02 | 7.600    2.18 | 10.67    0.54
                1.500    0.54 | 4.567   25.02 | 7.633    2.18 | 10.70    0.54
                1.533    0.54 | 4.600   25.02 | 7.667    2.18 | 10.73    0.54
                1.567    0.54 | 4.633   25.02 | 7.700    2.18 | 10.77    0.54
                1.600    0.54 | 4.667   25.02 | 7.733    2.18 | 10.80    0.54
                1.633    0.54 | 4.700   25.02 | 7.767    2.18 | 10.83    0.54
                1.667    0.54 | 4.733   25.02 | 7.800    2.18 | 10.87    0.54
                1.700    0.54 | 4.767   25.02 | 7.833    2.18 | 10.90    0.54
                1.733    0.54 | 4.800   25.02 | 7.867    2.18 | 10.93    0.54
                1.767    0.54 | 4.833   25.02 | 7.900    2.18 | 10.97    0.54
                1.800    0.54 | 4.867   25.02 | 7.933    2.18 | 11.00    0.54
                1.833    0.54 | 4.900   25.02 | 7.967    2.18 | 11.03    0.54
                1.867    0.54 | 4.933   25.02 | 8.000    2.18 | 11.07    0.54
                1.900    0.54 | 4.967   25.02 | 8.033    2.18 | 11.10    0.54
                1.933    0.54 | 5.000   25.02 | 8.067    2.18 | 11.13    0.54
                1.967    0.54 | 5.033   25.02 | 8.100    2.18 | 11.17    0.54
                2.000    0.54 | 5.067   25.02 | 8.133    2.18 | 11.20    0.54
                2.033    0.54 | 5.100   25.02 | 8.167    2.18 | 11.23    0.54
                2.067    0.54 | 5.133   25.02 | 8.200    2.18 | 11.27    0.54
                2.100    0.54 | 5.167   25.02 | 8.233    2.18 | 11.30    0.54
                2.133    0.54 | 5.200   25.02 | 8.267    1.64 | 11.33    0.54
                2.167    0.54 | 5.233   25.02 | 8.300    1.09 | 11.37    0.54
                2.200    0.54 | 5.267   16.05 | 8.333    1.09 | 11.40    0.54
                2.233    0.54 | 5.300    7.07 | 8.367    1.09 | 11.43    0.54
                2.267    1.90 | 5.333    7.07 | 8.400    1.09 | 11.47    0.54
                2.300    3.26 | 5.367    7.07 | 8.433    1.09 | 11.50    0.54
                2.333    3.26 | 5.400    7.07 | 8.467    1.09 | 11.53    0.54
                2.367    3.26 | 5.433    7.07 | 8.500    1.09 | 11.57    0.54
                2.400    3.26 | 5.467    7.07 | 8.533    1.09 | 11.60    0.54
                2.433    3.26 | 5.500    7.07 | 8.567    1.09 | 11.63    0.54
                2.467    3.26 | 5.533    7.07 | 8.600    1.09 | 11.67    0.54
                2.500    3.26 | 5.567    7.07 | 8.633    1.09 | 11.70    0.54
                2.533    3.26 | 5.600    7.07 | 8.667    1.09 | 11.73    0.54
                2.567    3.26 | 5.633    7.07 | 8.700    1.09 | 11.77    0.54
                2.600    3.26 | 5.667    7.07 | 8.733    1.09 | 11.80    0.54
                2.633    3.26 | 5.700    7.07 | 8.767    1.09 | 11.83    0.54
                2.667    3.26 | 5.733    7.07 | 8.800    1.09 | 11.87    0.54
                2.700    3.26 | 5.767    7.07 | 8.833    1.09 | 11.90    0.54
                2.733    3.26 | 5.800    7.07 | 8.867    1.09 | 11.93    0.54
                2.767    3.26 | 5.833    7.07 | 8.900    1.09 | 11.97    0.54
                2.800    3.26 | 5.867    7.07 | 8.933    1.09 | 12.00    0.54
                2.833    3.26 | 5.900    7.07 | 8.967    1.09 | 12.03    0.54
                2.867    3.26 | 5.933    7.07 | 9.000    1.09 | 12.07    0.54
                2.900    3.26 | 5.967    7.07 | 9.033    1.09 | 12.10    0.54
                2.933    3.26 | 6.000    7.07 | 9.067    1.09 | 12.13    0.54
                2.967    3.26 | 6.033    7.07 | 9.100    1.09 | 12.17    0.54
                3.000    3.26 | 6.067    7.07 | 9.133    1.09 | 12.20    0.54
                3.033    3.26 | 6.100    7.07 | 9.167    1.09 | 12.23    0.54
                3.067    3.26 | 6.133    7.07 | 9.200    1.09 | 12.27    0.27
```

TOWN OF CALEDON
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```
     Max.Eff.Inten.(mm/hr)=      25.02        12.03
                over (min)       10.00        12.00
     Storage Coeff.  (min)=       9.16 (ii)   11.95 (ii)
     Unit Hyd. Tpeak (min)=      10.00        12.00
     Unit Hyd. peak  (cms)=       0.12         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.13         0.01          1.143 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27           5.23
     RUNOFF VOLUME    (mm)=      53.38        18.82          52.55
     TOTAL RAINFALL   (mm)=      54.38        54.38          54.38
     RUNOFF COEFFICIENT   =       0.98         0.35           0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.2962      0.9330
                           0.1249     0.5470   |   0.3457      1.0260
                           0.1913     0.7040   |   0.3906      1.1190
                           0.2353     0.8050   |   0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700     1.143      5.23      52.55
   OUTFLOW: ID= 1 (  0003)     16.700     0.164      7.33      52.22

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.35
                   TIME SHIFT OF PEAK FLOW         (min)=126.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.6395

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--------------------
| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.02          0.34
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      309.41         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.26 | 6.167    7.07 |  9.23    1.09
               0.067    0.00 | 3.133    3.26 | 6.200    7.07 |  9.27    0.81
               0.100    0.00 | 3.167    3.26 | 6.233    7.07 |  9.30    0.54
               0.133    0.00 | 3.200    3.26 | 6.267    5.44 |  9.33    0.54
               0.167    0.00 | 3.233    3.26 | 6.300    3.81 |  9.37    0.54
               0.200    0.00 | 3.267    6.25 | 6.333    3.81 |  9.40    0.54
               0.233    0.00 | 3.300    9.25 | 6.367    3.81 |  9.43    0.54
               0.267    0.27 | 3.333    9.25 | 6.400    3.81 |  9.47    0.54
               0.300    0.54 | 3.367    9.25 | 6.433    3.81 |  9.50    0.54
               0.333    0.54 | 3.400    9.25 | 6.467    3.81 |  9.53    0.54
               0.367    0.54 | 3.433    9.25 | 6.500    3.81 |  9.57    0.54
               0.400    0.54 | 3.467    9.25 | 6.533    3.81 |  9.60    0.54
               0.433    0.54 | 3.500    9.25 | 6.567    3.81 |  9.63    0.54
               0.467    0.54 | 3.533    9.25 | 6.600    3.81 |  9.67    0.54
               0.500    0.54 | 3.567    9.25 | 6.633    3.81 |  9.70    0.54
               0.533    0.54 | 3.600    9.25 | 6.667    3.81 |  9.73    0.54
               0.567    0.54 | 3.633    9.25 | 6.700    3.81 |  9.77    0.54
               0.600    0.54 | 3.667    9.25 | 6.733    3.81 |  9.80    0.54
               0.633    0.54 | 3.700    9.25 | 6.767    3.81 |  9.83    0.54
               0.667    0.54 | 3.733    9.25 | 6.800    3.81 |  9.87    0.54
               0.700    0.54 | 3.767    9.25 | 6.833    3.81 |  9.90    0.54
               0.733    0.54 | 3.800    9.25 | 6.867    3.81 |  9.93    0.54
               0.767    0.54 | 3.833    9.25 | 6.900    3.81 |  9.97    0.54
               0.800    0.54 | 3.867    9.25 | 6.933    3.81 | 10.00    0.54
               0.833    0.54 | 3.900    9.25 | 6.967    3.81 | 10.03    0.54
               0.867    0.54 | 3.933    9.25 | 7.000    3.81 | 10.07    0.54
               0.900    0.54 | 3.967    9.25 | 7.033    3.81 | 10.10    0.54
               0.933    0.54 | 4.000    9.25 | 7.067    3.81 | 10.13    0.54
               0.967    0.54 | 4.033    9.25 | 7.100    3.81 | 10.17    0.54
               1.000    0.54 | 4.067    9.25 | 7.133    3.81 | 10.20    0.54
               1.033    0.54 | 4.100    9.25 | 7.167    3.81 | 10.23    0.54
               1.067    0.54 | 4.133    9.25 | 7.200    3.81 | 10.27    0.54
               1.100    0.54 | 4.167    9.25 | 7.233    3.81 | 10.30    0.54
               1.133    0.54 | 4.200    9.25 | 7.267    3.00 | 10.33    0.54
               1.167    0.54 | 4.233    9.25 | 7.300    2.18 | 10.37    0.54
               1.200    0.54 | 4.267   17.13 | 7.333    2.18 | 10.40    0.54
               1.233    0.54 | 4.300   25.02 | 7.367    2.18 | 10.43    0.54
               1.267    0.54 | 4.333   25.02 | 7.400    2.18 | 10.47    0.54
               1.300    0.54 | 4.367   25.02 | 7.433    2.18 | 10.50    0.54
               1.333    0.54 | 4.400   25.02 | 7.467    2.18 | 10.53    0.54
               1.367    0.54 | 4.433   25.02 | 7.500    2.18 | 10.57    0.54
               1.400    0.54 | 4.467   25.02 | 7.533    2.18 | 10.60    0.54
               1.433    0.54 | 4.500   25.02 | 7.567    2.18 | 10.63    0.54
               1.467    0.54 | 4.533   25.02 | 7.600    2.18 | 10.67    0.54
               1.500    0.54 | 4.567   25.02 | 7.633    2.18 | 10.70    0.54
               1.533    0.54 | 4.600   25.02 | 7.667    2.18 | 10.73    0.54
               1.567    0.54 | 4.633   25.02 | 7.700    2.18 | 10.77    0.54
               1.600    0.54 | 4.667   25.02 | 7.733    2.18 | 10.80    0.54
               1.633    0.54 | 4.700   25.02 | 7.767    2.18 | 10.83    0.54
               1.667    0.54 | 4.733   25.02 | 7.800    2.18 | 10.87    0.54
               1.700    0.54 | 4.767   25.02 | 7.833    2.18 | 10.90    0.54
               1.733    0.54 | 4.800   25.02 | 7.867    2.18 | 10.93    0.54
               1.767    0.54 | 4.833   25.02 | 7.900    2.18 | 10.97    0.54
               1.800    0.54 | 4.867   25.02 | 7.933    2.18 | 11.00    0.54
               1.833    0.54 | 4.900   25.02 | 7.967    2.18 | 11.03    0.54
               1.867    0.54 | 4.933   25.02 | 8.000    2.18 | 11.07    0.54
               1.900    0.54 | 4.967   25.02 | 8.033    2.18 | 11.10    0.54
               1.933    0.54 | 5.000   25.02 | 8.067    2.18 | 11.13    0.54
               1.967    0.54 | 5.033   25.02 | 8.100    2.18 | 11.17    0.54
               2.000    0.54 | 5.067   25.02 | 8.133    2.18 | 11.20    0.54
               2.033    0.54 | 5.100   25.02 | 8.167    2.18 | 11.23    0.54
               2.067    0.54 | 5.133   25.02 | 8.200    2.18 | 11.27    0.54
               2.100    0.54 | 5.167   25.02 | 8.233    2.18 | 11.30    0.54
               2.133    0.54 | 5.200   25.02 | 8.267    1.64 | 11.33    0.54
               2.167    0.54 | 5.233   25.02 | 8.300    1.09 | 11.37    0.54
               2.200    0.54 | 5.267   16.05 | 8.333    1.09 | 11.40    0.54
               2.233    0.54 | 5.300    7.07 | 8.367    1.09 | 11.43    0.54
               2.267    1.90 | 5.333    7.07 | 8.400    1.09 | 11.47    0.54
               2.300    3.26 | 5.367    7.07 | 8.433    1.09 | 11.50    0.54
               2.333    3.26 | 5.400    7.07 | 8.467    1.09 | 11.53    0.54
               2.367    3.26 | 5.433    7.07 | 8.500    1.09 | 11.57    0.54
               2.400    3.26 | 5.467    7.07 | 8.533    1.09 | 11.60    0.54
               2.433    3.26 | 5.500    7.07 | 8.567    1.09 | 11.63    0.54
               2.467    3.26 | 5.533    7.07 | 8.600    1.09 | 11.67    0.54
               2.500    3.26 | 5.567    7.07 | 8.633    1.09 | 11.70    0.54
               2.533    3.26 | 5.600    7.07 | 8.667    1.09 | 11.73    0.54
               2.567    3.26 | 5.633    7.07 | 8.700    1.09 | 11.77    0.54
               2.600    3.26 | 5.667    7.07 | 8.733    1.09 | 11.80    0.54
               2.633    3.26 | 5.700    7.07 | 8.767    1.09 | 11.83    0.54
               2.667    3.26 | 5.733    7.07 | 8.800    1.09 | 11.87    0.54
               2.700    3.26 | 5.767    7.07 | 8.833    1.09 | 11.90    0.54
               2.733    3.26 | 5.800    7.07 | 8.867    1.09 | 11.93    0.54
               2.767    3.26 | 5.833    7.07 | 8.900    1.09 | 11.97    0.54
               2.800    3.26 | 5.867    7.07 | 8.933    1.09 | 12.00    0.54
               2.833    3.26 | 5.900    7.07 | 8.967    1.09 | 12.03    0.54
               2.867    3.26 | 5.933    7.07 | 9.000    1.09 | 12.07    0.54
               2.900    3.26 | 5.967    7.07 | 9.033    1.09 | 12.10    0.54
               2.933    3.26 | 6.000    7.07 | 9.067    1.09 | 12.13    0.54
               2.967    3.26 | 6.033    7.07 | 9.100    1.09 | 12.17    0.54
               3.000    3.26 | 6.067    7.07 | 9.133    1.09 | 12.20    0.54
               3.033    3.26 | 6.100    7.07 | 9.167    1.09 | 12.23    0.54
               3.067    3.26 | 6.133    7.07 | 9.200    1.09 | 12.27    0.27

     Max.Eff.Inten.(mm/hr)=      25.02        12.03
                over (min)       8.00        12.00
     Storage Coeff.  (min)=       8.76 (ii)   11.55 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.13         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.97         0.01          0.983 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27           5.23
     RUNOFF VOLUME    (mm)=      53.38        18.82          52.55
     TOTAL RAINFALL   (mm)=      54.38        54.38          54.38
     RUNOFF COEFFICIENT   =       0.98         0.35           0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
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TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

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

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| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584     0.8010
                          0.1090     0.4690   |   0.3017     0.8810
                          0.1669     0.6040   |   0.3408     0.9600
                          0.2053     0.6910   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1200)     14.360     0.983      5.23      52.55
   OUTFLOW: ID= 1 (  0004)     14.360     0.143      7.30      52.25

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.53
                  TIME SHIFT OF PEAK FLOW          (min)=124.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5479

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| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76          0.33
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     283.90         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.26 | 6.167    7.07 |  9.23    1.09
               0.067    0.00 | 3.133    3.26 | 6.200    7.07 |  9.27    0.81
               0.100    0.00 | 3.167    3.26 | 6.233    7.07 |  9.30    0.54
               0.133    0.00 | 3.200    3.26 | 6.267    5.44 |  9.33    0.54
               0.167    0.00 | 3.233    3.26 | 6.300    3.81 |  9.37    0.54
               0.200    0.00 | 3.267    6.25 | 6.333    3.81 |  9.40    0.54
               0.233    0.00 | 3.300    9.25 | 6.367    3.81 |  9.43    0.54
               0.267    0.27 | 3.333    9.25 | 6.400    3.81 |  9.47    0.54
               0.300    0.54 | 3.367    9.25 | 6.433    3.81 |  9.50    0.54
               0.333    0.54 | 3.400    9.25 | 6.467    3.81 |  9.53    0.54
               0.367    0.54 | 3.433    9.25 | 6.500    3.81 |  9.57    0.54
               0.400    0.54 | 3.467    9.25 | 6.533    3.81 |  9.60    0.54
               0.433    0.54 | 3.500    9.25 | 6.567    3.81 |  9.63    0.54
               0.467    0.54 | 3.533    9.25 | 6.600    3.81 |  9.67    0.54
               0.500    0.54 | 3.567    9.25 | 6.633    3.81 |  9.70    0.54
               0.533    0.54 | 3.600    9.25 | 6.667    3.81 |  9.73    0.54
               0.567    0.54 | 3.633    9.25 | 6.700    3.81 |  9.77    0.54
               0.600    0.54 | 3.667    9.25 | 6.733    3.81 |  9.80    0.54
               0.633    0.54 | 3.700    9.25 | 6.767    3.81 |  9.83    0.54
               0.667    0.54 | 3.733    9.25 | 6.800    3.81 |  9.87    0.54
               0.700    0.54 | 3.767    9.25 | 6.833    3.81 |  9.90    0.54
               0.733    0.54 | 3.800    9.25 | 6.867    3.81 |  9.93    0.54
               0.767    0.54 | 3.833    9.25 | 6.900    3.81 |  9.97    0.54
               0.800    0.54 | 3.867    9.25 | 6.933    3.81 | 10.00    0.54
               0.833    0.54 | 3.900    9.25 | 6.967    3.81 | 10.03    0.54
               0.867    0.54 | 3.933    9.25 | 7.000    3.81 | 10.07    0.54
               0.900    0.54 | 3.967    9.25 | 7.033    3.81 | 10.10    0.54
               0.933    0.54 | 4.000    9.25 | 7.067    3.81 | 10.13    0.54
               0.967    0.54 | 4.033    9.25 | 7.100    3.81 | 10.17    0.54
               1.000    0.54 | 4.067    9.25 | 7.133    3.81 | 10.20    0.54
               1.033    0.54 | 4.100    9.25 | 7.167    3.81 | 10.23    0.54
               1.067    0.54 | 4.133    9.25 | 7.200    3.81 | 10.27    0.54
               1.100    0.54 | 4.167    9.25 | 7.233    3.81 | 10.30    0.54
               1.133    0.54 | 4.200    9.25 | 7.267    3.00 | 10.33    0.54
               1.167    0.54 | 4.233    9.25 | 7.300    2.18 | 10.37    0.54
               1.200    0.54 | 4.267   17.13 | 7.333    2.18 | 10.40    0.54
               1.233    0.54 | 4.300   25.02 | 7.367    2.18 | 10.43    0.54
               1.267    0.54 | 4.333   25.02 | 7.400    2.18 | 10.47    0.54
               1.300    0.54 | 4.367   25.02 | 7.433    2.18 | 10.50    0.54
               1.333    0.54 | 4.400   25.02 | 7.467    2.18 | 10.53    0.54
               1.367    0.54 | 4.433   25.02 | 7.500    2.18 | 10.57    0.54
               1.400    0.54 | 4.467   25.02 | 7.533    2.18 | 10.60    0.54
               1.433    0.54 | 4.500   25.02 | 7.567    2.18 | 10.63    0.54
               1.467    0.54 | 4.533   25.02 | 7.600    2.18 | 10.67    0.54
               1.500    0.54 | 4.567   25.02 | 7.633    2.18 | 10.70    0.54
               1.533    0.54 | 4.600   25.02 | 7.667    2.18 | 10.73    0.54
               1.567    0.54 | 4.633   25.02 | 7.700    2.18 | 10.77    0.54
               1.600    0.54 | 4.667   25.02 | 7.733    2.18 | 10.80    0.54
               1.633    0.54 | 4.700   25.02 | 7.767    2.18 | 10.83    0.54
               1.667    0.54 | 4.733   25.02 | 7.800    2.18 | 10.87    0.54
               1.700    0.54 | 4.767   25.02 | 7.833    2.18 | 10.90    0.54
               1.733    0.54 | 4.800   25.02 | 7.867    2.18 | 10.93    0.54
               1.767    0.54 | 4.833   25.02 | 7.900    2.18 | 10.97    0.54
               1.800    0.54 | 4.867   25.02 | 7.933    2.18 | 11.00    0.54
               1.833    0.54 | 4.900   25.02 | 7.967    2.18 | 11.03    0.54
               1.867    0.54 | 4.933   25.02 | 8.000    2.18 | 11.07    0.54
               1.900    0.54 | 4.967   25.02 | 8.033    2.18 | 11.10    0.54
               1.933    0.54 | 5.000   25.02 | 8.067    2.18 | 11.13    0.54
               1.967    0.54 | 5.033   25.02 | 8.100    2.18 | 11.17    0.54
               2.000    0.54 | 5.067   25.02 | 8.133    2.18 | 11.20    0.54
               2.033    0.54 | 5.100   25.02 | 8.167    2.18 | 11.23    0.54
               2.067    0.54 | 5.133   25.02 | 8.200    2.18 | 11.27    0.54
               2.100    0.54 | 5.167   25.02 | 8.233    2.18 | 11.30    0.54
               2.133    0.54 | 5.200   25.02 | 8.267    1.64 | 11.33    0.54
               2.167    0.54 | 5.233   25.02 | 8.300    1.09 | 11.37    0.54
               2.200    0.54 | 5.267   16.05 | 8.333    1.09 | 11.40    0.54
               2.233    0.54 | 5.300    7.07 | 8.367    1.09 | 11.43    0.54
               2.267    1.90 | 5.333    7.07 | 8.400    1.09 | 11.47    0.54
               2.300    3.26 | 5.367    7.07 | 8.433    1.09 | 11.50    0.54
               2.333    3.26 | 5.400    7.07 | 8.467    1.09 | 11.53    0.54
               2.367    3.26 | 5.433    7.07 | 8.500    1.09 | 11.57    0.54
               2.400    3.26 | 5.467    7.07 | 8.533    1.09 | 11.60    0.54
               2.433    3.26 | 5.500    7.07 | 8.567    1.09 | 11.63    0.54
               2.467    3.26 | 5.533    7.07 | 8.600    1.09 | 11.67    0.54
               2.500    3.26 | 5.567    7.07 | 8.633    1.09 | 11.70    0.54
               2.533    3.26 | 5.600    7.07 | 8.667    1.09 | 11.73    0.54
               2.567    3.26 | 5.633    7.07 | 8.700    1.09 | 11.77    0.54
               2.600    3.26 | 5.667    7.07 | 8.733    1.09 | 11.80    0.54
               2.633    3.26 | 5.700    7.07 | 8.767    1.09 | 11.83    0.54
               2.667    3.26 | 5.733    7.07 | 8.800    1.09 | 11.87    0.54
               2.700    3.26 | 5.767    7.07 | 8.833    1.09 | 11.90    0.54
               2.733    3.26 | 5.800    7.07 | 8.867    1.09 | 11.93    0.54
               2.767    3.26 | 5.833    7.07 | 8.900    1.09 | 11.97    0.54
               2.800    3.26 | 5.867    7.07 | 8.933    1.09 | 12.00    0.54
               2.833    3.26 | 5.900    7.07 | 8.967    1.09 | 12.03    0.54
               2.867    3.26 | 5.933    7.07 | 9.000    1.09 | 12.07    0.54
               2.900    3.26 | 5.967    7.07 | 9.033    1.09 | 12.10    0.54
               2.933    3.26 | 6.000    7.07 | 9.067    1.09 | 12.13    0.54
               2.967    3.26 | 6.033    7.07 | 9.100    1.09 | 12.17    0.54
               3.000    3.26 | 6.067    7.07 | 9.133    1.09 | 12.20    0.54
               3.033    3.26 | 6.100    7.07 | 9.167    1.09 | 12.23    0.54
               3.067    3.26 | 6.133    7.07 | 9.200    1.09 | 12.27    0.27

     Max.Eff.Inten.(mm/hr)=      25.02         12.03
                over (min)        8.00         12.00
     Storage Coeff.  (min)=       8.32 (ii)    11.24 (ii)
     Unit Hyd. Tpeak (min)=       8.00         12.00
     Unit Hyd. peak  (cms)=       0.14          0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.82          0.01       0.827 (iii)
     TIME TO PEAK    (hrs)=       5.23          5.27        5.23
     RUNOFF VOLUME    (mm)=      53.38         18.82       52.45
     TOTAL RAINFALL   (mm)=      54.38         54.38       54.38
     RUNOFF COEFFICIENT   =       0.98          0.35        0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.67         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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TOWN OF CALEDON
PLANNING
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.26	6.167	7.07	9.23	1.09
0.067	0.00	3.133	3.26	6.200	7.07	9.27	0.81
0.100	0.00	3.167	3.26	6.233	7.07	9.30	0.54
0.133	0.00	3.200	3.26	6.267	5.44	9.33	0.54
0.167	0.00	3.233	3.26	6.300	3.81	9.37	0.54
0.200	0.00	3.267	6.25	6.333	3.81	9.40	0.54
0.233	0.00	3.300	9.25	6.367	3.81	9.43	0.54
0.267	0.27	3.333	9.25	6.400	3.81	9.47	0.54
0.300	0.54	3.367	9.25	6.433	3.81	9.50	0.54
0.333	0.54	3.400	9.25	6.467	3.81	9.53	0.54
0.367	0.54	3.433	9.25	6.500	3.81	9.57	0.54
0.400	0.54	3.467	9.25	6.533	3.81	9.60	0.54
0.433	0.54	3.500	9.25	6.567	3.81	9.63	0.54
0.467	0.54	3.533	9.25	6.600	3.81	9.67	0.54
0.500	0.54	3.567	9.25	6.633	3.81	9.70	0.54
0.533	0.54	3.600	9.25	6.667	3.81	9.73	0.54
0.567	0.54	3.633	9.25	6.700	3.81	9.77	0.54
0.600	0.54	3.667	9.25	6.733	3.81	9.80	0.54
0.633	0.54	3.700	9.25	6.767	3.81	9.83	0.54
0.667	0.54	3.733	9.25	6.800	3.81	9.87	0.54
0.700	0.54	3.767	9.25	6.833	3.81	9.90	0.54
0.733	0.54	3.800	9.25	6.867	3.81	9.93	0.54
0.767	0.54	3.833	9.25	6.900	3.81	9.97	0.54
0.800	0.54	3.867	9.25	6.933	3.81	10.00	0.54
0.833	0.54	3.900	9.25	6.967	3.81	10.03	0.54
0.867	0.54	3.933	9.25	7.000	3.81	10.07	0.54
0.900	0.54	3.967	9.25	7.033	3.81	10.10	0.54
0.933	0.54	4.000	9.25	7.067	3.81	10.13	0.54
0.967	0.54	4.033	9.25	7.100	3.81	10.17	0.54
1.000	0.54	4.067	9.25	7.133	3.81	10.20	0.54
1.033	0.54	4.100	9.25	7.167	3.81	10.23	0.54
1.067	0.54	4.133	9.25	7.200	3.81	10.27	0.54
1.100	0.54	4.167	9.25	7.233	3.81	10.30	0.54
1.133	0.54	4.200	9.25	7.267	3.00	10.33	0.54
1.167	0.54	4.233	9.25	7.300	2.18	10.37	0.54
1.200	0.54	4.267	17.13	7.333	2.18	10.40	0.54
1.233	0.54	4.300	25.02	7.367	2.18	10.43	0.54
1.267	0.54	4.333	25.02	7.400	2.18	10.47	0.54
1.300	0.54	4.367	25.02	7.433	2.18	10.50	0.54
1.333	0.54	4.400	25.02	7.467	2.18	10.53	0.54
1.367	0.54	4.433	25.02	7.500	2.18	10.57	0.54
1.400	0.54	4.467	25.02	7.533	2.18	10.60	0.54
1.433	0.54	4.500	25.02	7.567	2.18	10.63	0.54
1.467	0.54	4.533	25.02	7.600	2.18	10.67	0.54
1.500	0.54	4.567	25.02	7.633	2.18	10.70	0.54
1.533	0.54	4.600	25.02	7.667	2.18	10.73	0.54
1.567	0.54	4.633	25.02	7.700	2.18	10.77	0.54
1.600	0.54	4.667	25.02	7.733	2.18	10.80	0.54
1.633	0.54	4.700	25.02	7.767	2.18	10.83	0.54
1.667	0.54	4.733	25.02	7.800	2.18	10.87	0.54
1.700	0.54	4.767	25.02	7.833	2.18	10.90	0.54
1.733	0.54	4.800	25.02	7.867	2.18	10.93	0.54
1.767	0.54	4.833	25.02	7.900	2.18	10.97	0.54
1.800	0.54	4.867	25.02	7.933	2.18	11.00	0.54
1.833	0.54	4.900	25.02	7.967	2.18	11.03	0.54
1.867	0.54	4.933	25.02	8.000	2.18	11.07	0.54
1.900	0.54	4.967	25.02	8.033	2.18	11.10	0.54
1.933	0.54	5.000	25.02	8.067	2.18	11.13	0.54
1.967	0.54	5.033	25.02	8.100	2.18	11.17	0.54
2.000	0.54	5.067	25.02	8.133	2.18	11.20	0.54
2.033	0.54	5.100	25.02	8.167	2.18	11.23	0.54
2.067	0.54	5.133	25.02	8.200	2.18	11.27	0.54
2.100	0.54	5.167	25.02	8.233	2.18	11.30	0.54
2.133	0.54	5.200	25.02	8.267	1.64	11.33	0.54
2.167	0.54	5.233	25.02	8.300	1.09	11.37	0.54
2.200	0.54	5.267	16.05	8.333	1.09	11.40	0.54
2.233	0.54	5.300	7.07	8.367	1.09	11.43	0.54
2.267	1.90	5.333	7.07	8.400	1.09	11.47	0.54
2.300	3.26	5.367	7.07	8.433	1.09	11.50	0.54
2.333	3.26	5.400	7.07	8.467	1.09	11.53	0.54
2.367	3.26	5.433	7.07	8.500	1.09	11.57	0.54
2.400	3.26	5.467	7.07	8.533	1.09	11.60	0.54
2.433	3.26	5.500	7.07	8.567	1.09	11.63	0.54
2.467	3.26	5.533	7.07	8.600	1.09	11.67	0.54
2.500	3.26	5.567	7.07	8.633	1.09	11.70	0.54
2.533	3.26	5.600	7.07	8.667	1.09	11.73	0.54
2.567	3.26	5.633	7.07	8.700	1.09	11.77	0.54
2.600	3.26	5.667	7.07	8.733	1.09	11.80	0.54
2.633	3.26	5.700	7.07	8.767	1.09	11.83	0.54
2.667	3.26	5.733	7.07	8.800	1.09	11.87	0.54
2.700	3.26	5.767	7.07	8.833	1.09	11.90	0.54
2.733	3.26	5.800	7.07	8.867	1.09	11.93	0.54
2.767	3.26	5.833	7.07	8.900	1.09	11.97	0.54
2.800	3.26	5.867	7.07	8.933	1.09	12.00	0.54
2.833	3.26	5.900	7.07	8.967	1.09	12.03	0.54
2.867	3.26	5.933	7.07	9.000	1.09	12.07	0.54
2.900	3.26	5.967	7.07	9.033	1.09	12.10	0.54
2.933	3.26	6.000	7.07	9.067	1.09	12.13	0.54
2.967	3.26	6.033	7.07	9.100	1.09	12.17	0.54
3.000	3.26	6.067	7.07	9.133	1.09	12.20	0.54
3.033	3.26	6.100	7.07	9.167	1.09	12.23	0.54
3.067	3.26	6.133	7.07	9.200	1.09	12.27	0.27

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Max.Eff.Inten.(mm/hr)=      25.02        12.03
              over (min)     8.00        10.00
Storage Coeff.  (min)=       7.40 (ii)    8.17 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.15         0.13
                                                        *TOTALS*
PEAK FLOW       (cms)=       0.57         0.00          0.569 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27           5.23
RUNOFF VOLUME    (mm)=      53.38        18.82          53.34
TOTAL RAINFALL   (mm)=      54.38        54.38          54.38
RUNOFF COEFFICIENT   =       0.98         0.35           0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190      0.569      5.23      53.34
   OUTFLOW: ID= 1 (  0001)      8.190      0.041      8.37      49.03

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.23
                  TIME SHIFT OF PEAK FLOW         (min)=188.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3609

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.041     8.37    49.03
      + ID2= 2 (  1000):    12.09   0.827     5.23    52.45
        ==================================================
        ID = 3 (  0050):    20.28   0.856     5.23    51.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6280
                          0.1489     0.3700   |   0.4118      0.6880
                          0.2279     0.4770   |   0.4654      0.7430
                          0.2804     0.5450   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280      0.856      5.23      51.07
   OUTFLOW: ID= 1 (  0002)     20.280      0.194      6.50      50.37

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 22.69
                  TIME SHIFT OF PEAK FLOW         (min)= 76.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4314

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TOWN OF CALEDON
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| CALIB              |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.95        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.26	6.167	7.07	9.23	1.09
0.067	0.00	3.133	3.26	6.200	7.07	9.27	0.81
0.100	0.00	3.167	3.26	6.233	7.07	9.30	0.54
0.133	0.00	3.200	3.26	6.267	5.44	9.33	0.54
0.167	0.00	3.233	3.26	6.300	3.81	9.37	0.54
0.200	0.00	3.267	6.25	6.333	3.81	9.40	0.54
0.233	0.00	3.300	9.25	6.367	3.81	9.43	0.54
0.267	0.27	3.333	9.25	6.400	3.81	9.47	0.54
0.300	0.54	3.367	9.25	6.433	3.81	9.50	0.54
0.333	0.54	3.400	9.25	6.467	3.81	9.53	0.54
0.367	0.54	3.433	9.25	6.500	3.81	9.57	0.54
0.400	0.54	3.467	9.25	6.533	3.81	9.60	0.54
0.433	0.54	3.500	9.25	6.567	3.81	9.63	0.54
0.467	0.54	3.533	9.25	6.600	3.81	9.67	0.54
0.500	0.54	3.567	9.25	6.633	3.81	9.70	0.54
0.533	0.54	3.600	9.25	6.667	3.81	9.73	0.54
0.567	0.54	3.633	9.25	6.700	3.81	9.77	0.54
0.600	0.54	3.667	9.25	6.733	3.81	9.80	0.54
0.633	0.54	3.700	9.25	6.767	3.81	9.83	0.54
0.667	0.54	3.733	9.25	6.800	3.81	9.87	0.54
0.700	0.54	3.767	9.25	6.833	3.81	9.90	0.54
0.733	0.54	3.800	9.25	6.867	3.81	9.93	0.54
0.767	0.54	3.833	9.25	6.900	3.81	9.97	0.54
0.800	0.54	3.867	9.25	6.933	3.81	10.00	0.54
0.833	0.54	3.900	9.25	6.967	3.81	10.03	0.54
0.867	0.54	3.933	9.25	7.000	3.81	10.07	0.54
0.900	0.54	3.967	9.25	7.033	3.81	10.10	0.54
0.933	0.54	4.000	9.25	7.067	3.81	10.13	0.54
0.967	0.54	4.033	9.25	7.100	3.81	10.17	0.54
1.000	0.54	4.067	9.25	7.133	3.81	10.20	0.54
1.033	0.54	4.100	9.25	7.167	3.81	10.23	0.54
1.067	0.54	4.133	9.25	7.200	3.81	10.27	0.54
1.100	0.54	4.167	9.25	7.233	3.81	10.30	0.54
1.133	0.54	4.200	9.25	7.267	3.00	10.33	0.54
1.167	0.54	4.233	9.25	7.300	2.18	10.37	0.54
1.200	0.54	4.267	17.13	7.333	2.18	10.40	0.54
1.233	0.54	4.300	25.02	7.367	2.18	10.43	0.54
1.267	0.54	4.333	25.02	7.400	2.18	10.47	0.54
1.300	0.54	4.367	25.02	7.433	2.18	10.50	0.54
1.333	0.54	4.400	25.02	7.467	2.18	10.53	0.54
1.367	0.54	4.433	25.02	7.500	2.18	10.57	0.54
1.400	0.54	4.467	25.02	7.533	2.18	10.60	0.54
1.433	0.54	4.500	25.02	7.567	2.18	10.63	0.54
1.467	0.54	4.533	25.02	7.600	2.18	10.67	0.54
1.500	0.54	4.567	25.02	7.633	2.18	10.70	0.54
1.533	0.54	4.600	25.02	7.667	2.18	10.73	0.54
1.567	0.54	4.633	25.02	7.700	2.18	10.77	0.54
1.600	0.54	4.667	25.02	7.733	2.18	10.80	0.54
1.633	0.54	4.700	25.02	7.767	2.18	10.83	0.54
1.667	0.54	4.733	25.02	7.800	2.18	10.87	0.54
1.700	0.54	4.767	25.02	7.833	2.18	10.90	0.54
1.733	0.54	4.800	25.02	7.867	2.18	10.93	0.54
1.767	0.54	4.833	25.02	7.900	2.18	10.97	0.54
1.800	0.54	4.867	25.02	7.933	2.18	11.00	0.54
1.833	0.54	4.900	25.02	7.967	2.18	11.03	0.54
1.867	0.54	4.933	25.02	8.000	2.18	11.07	0.54
1.900	0.54	4.967	25.02	8.033	2.18	11.10	0.54
1.933	0.54	5.000	25.02	8.067	2.18	11.13	0.54
1.967	0.54	5.033	25.02	8.100	2.18	11.17	0.54
2.000	0.54	5.067	25.02	8.133	2.18	11.20	0.54
2.033	0.54	5.100	25.02	8.167	2.18	11.23	0.54
2.067	0.54	5.133	25.02	8.200	2.18	11.27	0.54
2.100	0.54	5.167	25.02	8.233	2.18	11.30	0.54
2.133	0.54	5.200	25.02	8.267	1.64	11.33	0.54
2.167	0.54	5.233	25.02	8.300	1.09	11.37	0.54
2.200	0.54	5.267	16.05	8.333	1.09	11.40	0.54
2.233	0.54	5.300	7.07	8.367	1.09	11.43	0.54
2.267	1.90	5.333	7.07	8.400	1.09	11.47	0.54
2.300	3.26	5.367	7.07	8.433	1.09	11.50	0.54
2.333	3.26	5.400	7.07	8.467	1.09	11.53	0.54
2.367	3.26	5.433	7.07	8.500	1.09	11.57	0.54
2.400	3.26	5.467	7.07	8.533	1.09	11.60	0.54
2.433	3.26	5.500	7.07	8.567	1.09	11.63	0.54
2.467	3.26	5.533	7.07	8.600	1.09	11.67	0.54
2.500	3.26	5.567	7.07	8.633	1.09	11.70	0.54
2.533	3.26	5.600	7.07	8.667	1.09	11.73	0.54
2.567	3.26	5.633	7.07	8.700	1.09	11.77	0.54
2.600	3.26	5.667	7.07	8.733	1.09	11.80	0.54
2.633	3.26	5.700	7.07	8.767	1.09	11.83	0.54
2.667	3.26	5.733	7.07	8.800	1.09	11.87	0.54
2.700	3.26	5.767	7.07	8.833	1.09	11.90	0.54
2.733	3.26	5.800	7.07	8.867	1.09	11.93	0.54
2.767	3.26	5.833	7.07	8.900	1.09	11.97	0.54
2.800	3.26	5.867	7.07	8.933	1.09	12.00	0.54
2.833	3.26	5.900	7.07	8.967	1.09	12.03	0.54
2.867	3.26	5.933	7.07	9.000	1.09	12.07	0.54
2.900	3.26	5.967	7.07	9.033	1.09	12.10	0.54
2.933	3.26	6.000	7.07	9.067	1.09	12.13	0.54
2.967	3.26	6.033	7.07	9.100	1.09	12.17	0.54
3.000	3.26	6.067	7.07	9.133	1.09	12.20	0.54
3.033	3.26	6.100	7.07	9.167	1.09	12.23	0.54
3.067	3.26	6.133	7.07	9.200	1.09	12.27	0.27

```
     Max.Eff.Inten.(mm/hr)=      25.02        17.46
                over (min)        8.00        10.00
     Storage Coeff.  (min)=       7.40 (ii)    8.18 (ii)
     Unit Hyd. Tpeak (min)=       8.00        10.00
     Unit Hyd. peak  (cms)=       0.15         0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.57         0.00        0.570 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27         5.23
     RUNOFF VOLUME    (mm)=      53.38        27.92        53.35
     TOTAL RAINFALL   (mm)=      54.38        54.38        54.38
     RUNOFF COEFFICIENT   =       0.98         0.51         0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0025)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6204.18  Bottom Area(m2)   = 4645.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3584.20
25.00	47.18	1067.00	3674.57
51.00	94.36	1092.00	3764.19
76.00	141.55	1118.00	3853.02
102.00	188.73	1143.00	3941.03
127.00	235.91	1168.00	4028.20
152.00	283.09	1194.00	4114.48
178.00	330.28	1219.00	4199.84
203.00	377.46	1245.00	4284.24
229.00	424.64	1270.00	4367.63
254.00	528.45	1295.00	4449.97
279.00	631.99	1321.00	4531.20
305.00	735.34	1346.00	4611.27
330.00	838.49	1372.00	4690.11
356.00	941.43	1397.00	4767.66
381.00	1044.14	1422.00	4843.83
406.00	1146.61	1448.00	4918.54
432.00	1248.83	1473.00	4991.66
457.00	1350.78	1499.00	5063.08
483.00	1452.44	1524.00	5132.61
508.00	1553.81	1549.00	5200.03
533.00	1654.87	1575.00	5265.01
559.00	1755.60	1600.00	5327.01
584.00	1855.98	1626.00	5384.28
610.00	1956.00	1651.00	5437.45
635.00	2055.65	1676.00	5489.29
660.00	2154.91	1702.00	5540.14
686.00	2253.76	1727.00	5589.90
711.00	2352.18	1753.00	5637.99
737.00	2450.16	1778.00	5685.18
762.00	2547.68	1803.00	5732.36

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787.00	2644.71	1829.00	5779.54
813.00	2741.25	1854.00	5826.72
838.00	2837.27	1880.00	5873.91
864.00	2932.74	1905.00	5921.09
889.00	3027.66	1930.00	5968.27
914.00	3122.00	1956.00	6015.45
940.00	3215.74	1981.00	6062.64
965.00	3308.85	2007.00	6109.82
991.00	3401.32	2032.00	6157.00
1016.00	3493.11	2057.00	6204.18

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.570	5.23	53.35
OUTFLOW:ID= 1	8.21	0.079	7.27	41.97
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)= 21.34
Time to reach Max storage (Hr)= 7.27
Volume of water for drawdown in LID (cu.m.)= 1921.00
Volume of maximum water storage (cu.m.)= 3030.33
Calculated Drawdown Time (Hr)= 28.73

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--------------------------
| Junction Command(0028) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0025)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0028)	0.00	0.00	0.00	0.00

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| Junction Command(0029) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0025)	8.21	0.08	7.27	41.97
OUTFLOW: ID= 2(0029)	8.21	0.08	7.27	41.97

```
**************************************
** SIMULATION:Run 03 10yr 12 hr AES **
**************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              c47f3f7d-cf90-47dc-99e2-4833ae267791\ca56f05e
| Ptotal= 62.71 mm |    Comments: 10yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	10.66	6.75	4.39	10.00	0.63
0.50	0.63	3.75	10.66	7.00	4.39	10.25	0.63
0.75	0.63	4.00	10.66	7.25	4.39	10.50	0.63
1.00	0.63	4.25	10.66	7.50	2.51	10.75	0.63
1.25	0.63	4.50	28.84	7.75	2.51	11.00	0.63
1.50	0.63	4.75	28.84	8.00	2.51	11.25	0.63
1.75	0.63	5.00	28.84	8.25	2.51	11.50	0.63
2.00	0.63	5.25	28.84	8.50	1.25	11.75	0.63
2.25	0.63	5.50	8.15	8.75	1.25	12.00	0.63
2.50	3.76	5.75	8.15	9.00	1.25	12.25	0.63
2.75	3.76	6.00	8.15	9.25	1.25		
3.00	3.76	6.25	8.15	9.50	0.63		
3.25	3.76	6.50	4.39	9.75	0.63		

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| CALIB            |
| STANDHYD ( 1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	16.30	0.40
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	333.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.76	6.167	8.15	9.23	1.25
0.067	0.00	3.133	3.76	6.200	8.15	9.27	0.94
0.100	0.00	3.167	3.76	6.233	8.15	9.30	0.63
0.133	0.00	3.200	3.76	6.267	6.27	9.33	0.63
0.167	0.00	3.233	3.76	6.300	4.39	9.37	0.63
0.200	0.00	3.267	7.21	6.333	4.39	9.40	0.63
0.233	0.00	3.300	10.66	6.367	4.39	9.43	0.63
0.267	0.32	3.333	10.66	6.400	4.39	9.47	0.63
0.300	0.63	3.367	10.66	6.433	4.39	9.50	0.63
0.333	0.63	3.400	10.66	6.467	4.39	9.53	0.63
0.367	0.63	3.433	10.66	6.500	4.39	9.57	0.63
0.400	0.63	3.467	10.66	6.533	4.39	9.60	0.63
0.433	0.63	3.500	10.66	6.567	4.39	9.63	0.63
0.467	0.63	3.533	10.66	6.600	4.39	9.67	0.63
0.500	0.63	3.567	10.66	6.633	4.39	9.70	0.63
0.533	0.63	3.600	10.66	6.667	4.39	9.73	0.63
0.567	0.63	3.633	10.66	6.700	4.39	9.77	0.63
0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63

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2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

Max.Eff.Inten.(mm/hr)=	28.84	15.24	
over (min)	8.00	12.00	
Storage Coeff. (min)=	8.66 (ii)	11.29 (ii)	
Unit Hyd. Tpeak (min)=	8.00	12.00	
Unit Hyd. peak (cms)=	0.13	0.10	
			TOTALS
PEAK FLOW (cms)=	1.30	0.02	1.320 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23
RUNOFF VOLUME (mm)=	61.71	24.15	60.81
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.39	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 2.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.2962	0.9330
0.1249	0.5470	0.3457	1.0260
0.1913	0.7040	0.3906	1.1190
0.2353	0.8050	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1100)	16.700	1.320	5.23	60.81
OUTFLOW: ID= 1 (0003)	16.700	0.202	7.20	60.44

PEAK FLOW REDUCTION [Qout/Qin](%)= 15.33
TIME SHIFT OF PEAK FLOW (min)=118.00
MAXIMUM STORAGE USED (ha.m.)= 0.7291

CALIB	
STANDHYD (1200)	Area (ha)= 14.36
ID= 1 DT= 2.0 min	Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	14.02	0.34
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	309.41	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.76	6.167	8.15	9.23	1.25
0.067	0.00	3.133	3.76	6.200	8.15	9.27	0.94
0.100	0.00	3.167	3.76	6.233	8.15	9.30	0.63
0.133	0.00	3.200	3.76	6.267	6.27	9.33	0.63
0.167	0.00	3.233	3.76	6.300	4.39	9.37	0.63
0.200	0.00	3.267	7.21	6.333	4.39	9.40	0.63
0.233	0.00	3.300	10.66	6.367	4.39	9.43	0.63
0.267	0.32	3.333	10.66	6.400	4.39	9.47	0.63
0.300	0.63	3.367	10.66	6.433	4.39	9.50	0.63
0.333	0.63	3.400	10.66	6.467	4.39	9.53	0.63
0.367	0.63	3.433	10.66	6.500	4.39	9.57	0.63
0.400	0.63	3.467	10.66	6.533	4.39	9.60	0.63
0.433	0.63	3.500	10.66	6.567	4.39	9.63	0.63
0.467	0.63	3.533	10.66	6.600	4.39	9.67	0.63
0.500	0.63	3.567	10.66	6.633	4.39	9.70	0.63
0.533	0.63	3.600	10.66	6.667	4.39	9.73	0.63
0.567	0.63	3.633	10.66	6.700	4.39	9.77	0.63
0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63

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2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

```
Max.Eff.Inten.(mm/hr)=      28.84        15.24
            over (min)       8.00        12.00
Storage Coeff.  (min)=       8.27 (ii)   10.91 (ii)
Unit Hyd. Tpeak (min)=       8.00        12.00
Unit Hyd. peak  (cms)=       0.14         0.10
                                                      *TOTALS*
PEAK FLOW       (cms)=       1.12         0.01          1.135 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27           5.23
RUNOFF VOLUME    (mm)=      61.71        24.15          60.81
TOTAL RAINFALL   (mm)=      62.71        62.71          62.71
RUNOFF COEFFICIENT   =       0.98         0.39           0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.2584     0.8010
                           0.1090     0.4690   |   0.3017     0.8810
                           0.1669     0.6040   |   0.3408     0.9600
                           0.2053     0.6910   |   0.0000     0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1200)     14.360     1.135      5.23      60.81
   OUTFLOW: ID= 1 (  0004)     14.360     0.176      6.87      60.47

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 15.52
                  TIME SHIFT OF PEAK FLOW         (min)= 98.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6249

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.76          0.33
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      283.90         40.00
     Mannings n           =       0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.033    0.00 | 3.100    3.76 | 6.167    8.15 |  9.23    1.25
                 0.067    0.00 | 3.133    3.76 | 6.200    8.15 |  9.27    0.94
                 0.100    0.00 | 3.167    3.76 | 6.233    8.15 |  9.30    0.63
                 0.133    0.00 | 3.200    3.76 | 6.267    6.27 |  9.33    0.63
                 0.167    0.00 | 3.233    3.76 | 6.300    4.39 |  9.37    0.63
                 0.200    0.00 | 3.267    7.21 | 6.333    4.39 |  9.40    0.63
                 0.233    0.00 | 3.300   10.66 | 6.367    4.39 |  9.43    0.63
                 0.267    0.32 | 3.333   10.66 | 6.400    4.39 |  9.47    0.63
                 0.300    0.63 | 3.367   10.66 | 6.433    4.39 |  9.50    0.63
                 0.333    0.63 | 3.400   10.66 | 6.467    4.39 |  9.53    0.63
                 0.367    0.63 | 3.433   10.66 | 6.500    4.39 |  9.57    0.63
                 0.400    0.63 | 3.467   10.66 | 6.533    4.39 |  9.60    0.63
```

0.433	0.63	3.500	10.66	6.567	4.39	9.63	0.63
0.467	0.63	3.533	10.66	6.600	4.39	9.67	0.63
0.500	0.63	3.567	10.66	6.633	4.39	9.70	0.63
0.533	0.63	3.600	10.66	6.667	4.39	9.73	0.63
0.567	0.63	3.633	10.66	6.700	4.39	9.77	0.63
0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

```
Max.Eff.Inten.(mm/hr)=      28.84        15.24
            over (min)       8.00        12.00
Storage Coeff.  (min)=       7.86 (ii)   10.62 (ii)
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     Unit Hyd. Tpeak (min)=       8.00         12.00
     Unit Hyd. peak  (cms)=       0.14          0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.94          0.01         0.954 (iii)
     TIME TO PEAK    (hrs)=       5.23          5.27          5.23
     RUNOFF VOLUME    (mm)=      61.71         24.15         60.70
     TOTAL RAINFALL   (mm)=      62.71         62.71         62.71
     RUNOFF COEFFICIENT   =       0.98          0.39          0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.67         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.76 | 6.167    8.15 |  9.23    1.25
               0.067    0.00 | 3.133    3.76 | 6.200    8.15 |  9.27    0.94
               0.100    0.00 | 3.167    3.76 | 6.233    8.15 |  9.30    0.63
               0.133    0.00 | 3.200    3.76 | 6.267    6.27 |  9.33    0.63
               0.167    0.00 | 3.233    3.76 | 6.300    4.39 |  9.37    0.63
               0.200    0.00 | 3.267    7.21 | 6.333    4.39 |  9.40    0.63
               0.233    0.00 | 3.300   10.66 | 6.367    4.39 |  9.43    0.63
               0.267    0.32 | 3.333   10.66 | 6.400    4.39 |  9.47    0.63
               0.300    0.63 | 3.367   10.66 | 6.433    4.39 |  9.50    0.63
               0.333    0.63 | 3.400   10.66 | 6.467    4.39 |  9.53    0.63
               0.367    0.63 | 3.433   10.66 | 6.500    4.39 |  9.57    0.63
               0.400    0.63 | 3.467   10.66 | 6.533    4.39 |  9.60    0.63
               0.433    0.63 | 3.500   10.66 | 6.567    4.39 |  9.63    0.63
               0.467    0.63 | 3.533   10.66 | 6.600    4.39 |  9.67    0.63
               0.500    0.63 | 3.567   10.66 | 6.633    4.39 |  9.70    0.63
               0.533    0.63 | 3.600   10.66 | 6.667    4.39 |  9.73    0.63
               0.567    0.63 | 3.633   10.66 | 6.700    4.39 |  9.77    0.63
               0.600    0.63 | 3.667   10.66 | 6.733    4.39 |  9.80    0.63
               0.633    0.63 | 3.700   10.66 | 6.767    4.39 |  9.83    0.63
               0.667    0.63 | 3.733   10.66 | 6.800    4.39 |  9.87    0.63
               0.700    0.63 | 3.767   10.66 | 6.833    4.39 |  9.90    0.63
               0.733    0.63 | 3.800   10.66 | 6.867    4.39 |  9.93    0.63
               0.767    0.63 | 3.833   10.66 | 6.900    4.39 |  9.97    0.63
               0.800    0.63 | 3.867   10.66 | 6.933    4.39 | 10.00    0.63
               0.833    0.63 | 3.900   10.66 | 6.967    4.39 | 10.03    0.63
               0.867    0.63 | 3.933   10.66 | 7.000    4.39 | 10.07    0.63
               0.900    0.63 | 3.967   10.66 | 7.033    4.39 | 10.10    0.63
               0.933    0.63 | 4.000   10.66 | 7.067    4.39 | 10.13    0.63
               0.967    0.63 | 4.033   10.66 | 7.100    4.39 | 10.17    0.63
               1.000    0.63 | 4.067   10.66 | 7.133    4.39 | 10.20    0.63
               1.033    0.63 | 4.100   10.66 | 7.167    4.39 | 10.23    0.63
               1.067    0.63 | 4.133   10.66 | 7.200    4.39 | 10.27    0.63
               1.100    0.63 | 4.167   10.66 | 7.233    4.39 | 10.30    0.63
               1.133    0.63 | 4.200   10.66 | 7.267    3.45 | 10.33    0.63
               1.167    0.63 | 4.233   10.66 | 7.300    2.51 | 10.37    0.63
               1.200    0.63 | 4.267   19.75 | 7.333    2.51 | 10.40    0.63
               1.233    0.63 | 4.300   28.84 | 7.367    2.51 | 10.43    0.63
               1.267    0.63 | 4.333   28.84 | 7.400    2.51 | 10.47    0.63
               1.300    0.63 | 4.367   28.84 | 7.433    2.51 | 10.50    0.63
               1.333    0.63 | 4.400   28.84 | 7.467    2.51 | 10.53    0.63
               1.367    0.63 | 4.433   28.84 | 7.500    2.51 | 10.57    0.63
               1.400    0.63 | 4.467   28.84 | 7.533    2.51 | 10.60    0.63
               1.433    0.63 | 4.500   28.84 | 7.567    2.51 | 10.63    0.63
               1.467    0.63 | 4.533   28.84 | 7.600    2.51 | 10.67    0.63
               1.500    0.63 | 4.567   28.84 | 7.633    2.51 | 10.70    0.63
               1.533    0.63 | 4.600   28.84 | 7.667    2.51 | 10.73    0.63
               1.567    0.63 | 4.633   28.84 | 7.700    2.51 | 10.77    0.63
               1.600    0.63 | 4.667   28.84 | 7.733    2.51 | 10.80    0.63
               1.633    0.63 | 4.700   28.84 | 7.767    2.51 | 10.83    0.63
               1.667    0.63 | 4.733   28.84 | 7.800    2.51 | 10.87    0.63
               1.700    0.63 | 4.767   28.84 | 7.833    2.51 | 10.90    0.63
               1.733    0.63 | 4.800   28.84 | 7.867    2.51 | 10.93    0.63
               1.767    0.63 | 4.833   28.84 | 7.900    2.51 | 10.97    0.63
               1.800    0.63 | 4.867   28.84 | 7.933    2.51 | 11.00    0.63
               1.833    0.63 | 4.900   28.84 | 7.967    2.51 | 11.03    0.63
               1.867    0.63 | 4.933   28.84 | 8.000    2.51 | 11.07    0.63
               1.900    0.63 | 4.967   28.84 | 8.033    2.51 | 11.10    0.63
               1.933    0.63 | 5.000   28.84 | 8.067    2.51 | 11.13    0.63
               1.967    0.63 | 5.033   28.84 | 8.100    2.51 | 11.17    0.63
               2.000    0.63 | 5.067   28.84 | 8.133    2.51 | 11.20    0.63
               2.033    0.63 | 5.100   28.84 | 8.167    2.51 | 11.23    0.63
               2.067    0.63 | 5.133   28.84 | 8.200    2.51 | 11.27    0.63
               2.100    0.63 | 5.167   28.84 | 8.233    2.51 | 11.30    0.63
               2.133    0.63 | 5.200   28.84 | 8.267    1.88 | 11.33    0.63
               2.167    0.63 | 5.233   28.84 | 8.300    1.25 | 11.37    0.63
               2.200    0.63 | 5.267   18.50 | 8.333    1.25 | 11.40    0.63
               2.233    0.63 | 5.300    8.15 | 8.367    1.25 | 11.43    0.63
               2.267    2.19 | 5.333    8.15 | 8.400    1.25 | 11.47    0.63
               2.300    3.76 | 5.367    8.15 | 8.433    1.25 | 11.50    0.63
               2.333    3.76 | 5.400    8.15 | 8.467    1.25 | 11.53    0.63
               2.367    3.76 | 5.433    8.15 | 8.500    1.25 | 11.57    0.63
               2.400    3.76 | 5.467    8.15 | 8.533    1.25 | 11.60    0.63
               2.433    3.76 | 5.500    8.15 | 8.567    1.25 | 11.63    0.63
               2.467    3.76 | 5.533    8.15 | 8.600    1.25 | 11.67    0.63
               2.500    3.76 | 5.567    8.15 | 8.633    1.25 | 11.70    0.63
               2.533    3.76 | 5.600    8.15 | 8.667    1.25 | 11.73    0.63
               2.567    3.76 | 5.633    8.15 | 8.700    1.25 | 11.77    0.63
               2.600    3.76 | 5.667    8.15 | 8.733    1.25 | 11.80    0.63
               2.633    3.76 | 5.700    8.15 | 8.767    1.25 | 11.83    0.63
               2.667    3.76 | 5.733    8.15 | 8.800    1.25 | 11.87    0.63
               2.700    3.76 | 5.767    8.15 | 8.833    1.25 | 11.90    0.63
               2.733    3.76 | 5.800    8.15 | 8.867    1.25 | 11.93    0.63
               2.767    3.76 | 5.833    8.15 | 8.900    1.25 | 11.97    0.63
               2.800    3.76 | 5.867    8.15 | 8.933    1.25 | 12.00    0.63
               2.833    3.76 | 5.900    8.15 | 8.967    1.25 | 12.03    0.63
               2.867    3.76 | 5.933    8.15 | 9.000    1.25 | 12.07    0.63
               2.900    3.76 | 5.967    8.15 | 9.033    1.25 | 12.10    0.63
               2.933    3.76 | 6.000    8.15 | 9.067    1.25 | 12.13    0.63
               2.967    3.76 | 6.033    8.15 | 9.100    1.25 | 12.17    0.63
               3.000    3.76 | 6.067    8.15 | 9.133    1.25 | 12.20    0.63
               3.033    3.76 | 6.100    8.15 | 9.167    1.25 | 12.23    0.63
               3.067    3.76 | 6.133    8.15 | 9.200    1.25 | 12.27    0.31

     Max.Eff.Inten.(mm/hr)=      28.84         15.24
                over (min)        6.00          8.00
     Storage Coeff.  (min)=       6.99 (ii)     7.72 (ii)
     Unit Hyd. Tpeak (min)=       6.00          8.00
     Unit Hyd. peak  (cms)=       0.17          0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.66          0.00         0.656 (iii)
     TIME TO PEAK    (hrs)=       5.23          5.23          5.23
     RUNOFF VOLUME    (mm)=      61.71         24.15         61.67
     TOTAL RAINFALL   (mm)=      62.71         62.71         62.71
     RUNOFF COEFFICIENT   =       0.98          0.39          0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190     0.656      5.23      61.67
   OUTFLOW: ID= 1 (  0001)      8.190     0.048      8.33      56.69

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.25
                  TIME SHIFT OF PEAK FLOW         (min)=186.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4171

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| ADD HYD  (  0050)|
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TOWN OF CALEDON
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|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.048     8.33    56.69
      + ID2= 2 (  1000):     12.09    0.954     5.23    60.70
        ====================================================
        ID = 3 (  0050):     20.28    0.989     5.23    59.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
-------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|      OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.3529      0.6280
                           0.1489     0.3700   |   0.4118      0.6880
                           0.2279     0.4770   |   0.4654      0.7430
                           0.2804     0.5450   |   0.0000      0.0000

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)      20.280     0.989      5.23      59.08
   OUTFLOW: ID= 1 (  0002)      20.280     0.239      6.43      58.28

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.20
                   TIME SHIFT OF PEAK FLOW         (min)= 72.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.4918

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.76 | 6.167    8.15 |  9.23    1.25
               0.067    0.00 | 3.133    3.76 | 6.200    8.15 |  9.27    0.94
               0.100    0.00 | 3.167    3.76 | 6.233    8.15 |  9.30    0.63
               0.133    0.00 | 3.200    3.76 | 6.267    6.27 |  9.33    0.63
               0.167    0.00 | 3.233    3.76 | 6.300    4.39 |  9.37    0.63
               0.200    0.00 | 3.267    7.21 | 6.333    4.39 |  9.40    0.63
               0.233    0.00 | 3.300   10.66 | 6.367    4.39 |  9.43    0.63
               0.267    0.32 | 3.333   10.66 | 6.400    4.39 |  9.47    0.63
               0.300    0.63 | 3.367   10.66 | 6.433    4.39 |  9.50    0.63
               0.333    0.63 | 3.400   10.66 | 6.467    4.39 |  9.53    0.63
               0.367    0.63 | 3.433   10.66 | 6.500    4.39 |  9.57    0.63
               0.400    0.63 | 3.467   10.66 | 6.533    4.39 |  9.60    0.63
               0.433    0.63 | 3.500   10.66 | 6.567    4.39 |  9.63    0.63
               0.467    0.63 | 3.533   10.66 | 6.600    4.39 |  9.67    0.63
               0.500    0.63 | 3.567   10.66 | 6.633    4.39 |  9.70    0.63
               0.533    0.63 | 3.600   10.66 | 6.667    4.39 |  9.73    0.63
               0.567    0.63 | 3.633   10.66 | 6.700    4.39 |  9.77    0.63
               0.600    0.63 | 3.667   10.66 | 6.733    4.39 |  9.80    0.63
               0.633    0.63 | 3.700   10.66 | 6.767    4.39 |  9.83    0.63
               0.667    0.63 | 3.733   10.66 | 6.800    4.39 |  9.87    0.63
               0.700    0.63 | 3.767   10.66 | 6.833    4.39 |  9.90    0.63
               0.733    0.63 | 3.800   10.66 | 6.867    4.39 |  9.93    0.63
               0.767    0.63 | 3.833   10.66 | 6.900    4.39 |  9.97    0.63
               0.800    0.63 | 3.867   10.66 | 6.933    4.39 | 10.00    0.63
               0.833    0.63 | 3.900   10.66 | 6.967    4.39 | 10.03    0.63
               0.867    0.63 | 3.933   10.66 | 7.000    4.39 | 10.07    0.63
               0.900    0.63 | 3.967   10.66 | 7.033    4.39 | 10.10    0.63
               0.933    0.63 | 4.000   10.66 | 7.067    4.39 | 10.13    0.63
               0.967    0.63 | 4.033   10.66 | 7.100    4.39 | 10.17    0.63
               1.000    0.63 | 4.067   10.66 | 7.133    4.39 | 10.20    0.63
               1.033    0.63 | 4.100   10.66 | 7.167    4.39 | 10.23    0.63
               1.067    0.63 | 4.133   10.66 | 7.200    4.39 | 10.27    0.63
               1.100    0.63 | 4.167   10.66 | 7.233    4.39 | 10.30    0.63
               1.133    0.63 | 4.200   10.66 | 7.267    3.45 | 10.33    0.63
               1.167    0.63 | 4.233   10.66 | 7.300    2.51 | 10.37    0.63
               1.200    0.63 | 4.267   19.75 | 7.333    2.51 | 10.40    0.63
               1.233    0.63 | 4.300   28.84 | 7.367    2.51 | 10.43    0.63
               1.267    0.63 | 4.333   28.84 | 7.400    2.51 | 10.47    0.63
               1.300    0.63 | 4.367   28.84 | 7.433    2.51 | 10.50    0.63
               1.333    0.63 | 4.400   28.84 | 7.467    2.51 | 10.53    0.63
               1.367    0.63 | 4.433   28.84 | 7.500    2.51 | 10.57    0.63
               1.400    0.63 | 4.467   28.84 | 7.533    2.51 | 10.60    0.63
               1.433    0.63 | 4.500   28.84 | 7.567    2.51 | 10.63    0.63
               1.467    0.63 | 4.533   28.84 | 7.600    2.51 | 10.67    0.63
               1.500    0.63 | 4.567   28.84 | 7.633    2.51 | 10.70    0.63
               1.533    0.63 | 4.600   28.84 | 7.667    2.51 | 10.73    0.63
               1.567    0.63 | 4.633   28.84 | 7.700    2.51 | 10.77    0.63
               1.600    0.63 | 4.667   28.84 | 7.733    2.51 | 10.80    0.63
               1.633    0.63 | 4.700   28.84 | 7.767    2.51 | 10.83    0.63
               1.667    0.63 | 4.733   28.84 | 7.800    2.51 | 10.87    0.63
               1.700    0.63 | 4.767   28.84 | 7.833    2.51 | 10.90    0.63
               1.733    0.63 | 4.800   28.84 | 7.867    2.51 | 10.93    0.63
               1.767    0.63 | 4.833   28.84 | 7.900    2.51 | 10.97    0.63
               1.800    0.63 | 4.867   28.84 | 7.933    2.51 | 11.00    0.63
               1.833    0.63 | 4.900   28.84 | 7.967    2.51 | 11.03    0.63
               1.867    0.63 | 4.933   28.84 | 8.000    2.51 | 11.07    0.63
               1.900    0.63 | 4.967   28.84 | 8.033    2.51 | 11.10    0.63
               1.933    0.63 | 5.000   28.84 | 8.067    2.51 | 11.13    0.63
               1.967    0.63 | 5.033   28.84 | 8.100    2.51 | 11.17    0.63
               2.000    0.63 | 5.067   28.84 | 8.133    2.51 | 11.20    0.63
               2.033    0.63 | 5.100   28.84 | 8.167    2.51 | 11.23    0.63
               2.067    0.63 | 5.133   28.84 | 8.200    2.51 | 11.27    0.63
               2.100    0.63 | 5.167   28.84 | 8.233    2.51 | 11.30    0.63
               2.133    0.63 | 5.200   28.84 | 8.267    1.88 | 11.33    0.63
               2.167    0.63 | 5.233   28.84 | 8.300    1.25 | 11.37    0.63
               2.200    0.63 | 5.267   18.50 | 8.333    1.25 | 11.40    0.63
               2.233    0.63 | 5.300    8.15 | 8.367    1.25 | 11.43    0.63
               2.267    2.19 | 5.333    8.15 | 8.400    1.25 | 11.47    0.63
               2.300    3.76 | 5.367    8.15 | 8.433    1.25 | 11.50    0.63
               2.333    3.76 | 5.400    8.15 | 8.467    1.25 | 11.53    0.63
               2.367    3.76 | 5.433    8.15 | 8.500    1.25 | 11.57    0.63
               2.400    3.76 | 5.467    8.15 | 8.533    1.25 | 11.60    0.63
               2.433    3.76 | 5.500    8.15 | 8.567    1.25 | 11.63    0.63
               2.467    3.76 | 5.533    8.15 | 8.600    1.25 | 11.67    0.63
               2.500    3.76 | 5.567    8.15 | 8.633    1.25 | 11.70    0.63
               2.533    3.76 | 5.600    8.15 | 8.667    1.25 | 11.73    0.63
               2.567    3.76 | 5.633    8.15 | 8.700    1.25 | 11.77    0.63
               2.600    3.76 | 5.667    8.15 | 8.733    1.25 | 11.80    0.63
               2.633    3.76 | 5.700    8.15 | 8.767    1.25 | 11.83    0.63
               2.667    3.76 | 5.733    8.15 | 8.800    1.25 | 11.87    0.63
               2.700    3.76 | 5.767    8.15 | 8.833    1.25 | 11.90    0.63
               2.733    3.76 | 5.800    8.15 | 8.867    1.25 | 11.93    0.63
               2.767    3.76 | 5.833    8.15 | 8.900    1.25 | 11.97    0.63
               2.800    3.76 | 5.867    8.15 | 8.933    1.25 | 12.00    0.63
               2.833    3.76 | 5.900    8.15 | 8.967    1.25 | 12.03    0.63
               2.867    3.76 | 5.933    8.15 | 9.000    1.25 | 12.07    0.63
               2.900    3.76 | 5.967    8.15 | 9.033    1.25 | 12.10    0.63
               2.933    3.76 | 6.000    8.15 | 9.067    1.25 | 12.13    0.63
               2.967    3.76 | 6.033    8.15 | 9.100    1.25 | 12.17    0.63
               3.000    3.76 | 6.067    8.15 | 9.133    1.25 | 12.20    0.63
               3.033    3.76 | 6.100    8.15 | 9.167    1.25 | 12.23    0.63
               3.067    3.76 | 6.133    8.15 | 9.200    1.25 | 12.27    0.31

     Max.Eff.Inten.(mm/hr)=      28.84         21.37
                over (min)        6.00          8.00
     Storage Coeff.  (min)=       7.00 (ii)     7.73 (ii)
     Unit Hyd. Tpeak (min)=       6.00          8.00
     Unit Hyd. peak  (cms)=       0.17          0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.66          0.00        0.657 (iii)
     TIME TO PEAK    (hrs)=       5.23          5.23         5.23
     RUNOFF VOLUME    (mm)=      61.71         34.81        61.68
     TOTAL RAINFALL   (mm)=      62.71         62.71        62.71
     RUNOFF COEFFICIENT   =       0.98          0.56         0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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| CHAMBER(  0025)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6204.18  Bottom Area(m2)   = 4645.00
------------------
                      DEPTH        STORAGE          |   DEPTH       STORAGE
                      (mm)         (cu.m.)          |   (mm)        (cu.m.)
                        0.00           0.00          |   1041.00       3584.20
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TOWN OF CALEDON
PLANNING
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25.00	47.18	1067.00	3674.57
51.00	94.36	1092.00	3764.19
76.00	141.55	1118.00	3853.02
102.00	188.73	1143.00	3941.03
127.00	235.91	1168.00	4028.20
152.00	283.09	1194.00	4114.48
178.00	330.28	1219.00	4199.84
203.00	377.46	1245.00	4284.24
229.00	424.64	1270.00	4367.63
254.00	528.45	1295.00	4449.97
279.00	631.99	1321.00	4531.20
305.00	735.34	1346.00	4611.27
330.00	838.49	1372.00	4690.11
356.00	941.43	1397.00	4767.66
381.00	1044.14	1422.00	4843.83
406.00	1146.61	1448.00	4918.54
432.00	1248.83	1473.00	4991.66
457.00	1350.78	1499.00	5063.08
483.00	1452.44	1524.00	5132.61
508.00	1553.81	1549.00	5200.03
533.00	1654.87	1575.00	5265.01
559.00	1755.60	1600.00	5327.01
584.00	1855.98	1626.00	5384.28
610.00	1956.00	1651.00	5437.45
635.00	2055.65	1676.00	5489.29
660.00	2154.91	1702.00	5540.14
686.00	2253.76	1727.00	5589.90
711.00	2352.18	1753.00	5637.99
737.00	2450.16	1778.00	5685.18
762.00	2547.68	1803.00	5732.36
787.00	2644.71	1829.00	5779.54
813.00	2741.25	1854.00	5826.72
838.00	2837.27	1880.00	5873.91
864.00	2932.74	1905.00	5921.09
889.00	3027.66	1930.00	5968.27
914.00	3122.00	1956.00	6015.45
940.00	3215.74	1981.00	6062.64
965.00	3308.85	2007.00	6109.82
991.00	3401.32	2032.00	6157.00
1016.00	3493.11	2057.00	6204.18

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.657	5.23	61.68
OUTFLOW:ID= 1	8.21	0.087	7.30	49.73
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)= 19.37
Time to reach Max storage (Hr)= 7.30
Volume of water for drawdown in LID (cu.m.)= 2346.55
Volume of maximum water storage (cu.m.)= 3549.27
Calculated Drawdown Time (Hr)= 30.43

```
--------------------------
| Junction Command(0028) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0025)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0028)	0.00	0.00	0.00	0.00

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--------------------------
| Junction Command(0029) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0025)	8.21	0.09	7.30	49.73
OUTFLOW: ID= 2(0029)	8.21	0.09	7.30	49.73

```
**************************************
** SIMULATION:Run 04 25yr 12 hr AES **
**************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              c47f3f7d-cf90-47dc-99e2-4833ae267791\ec76e1ab
| Ptotal= 73.10 mm |    Comments: 25yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	12.43	6.75	5.12	10.00	0.73
0.50	0.73	3.75	12.43	7.00	5.12	10.25	0.73
0.75	0.73	4.00	12.43	7.25	5.12	10.50	0.73
1.00	0.73	4.25	12.43	7.50	2.92	10.75	0.73
1.25	0.73	4.50	33.63	7.75	2.92	11.00	0.73
1.50	0.73	4.75	33.63	8.00	2.92	11.25	0.73
1.75	0.73	5.00	33.63	8.25	2.92	11.50	0.73
2.00	0.73	5.25	33.63	8.50	1.46	11.75	0.73
2.25	0.73	5.50	9.50	8.75	1.46	12.00	0.73
2.50	4.39	5.75	9.50	9.00	1.46	12.25	0.73
2.75	4.39	6.00	9.50	9.25	1.46		
3.00	4.39	6.25	9.50	9.50	0.73		
3.25	4.39	6.50	5.12	9.75	0.73		

```
--------------------
| CALIB            |
| STANDHYD ( 1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	16.30	0.40
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	333.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.39	6.167	9.50	9.23	1.46
0.067	0.00	3.133	4.39	6.200	9.50	9.27	1.09
0.100	0.00	3.167	4.39	6.233	9.50	9.30	0.73
0.133	0.00	3.200	4.39	6.267	7.31	9.33	0.73
0.167	0.00	3.233	4.39	6.300	5.12	9.37	0.73
0.200	0.00	3.267	8.41	6.333	5.12	9.40	0.73
0.233	0.00	3.300	12.43	6.367	5.12	9.43	0.73
0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73

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1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

```
Max.Eff.Inten.(mm/hr)=      33.63        19.50
           over (min)        8.00        12.00
Storage Coeff.  (min)=       8.14 (ii)   10.62 (ii)
Unit Hyd. Tpeak (min)=       8.00        12.00
Unit Hyd. peak  (cms)=       0.14         0.10
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.52         0.02        1.541 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      72.10        31.27        71.12
TOTAL RAINFALL   (mm)=      73.10        73.10        73.10
RUNOFF COEFFICIENT   =       0.99         0.43         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962      0.9330
                          0.1249     0.5470   |   0.3457      1.0260
                          0.1913     0.7040   |   0.3906      1.1190
                          0.2353     0.8050   |   0.0000      0.0000

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700      1.541      5.23      71.12
   OUTFLOW: ID= 1 (  0003)     16.700      0.253      6.63      70.71

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.41
                   TIME SHIFT OF PEAK FLOW         (min)= 84.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.8422

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--------------------
| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02          0.34
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     309.41         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    4.39 | 6.167    9.50 |  9.23    1.46
               0.067    0.00 | 3.133    4.39 | 6.200    9.50 |  9.27    1.09
               0.100    0.00 | 3.167    4.39 | 6.233    9.50 |  9.30    0.73
               0.133    0.00 | 3.200    4.39 | 6.267    7.31 |  9.33    0.73
               0.167    0.00 | 3.233    4.39 | 6.300    5.12 |  9.37    0.73
               0.200    0.00 | 3.267    8.41 | 6.333    5.12 |  9.40    0.73
               0.233    0.00 | 3.300   12.43 | 6.367    5.12 |  9.43    0.73
               0.267    0.37 | 3.333   12.43 | 6.400    5.12 |  9.47    0.73
               0.300    0.73 | 3.367   12.43 | 6.433    5.12 |  9.50    0.73
               0.333    0.73 | 3.400   12.43 | 6.467    5.12 |  9.53    0.73
               0.367    0.73 | 3.433   12.43 | 6.500    5.12 |  9.57    0.73
               0.400    0.73 | 3.467   12.43 | 6.533    5.12 |  9.60    0.73
               0.433    0.73 | 3.500   12.43 | 6.567    5.12 |  9.63    0.73
               0.467    0.73 | 3.533   12.43 | 6.600    5.12 |  9.67    0.73
               0.500    0.73 | 3.567   12.43 | 6.633    5.12 |  9.70    0.73
               0.533    0.73 | 3.600   12.43 | 6.667    5.12 |  9.73    0.73
               0.567    0.73 | 3.633   12.43 | 6.700    5.12 |  9.77    0.73
               0.600    0.73 | 3.667   12.43 | 6.733    5.12 |  9.80    0.73
               0.633    0.73 | 3.700   12.43 | 6.767    5.12 |  9.83    0.73
               0.667    0.73 | 3.733   12.43 | 6.800    5.12 |  9.87    0.73
               0.700    0.73 | 3.767   12.43 | 6.833    5.12 |  9.90    0.73
               0.733    0.73 | 3.800   12.43 | 6.867    5.12 |  9.93    0.73
               0.767    0.73 | 3.833   12.43 | 6.900    5.12 |  9.97    0.73
               0.800    0.73 | 3.867   12.43 | 6.933    5.12 | 10.00    0.73
               0.833    0.73 | 3.900   12.43 | 6.967    5.12 | 10.03    0.73
               0.867    0.73 | 3.933   12.43 | 7.000    5.12 | 10.07    0.73
               0.900    0.73 | 3.967   12.43 | 7.033    5.12 | 10.10    0.73
               0.933    0.73 | 4.000   12.43 | 7.067    5.12 | 10.13    0.73
               0.967    0.73 | 4.033   12.43 | 7.100    5.12 | 10.17    0.73
               1.000    0.73 | 4.067   12.43 | 7.133    5.12 | 10.20    0.73
               1.033    0.73 | 4.100   12.43 | 7.167    5.12 | 10.23    0.73
               1.067    0.73 | 4.133   12.43 | 7.200    5.12 | 10.27    0.73
               1.100    0.73 | 4.167   12.43 | 7.233    5.12 | 10.30    0.73
               1.133    0.73 | 4.200   12.43 | 7.267    4.02 | 10.33    0.73
               1.167    0.73 | 4.233   12.43 | 7.300    2.92 | 10.37    0.73
               1.200    0.73 | 4.267   23.03 | 7.333    2.92 | 10.40    0.73
               1.233    0.73 | 4.300   33.63 | 7.367    2.92 | 10.43    0.73
               1.267    0.73 | 4.333   33.63 | 7.400    2.92 | 10.47    0.73
               1.300    0.73 | 4.367   33.63 | 7.433    2.92 | 10.50    0.73
               1.333    0.73 | 4.400   33.63 | 7.467    2.92 | 10.53    0.73
               1.367    0.73 | 4.433   33.63 | 7.500    2.92 | 10.57    0.73
               1.400    0.73 | 4.467   33.63 | 7.533    2.92 | 10.60    0.73
               1.433    0.73 | 4.500   33.63 | 7.567    2.92 | 10.63    0.73
               1.467    0.73 | 4.533   33.63 | 7.600    2.92 | 10.67    0.73
               1.500    0.73 | 4.567   33.63 | 7.633    2.92 | 10.70    0.73
               1.533    0.73 | 4.600   33.63 | 7.667    2.92 | 10.73    0.73
               1.567    0.73 | 4.633   33.63 | 7.700    2.92 | 10.77    0.73
               1.600    0.73 | 4.667   33.63 | 7.733    2.92 | 10.80    0.73
               1.633    0.73 | 4.700   33.63 | 7.767    2.92 | 10.83    0.73
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1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

```
Max.Eff.Inten.(mm/hr)=      33.63        19.50
           over (min)        8.00        12.00
Storage Coeff.  (min)=       7.78 (ii)   10.26 (ii)
Unit Hyd. Tpeak (min)=       8.00        12.00
Unit Hyd. peak  (cms)=       0.14         0.10
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.31         0.02        1.326 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      72.10        31.27        71.12
TOTAL RAINFALL   (mm)=      73.10        73.10        73.10
RUNOFF COEFFICIENT   =       0.99         0.43         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584      0.8010
                          0.1090     0.4690   |   0.3017      0.8810
                          0.1669     0.6040   |   0.3408      0.9600
                          0.2053     0.6910   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  1200)     14.360     1.326      5.23      71.12
  OUTFLOW: ID= 1 (  0004)     14.360     0.220      6.60      70.74

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.62
                 TIME SHIFT OF PEAK FLOW         (min)= 82.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.7221

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.76          0.33
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      283.90         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.39	6.167	9.50	9.23	1.46
0.067	0.00	3.133	4.39	6.200	9.50	9.27	1.09
0.100	0.00	3.167	4.39	6.233	9.50	9.30	0.73
0.133	0.00	3.200	4.39	6.267	7.31	9.33	0.73
0.167	0.00	3.233	4.39	6.300	5.12	9.37	0.73
0.200	0.00	3.267	8.41	6.333	5.12	9.40	0.73
0.233	0.00	3.300	12.43	6.367	5.12	9.43	0.73
0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73
1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73

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2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

			TOTALS
Max.Eff.Inten.(mm/hr)=	33.63	19.50	
over (min)	8.00	10.00	
Storage Coeff. (min)=	7.39 (ii)	9.99 (ii)	
Unit Hyd. Tpeak (min)=	8.00	10.00	
Unit Hyd. peak (cms)=	0.15	0.11	
PEAK FLOW (cms)=	1.10	0.02	1.115 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23
RUNOFF VOLUME (mm)=	72.10	31.27	71.00
TOTAL RAINFALL (mm)=	73.10	73.10	73.10
RUNOFF COEFFICIENT =	0.99	0.43	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. 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 (0900)	Area (ha)= 8.19	
ID= 1 DT= 2.0 min	Total Imp(%)= 99.90	Dir. Conn.(%)= 99.90

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.18	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.39	6.167	9.50	9.23	1.46
0.067	0.00	3.133	4.39	6.200	9.50	9.27	1.09
0.100	0.00	3.167	4.39	6.233	9.50	9.30	0.73
0.133	0.00	3.200	4.39	6.267	7.31	9.33	0.73
0.167	0.00	3.233	4.39	6.300	5.12	9.37	0.73
0.200	0.00	3.267	8.41	6.333	5.12	9.40	0.73
0.233	0.00	3.300	12.43	6.367	5.12	9.43	0.73
0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73
1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

			TOTALS
Max.Eff.Inten.(mm/hr)=	33.63	19.50	
over (min)	6.00	8.00	
Storage Coeff. (min)=	6.57 (ii)	7.26 (ii)	
Unit Hyd. Tpeak (min)=	6.00	8.00	
Unit Hyd. peak (cms)=	0.18	0.15	
PEAK FLOW (cms)=	0.76	0.00	0.765 (iii)
TIME TO PEAK (hrs)=	5.23	5.23	5.23
RUNOFF VOLUME (mm)=	72.10	31.27	72.06
TOTAL RAINFALL (mm)=	73.10	73.10	73.10

TOWN OF CALEDON
PLANNING
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     RUNOFF COEFFICIENT   =       0.99         0.43           0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190      0.765      5.23      72.06
   OUTFLOW: ID= 1 (  0001)      8.190      0.056      8.33      66.24

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.26
                  TIME SHIFT OF PEAK FLOW         (min)=186.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4873

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

--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.056     8.33    66.24
      + ID2= 2 (  1000):    12.09   1.115     5.23    71.00
        ================================================
        ID = 3 (  0050):    20.28   1.156     5.23    69.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6280
                          0.1489     0.3700   |   0.4118      0.6880
                          0.2279     0.4770   |   0.4654      0.7430
                          0.2804     0.5450   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280      1.156      5.23      69.07
   OUTFLOW: ID= 1 (  0002)     20.280      0.298      6.40      68.14

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 25.80
                  TIME SHIFT OF PEAK FLOW         (min)= 70.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5654

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.95        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 3.100    4.39 | 6.167    9.50 |  9.23    1.46
                0.067    0.00 | 3.133    4.39 | 6.200    9.50 |  9.27    1.09
                0.100    0.00 | 3.167    4.39 | 6.233    9.50 |  9.30    0.73
                0.133    0.00 | 3.200    4.39 | 6.267    7.31 |  9.33    0.73
                0.167    0.00 | 3.233    4.39 | 6.300    5.12 |  9.37    0.73
                0.200    0.00 | 3.267    8.41 | 6.333    5.12 |  9.40    0.73
                0.233    0.00 | 3.300   12.43 | 6.367    5.12 |  9.43    0.73
```

0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73
1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73

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                3.067    4.39 | 6.133    9.50 | 9.200    1.46 | 12.27    0.36

     Max.Eff.Inten.(mm/hr)=      33.63        26.33
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       6.58 (ii)    7.27 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.18         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.77         0.00         0.767 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.23          5.23
     RUNOFF VOLUME    (mm)=      72.10        43.73         72.07
     TOTAL RAINFALL   (mm)=      73.10        73.10         73.10
     RUNOFF COEFFICIENT   =       0.99         0.60          0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0025)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6204.18  Bottom Area(m2)   = 4645.00
------------------
                      DEPTH       STORAGE          |   DEPTH      STORAGE
                      (mm)        (cu.m.)          |   (mm)       (cu.m.)
                        0.00          0.00          |   1041.00      3584.20
                       25.00         47.18          |   1067.00      3674.57
                       51.00         94.36          |   1092.00      3764.19
                       76.00        141.55          |   1118.00      3853.02
                      102.00        188.73          |   1143.00      3941.03
                      127.00        235.91          |   1168.00      4028.20
                      152.00        283.09          |   1194.00      4114.48
                      178.00        330.28          |   1219.00      4199.84
                      203.00        377.46          |   1245.00      4284.24
                      229.00        424.64          |   1270.00      4367.63
                      254.00        528.45          |   1295.00      4449.97
                      279.00        631.99          |   1321.00      4531.20
                      305.00        735.34          |   1346.00      4611.27
                      330.00        838.49          |   1372.00      4690.11
                      356.00        941.43          |   1397.00      4767.66
                      381.00       1044.14          |   1422.00      4843.83
                      406.00       1146.61          |   1448.00      4918.54
                      432.00       1248.83          |   1473.00      4991.66
                      457.00       1350.78          |   1499.00      5063.08
                      483.00       1452.44          |   1524.00      5132.61
                      508.00       1553.81          |   1549.00      5200.03
                      533.00       1654.87          |   1575.00      5265.01
                      559.00       1755.60          |   1600.00      5327.01
                      584.00       1855.98          |   1626.00      5384.28
                      610.00       1956.00          |   1651.00      5437.45
                      635.00       2055.65          |   1676.00      5489.29
                      660.00       2154.91          |   1702.00      5540.14
                      686.00       2253.76          |   1727.00      5589.90
                      711.00       2352.18          |   1753.00      5637.99
                      737.00       2450.16          |   1778.00      5685.18
                      762.00       2547.68          |   1803.00      5732.36
                      787.00       2644.71          |   1829.00      5779.54
                      813.00       2741.25          |   1854.00      5826.72
                      838.00       2837.27          |   1880.00      5873.91
                      864.00       2932.74          |   1905.00      5921.09
                      889.00       3027.66          |   1930.00      5968.27
                      914.00       3122.00          |   1956.00      6015.45
                      940.00       3215.74          |   1981.00      6062.64
                      965.00       3308.85          |   2007.00      6109.82
                      991.00       3401.32          |   2032.00      6157.00
                     1016.00       3493.11          |   2057.00      6204.18

                    DEPTH       DISCHARGE        |   DEPTH      DISCHARGE
                     (m)         (cms)           |    (m)        (cms)
                   0.000         0.000           |   0.460        0.066
                   0.010         0.011           |   0.510        0.069
                   0.060         0.024           |   0.560        0.072
                   0.110         0.032           |   0.610        0.075
                   0.160         0.039           |   0.660        0.079
                   0.210         0.045           |   0.710        0.081
                   0.260         0.049           |   0.760        0.084
                   0.310         0.054           |   0.810        0.087
                   0.360         0.058           |   0.860        0.090
                   0.410         0.062           |   0.910        0.092
```

```
                    NATIVE SOIL LAYER:
                    Infiltration (m/hr) = 0.0051

                       AREA         QPEAK            TPEAK         R.V.
                       (ha)         (cms)            (hrs)         (mm)
      INFLOW:ID= 2     8.21         0.767             5.23        72.07
     OUTFLOW:ID= 1     8.21         0.097             7.32        59.50
    OVERFLOW:ID= 3     0.00         0.000             0.00         0.00

                Volume Reduction Rate[(RVin-RVout)/RVin](%)=       17.45
                Time to reach Max storage              (Hr)=        7.32
                Volume of water for drawdown in LID (cu.m.)=     2900.56
                Volume of maximum water storage     (cu.m.)=     4207.08
                Calculated Drawdown Time               (Hr)=       32.40

  --------------------------
  | Junction Command(0028) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0025)     0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0028)     0.00     0.00    0.00     0.00

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

  --------------------------
  | Junction Command(0029) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 1(  0025)     8.21     0.10    7.32    59.50
  OUTFLOW: ID= 2(  0029)     8.21     0.10    7.32    59.50

  --------------------------------------------------------------------------------
**************************************
** SIMULATION:Run 05 50yr 12 hr AES **
**************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              c47f3f7d-cf90-47dc-99e2-4833ae267791\114dc132
| Ptotal= 80.82 mm |    Comments: 50yr/12hr
--------------------
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.25    0.00 |  3.50   13.74 |  6.75    5.66 | 10.00    0.81
                 0.50    0.81 |  3.75   13.74 |  7.00    5.66 | 10.25    0.81
                 0.75    0.81 |  4.00   13.74 |  7.25    5.66 | 10.50    0.81
                 1.00    0.81 |  4.25   13.74 |  7.50    3.23 | 10.75    0.81
                 1.25    0.81 |  4.50   37.17 |  7.75    3.23 | 11.00    0.81
                 1.50    0.81 |  4.75   37.17 |  8.00    3.23 | 11.25    0.81
                 1.75    0.81 |  5.00   37.17 |  8.25    3.23 | 11.50    0.81
                 2.00    0.81 |  5.25   37.17 |  8.50    1.62 | 11.75    0.81
                 2.25    0.81 |  5.50   10.50 |  8.75    1.62 | 12.00    0.81
                 2.50    4.85 |  5.75   10.50 |  9.00    1.62 | 12.25    0.81
                 2.75    4.85 |  6.00   10.50 |  9.25    1.62 |
                 3.00    4.85 |  6.25   10.50 |  9.50    0.81 |
                 3.25    4.85 |  6.50    5.66 |  9.75    0.81 |

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

  --------------------
  | CALIB            |
  | STANDHYD (  1100)|   Area    (ha)=  16.70
  |ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
  --------------------
                                IMPERVIOUS    PERVIOUS (i)
       Surface Area     (ha)=      16.30         0.40
       Dep. Storage     (mm)=       1.00         5.00
       Average Slope     (%)=       1.00         2.00
       Length            (m)=     333.67        40.00
       Mannings n          =      0.013        0.250

           NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                                 ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 3.100    4.85 | 6.167   10.50 |  9.23    1.62
                0.067    0.00 | 3.133    4.85 | 6.200   10.50 |  9.27    1.21
```

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0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

```
     Max.Eff.Inten.(mm/hr)=      37.17        22.76
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       7.82 (ii)   10.20 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.14         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.68         0.02        1.705 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27         5.23
     RUNOFF VOLUME    (mm)=      79.82        36.84        78.79
     TOTAL RAINFALL   (mm)=      80.82        80.82        80.82
     RUNOFF COEFFICIENT   =       0.99         0.46         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962      0.9330
                          0.1249     0.5470   |   0.3457      1.0260
                          0.1913     0.7040   |   0.3906      1.1190
                          0.2353     0.8050   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700      1.705      5.23      78.79
   OUTFLOW: ID= 1 (  0003)     16.700      0.292      6.57      78.35

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.15
                  TIME SHIFT OF PEAK FLOW         (min)= 80.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.9251

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--------------------
| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.02         0.34
     Dep. Storage     (mm)=        1.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      309.41        40.00
     Mannings n          =        0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.033    0.00 | 3.100    4.85 | 6.167   10.50 |  9.23    1.62
                 0.067    0.00 | 3.133    4.85 | 6.200   10.50 |  9.27    1.21
                 0.100    0.00 | 3.167    4.85 | 6.233   10.50 |  9.30    0.81
                 0.133    0.00 | 3.200    4.85 | 6.267    8.08 |  9.33    0.81
                 0.167    0.00 | 3.233    4.85 | 6.300    5.66 |  9.37    0.81
                 0.200    0.00 | 3.267    9.29 | 6.333    5.66 |  9.40    0.81
                 0.233    0.00 | 3.300   13.74 | 6.367    5.66 |  9.43    0.81
                 0.267    0.41 | 3.333   13.74 | 6.400    5.66 |  9.47    0.81
                 0.300    0.81 | 3.367   13.74 | 6.433    5.66 |  9.50    0.81
                 0.333    0.81 | 3.400   13.74 | 6.467    5.66 |  9.53    0.81
                 0.367    0.81 | 3.433   13.74 | 6.500    5.66 |  9.57    0.81
                 0.400    0.81 | 3.467   13.74 | 6.533    5.66 |  9.60    0.81
                 0.433    0.81 | 3.500   13.74 | 6.567    5.66 |  9.63    0.81
                 0.467    0.81 | 3.533   13.74 | 6.600    5.66 |  9.67    0.81
                 0.500    0.81 | 3.567   13.74 | 6.633    5.66 |  9.70    0.81
                 0.533    0.81 | 3.600   13.74 | 6.667    5.66 |  9.73    0.81
                 0.567    0.81 | 3.633   13.74 | 6.700    5.66 |  9.77    0.81
                 0.600    0.81 | 3.667   13.74 | 6.733    5.66 |  9.80    0.81
                 0.633    0.81 | 3.700   13.74 | 6.767    5.66 |  9.83    0.81
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TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

Max.Eff.Inten.(mm/hr)=		37.17	22.76	
over (min)		8.00	10.00	
Storage Coeff. (min)=		7.47 (ii)	9.86 (ii)	
Unit Hyd. Tpeak (min)=		8.00	10.00	
Unit Hyd. peak (cms)=		0.15	0.11	
				TOTALS
PEAK FLOW	(cms)=	1.45	0.02	1.467 (iii)
TIME TO PEAK	(hrs)=	5.23	5.27	5.23
RUNOFF VOLUME	(mm)=	79.82	36.84	78.79
TOTAL RAINFALL	(mm)=	80.82	80.82	80.82

RUNOFF COEFFICIENT =	0.99	0.46	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2584	0.8010
	0.1090	0.4690	0.3017	0.8810
	0.1669	0.6040	0.3408	0.9600
	0.2053	0.6910	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (1200)	14.360	1.467	5.23	78.79
OUTFLOW: ID= 1 (0004)	14.360	0.255	6.53	78.39

PEAK FLOW REDUCTION [Qout/Qin](%)= 17.36
TIME SHIFT OF PEAK FLOW (min)= 78.00
MAXIMUM STORAGE USED (ha.m.)= 0.7932

CALIB STANDHYD (1000) ID= 1 DT= 2.0 min	Area (ha)= 12.09 Total Imp(%)= 97.30 Dir. Conn.(%)= 97.30		
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.85	6.167	10.50	9.23	1.62
0.067	0.00	3.133	4.85	6.200	10.50	9.27	1.21
0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81

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1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

Max.Eff.Inten.(mm/hr)=	37.17	22.76	
over (min)	8.00	10.00	
Storage Coeff. (min)=	7.10 (ii)	9.60 (ii)	
Unit Hyd. Tpeak (min)=	8.00	10.00	
Unit Hyd. peak (cms)=	0.15	0.12	
			TOTALS
PEAK FLOW (cms)=	1.21	0.02	1.234 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23
RUNOFF VOLUME (mm)=	79.82	36.84	78.66
TOTAL RAINFALL (mm)=	80.82	80.82	80.82
RUNOFF COEFFICIENT =	0.99	0.46	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
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Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	233.67	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.85	6.167	10.50	9.23	1.62
0.067	0.00	3.133	4.85	6.200	10.50	9.27	1.21
0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81

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2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

```
Max.Eff.Inten.(mm/hr)=      37.17        22.76
            over (min)       6.00         8.00
Storage Coeff.  (min)=       6.32 (ii)    6.98 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.18         0.15
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.84         0.00        0.845 (iii)
TIME TO PEAK    (hrs)=       5.23         5.23         5.23
RUNOFF VOLUME    (mm)=      79.82        36.84        79.78
TOTAL RAINFALL   (mm)=      80.82        80.82        80.82
RUNOFF COEFFICIENT   =       0.99         0.46         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190     0.845      5.23      79.78
   OUTFLOW: ID= 1 (  0001)      8.190     0.061      8.33      73.33

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.27
                  TIME SHIFT OF PEAK FLOW         (min)=186.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5394

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):      8.19    0.061     8.33    73.33
     + ID2= 2 (  1000):     12.09    1.234     5.23    78.66
       ===================================================
       ID = 3 (  0050):     20.28    1.279     5.23    76.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529      0.6280
                          0.1489     0.3700   |   0.4118      0.6880
                          0.2279     0.4770   |   0.4654      0.7430
                          0.2804     0.5450   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280     1.279      5.23      76.51
   OUTFLOW: ID= 1 (  0002)     20.280     0.344      6.37      75.48

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 26.91
                  TIME SHIFT OF PEAK FLOW         (min)= 68.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6180

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--------------------
| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.85	6.167	10.50	9.23	1.62
0.067	0.00	3.133	4.85	6.200	10.50	9.27	1.21
0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81

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2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

```
Max.Eff.Inten.(mm/hr)=      37.17        30.02
           over (min)        6.00         8.00
Storage Coeff.  (min)=       6.32 (ii)    6.98 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.18         0.15
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.85         0.00        0.847 (iii)
TIME TO PEAK    (hrs)=       5.23         5.23         5.23
RUNOFF VOLUME    (mm)=      79.82        50.53        79.79
TOTAL RAINFALL   (mm)=      80.82        80.82        80.82
RUNOFF COEFFICIENT   =       0.99         0.63         0.99


   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0025)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6204.18  Bottom Area(m2)   = 4645.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3584.20
25.00	47.18	1067.00	3674.57
51.00	94.36	1092.00	3764.19
76.00	141.55	1118.00	3853.02
102.00	188.73	1143.00	3941.03
127.00	235.91	1168.00	4028.20
152.00	283.09	1194.00	4114.48
178.00	330.28	1219.00	4199.84
203.00	377.46	1245.00	4284.24
229.00	424.64	1270.00	4367.63
254.00	528.45	1295.00	4449.97
279.00	631.99	1321.00	4531.20
305.00	735.34	1346.00	4611.27
330.00	838.49	1372.00	4690.11
356.00	941.43	1397.00	4767.66
381.00	1044.14	1422.00	4843.83
406.00	1146.61	1448.00	4918.54
432.00	1248.83	1473.00	4991.66
457.00	1350.78	1499.00	5063.08
483.00	1452.44	1524.00	5132.61
508.00	1553.81	1549.00	5200.03
533.00	1654.87	1575.00	5265.01
559.00	1755.60	1600.00	5327.01
584.00	1855.98	1626.00	5384.28
610.00	1956.00	1651.00	5437.45
635.00	2055.65	1676.00	5489.29
660.00	2154.91	1702.00	5540.14
686.00	2253.76	1727.00	5589.90
711.00	2352.18	1753.00	5637.99
737.00	2450.16	1778.00	5685.18
762.00	2547.68	1803.00	5732.36
787.00	2644.71	1829.00	5779.54
813.00	2741.25	1854.00	5826.72
838.00	2837.27	1880.00	5873.91
864.00	2932.74	1905.00	5921.09
889.00	3027.66	1930.00	5968.27
914.00	3122.00	1956.00	6015.45
940.00	3215.74	1981.00	6062.64
965.00	3308.85	2007.00	6109.82
991.00	3401.32	2032.00	6157.00
1016.00	3493.11	2057.00	6204.18

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.847	5.23	79.79
OUTFLOW:ID= 1	8.21	0.104	7.33	66.80
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=      16.28
Time to reach Max storage              (Hr)=       7.33
Volume of water for drawdown in LID (cu.m.)=    3306.92
Volume of maximum water storage     (cu.m.)=    4693.80
Calculated Drawdown Time               (Hr)=      33.72

--------------------------
| Junction Command(0028) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0025)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0028)	0.00	0.00	0.00	0.00

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

--------------------------
| Junction Command(0029) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0025)	8.21	0.10	7.33	66.80
OUTFLOW: ID= 2(0029)	8.21	0.10	7.33	66.80

```
--------------------------------------------------------------------------------
****************************************
** SIMULATION:Run 06 100yr 12 hr AES **
****************************************

--------------------
|    READ STORM    |    Filename: C:\Users\chanj\AppD
|                  |              ata\Local\Temp\
|                  |              c47f3f7d-cf90-47dc-99e2-4833ae267791\ffd0dba4
| Ptotal= 88.54 mm |    Comments: 100yr/12hr
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.00	3.50	15.05	6.75	6.20	10.00	0.89
0.50	0.89	3.75	15.05	7.00	6.20	10.25	0.89
0.75	0.89	4.00	15.05	7.25	6.20	10.50	0.89
1.00	0.89	4.25	15.05	7.50	3.54	10.75	0.89
1.25	0.89	4.50	40.71	7.75	3.54	11.00	0.89
1.50	0.89	4.75	40.71	8.00	3.54	11.25	0.89

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1.75	0.89	5.00	40.71	8.25	3.54	11.50	0.89
2.00	0.89	5.25	40.71	8.50	1.77	11.75	0.89
2.25	0.89	5.50	11.51	8.75	1.77	12.00	0.89
2.50	5.31	5.75	11.51	9.00	1.77	12.25	0.89
2.75	5.31	6.00	11.51	9.25	1.77		
3.00	5.31	6.25	11.51	9.50	0.89		
3.25	5.31	6.50	6.20	9.75	0.89		

```
--------------------
| CALIB            |
| STANDHYD (  1100)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.30          0.40
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      333.67         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
     Max.Eff.Inten.(mm/hr)=      40.71        26.11
                over (min)        8.00        10.00
     Storage Coeff.  (min)=       7.54 (ii)    9.84 (ii)
     Unit Hyd. Tpeak (min)=       8.00        10.00
     Unit Hyd. peak  (cms)=       0.15         0.11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.84         0.03        1.870 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27         5.23
     RUNOFF VOLUME    (mm)=      87.54        42.62        86.46
     TOTAL RAINFALL   (mm)=      88.54        88.54        88.54
     RUNOFF COEFFICIENT   =       0.99         0.48         0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2962     0.9330
                          0.1249     0.5470   |   0.3457     1.0260
                          0.1913     0.7040   |   0.3906     1.1190
                          0.2353     0.8050   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  1100)     16.700     1.870      5.23      86.46
   OUTFLOW: ID= 1 (  0003)     16.700     0.336      6.50      86.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.95
                  TIME SHIFT OF PEAK FLOW         (min)= 76.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0071

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| CALIB            |
| STANDHYD (  1200)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.02          0.34
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TOWN OF CALEDON
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Dep. Storage     (mm)=       1.00         5.00
Average Slope     (%)=       1.00         2.00
Length            (m)=     309.41        40.00
Mannings n           =      0.013        0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        26.11
           over (min)        8.00        10.00
Storage Coeff.  (min)=       7.21 (ii)    9.50 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.15         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.58         0.02        1.608 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      87.54        42.62        86.46
TOTAL RAINFALL   (mm)=      88.54        88.54        88.54
RUNOFF COEFFICIENT   =       0.99         0.48         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2584     0.8010
                          0.1090     0.4690   |   0.3017     0.8810
                          0.1669     0.6040   |   0.3408     0.9600
                          0.2053     0.6910   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
INFLOW : ID= 2 (  1200)     14.360      1.608      5.23      86.46
OUTFLOW: ID= 1 (  0004)     14.360      0.292      6.50      86.04

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.17
                TIME SHIFT OF PEAK FLOW         (min)= 76.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.8635

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--------------------
| CALIB            |
| STANDHYD (  1000)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76         0.33
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     283.90        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89

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0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        26.11
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.84 (ii)    9.26 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.17         0.12
                                                        *TOTALS*
PEAK FLOW       (cms)=       1.33         0.02          1.352 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27           5.23
RUNOFF VOLUME    (mm)=      87.54        42.62          86.33
TOTAL RAINFALL   (mm)=      88.54        88.54          88.54
RUNOFF COEFFICIENT   =       0.99         0.48           0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0900)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=          8.18          0.01
Dep. Storage     (mm)=          1.00          5.00
Average Slope     (%)=          1.00          2.00
Length            (m)=        233.67         40.00
Mannings n           =         0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89

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1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        26.11
            over (min)       6.00         8.00
Storage Coeff.  (min)=       6.09 (ii)    6.73 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.19         0.16
                                                        *TOTALS*
PEAK FLOW       (cms)=       0.93         0.00           0.926 (iii)
TIME TO PEAK    (hrs)=       5.23         5.23            5.23
RUNOFF VOLUME    (mm)=      87.54        42.62           87.49
TOTAL RAINFALL   (mm)=      88.54        88.54           88.54
RUNOFF COEFFICIENT   =       0.99         0.48            0.99


   (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  76.0    Ia = Dep. Storage  (Above)
  (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
       THAN THE STORAGE COEFFICIENT.
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0900)      8.190     0.926      5.23      87.49
   OUTFLOW: ID= 1 (  0001)      8.190     0.067      8.33      80.43

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.28
                  TIME SHIFT OF PEAK FLOW         (min)=186.00

                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5915

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--------------------
| ADD HYD  (  0050)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.067     8.33    80.43
      + ID2= 2 (  1000):     12.09    1.352     5.23    86.33
        ==================================================
        ID = 3 (  0050):     20.28    1.402     5.23    83.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.3529     0.6280
                          0.1489     0.3700   |   0.4118     0.6880
                          0.2279     0.4770   |   0.4654     0.7430
                          0.2804     0.5450   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0050)     20.280     1.402      5.23      83.95
   OUTFLOW: ID= 1 (  0002)     20.280     0.393      6.33      82.82

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.04
                  TIME SHIFT OF PEAK FLOW         (min)= 66.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6690

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| CALIB            |
| STANDHYD (  1300)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89

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1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71         33.73
            over (min)       6.00          8.00
Storage Coeff.  (min)=       6.09 (ii)     6.73 (ii)
Unit Hyd. Tpeak (min)=       6.00          8.00
Unit Hyd. peak  (cms)=       0.19          0.16
                                                        *TOTALS*
PEAK FLOW       (cms)=       0.93          0.00          0.928 (iii)
TIME TO PEAK    (hrs)=       5.23          5.23           5.23
RUNOFF VOLUME    (mm)=      87.54         57.44          87.51
TOTAL RAINFALL   (mm)=      88.54         88.54          88.54
RUNOFF COEFFICIENT   =       0.99          0.65           0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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| CHAMBER(  0025)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
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```
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6204.18  Bottom Area(m2)   = 4645.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3584.20
25.00	47.18	1067.00	3674.57
51.00	94.36	1092.00	3764.19
76.00	141.55	1118.00	3853.02
102.00	188.73	1143.00	3941.03
127.00	235.91	1168.00	4028.20
152.00	283.09	1194.00	4114.48
178.00	330.28	1219.00	4199.84
203.00	377.46	1245.00	4284.24
229.00	424.64	1270.00	4367.63
254.00	528.45	1295.00	4449.97
279.00	631.99	1321.00	4531.20
305.00	735.34	1346.00	4611.27
330.00	838.49	1372.00	4690.11
356.00	941.43	1397.00	4767.66
381.00	1044.14	1422.00	4843.83
406.00	1146.61	1448.00	4918.54
432.00	1248.83	1473.00	4991.66
457.00	1350.78	1499.00	5063.08
483.00	1452.44	1524.00	5132.61
508.00	1553.81	1549.00	5200.03
533.00	1654.87	1575.00	5265.01
559.00	1755.60	1600.00	5327.01
584.00	1855.98	1626.00	5384.28
610.00	1956.00	1651.00	5437.45
635.00	2055.65	1676.00	5489.29
660.00	2154.91	1702.00	5540.14
686.00	2253.76	1727.00	5589.90
711.00	2352.18	1753.00	5637.99
737.00	2450.16	1778.00	5685.18
762.00	2547.68	1803.00	5732.36
787.00	2644.71	1829.00	5779.54
813.00	2741.25	1854.00	5826.72
838.00	2837.27	1880.00	5873.91
864.00	2932.74	1905.00	5921.09
889.00	3027.66	1930.00	5968.27
914.00	3122.00	1956.00	6015.45
940.00	3215.74	1981.00	6062.64
965.00	3308.85	2007.00	6109.82
991.00	3401.32	2032.00	6157.00
1016.00	3493.11	2057.00	6204.18

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.928	5.23	87.51
OUTFLOW:ID= 1	8.21	0.113	7.33	74.14
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=       15.28
Time to reach Max storage              (Hr)=        7.33
Volume of water for drawdown in LID (cu.m.)=     3717.28
Volume of maximum water storage     (cu.m.)=     5178.17
Calculated Drawdown Time               (Hr)=       34.95

--------------------------
| Junction Command(0028) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0025)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0028)	0.00	0.00	0.00	0.00

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--------------------------
| Junction Command(0029) |
--------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
INFLOW : ID= 1(  0025)     8.21     0.11    7.33    74.14
OUTFLOW: ID= 2(  0029)     8.21     0.11    7.33    74.14

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```

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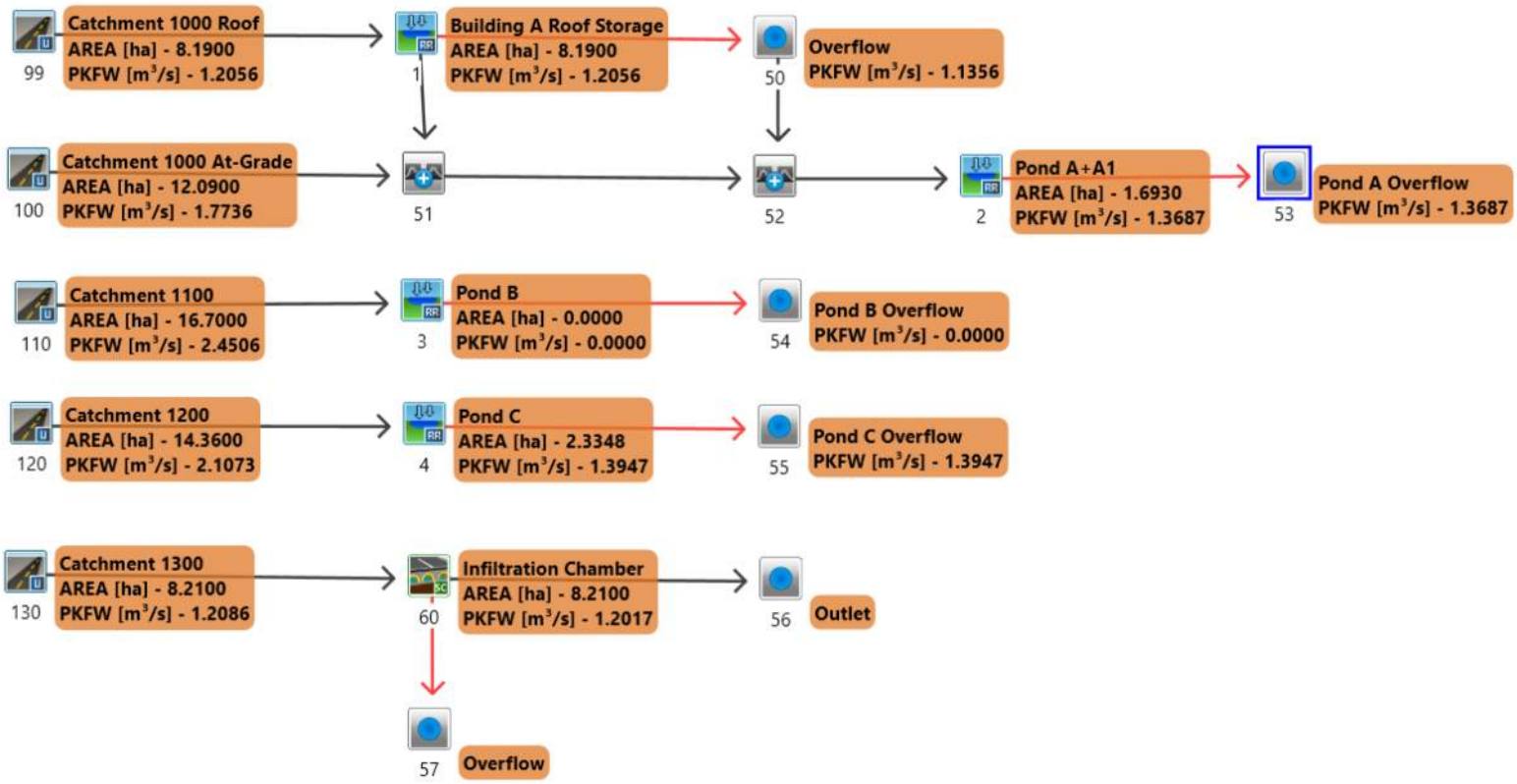
PROPOSED CONDITIONS
-
FINAL SWM FACILITY DESIGN



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```
********************************
** SIMULATION:25 mm 24hr      **
********************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     309.41        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.100	0.75	12.167	1.62	18.23	0.25
0.067	0.00	6.133	0.75	12.200	1.62	18.27	0.19
0.100	0.00	6.167	0.75	12.233	1.62	18.30	0.13
0.133	0.00	6.200	0.75	12.267	1.25	18.33	0.13
0.167	0.00	6.233	0.75	12.300	0.88	18.37	0.13
0.200	0.00	6.267	1.43	12.333	0.88	18.40	0.13
0.233	0.00	6.300	2.12	12.367	0.88	18.43	0.13
0.267	0.07	6.333	2.12	12.400	0.88	18.47	0.13
0.300	0.13	6.367	2.12	12.433	0.88	18.50	0.13
0.333	0.13	6.400	2.12	12.467	0.88	18.53	0.13
0.367	0.13	6.433	2.12	12.500	0.88	18.57	0.13
0.400	0.13	6.467	2.12	12.533	0.88	18.60	0.13
0.433	0.13	6.500	2.12	12.567	0.88	18.63	0.13
0.467	0.13	6.533	2.12	12.600	0.88	18.67	0.13
0.500	0.13	6.567	2.12	12.633	0.88	18.70	0.13
0.533	0.13	6.600	2.12	12.667	0.88	18.73	0.13
0.567	0.13	6.633	2.12	12.700	0.88	18.77	0.13
0.600	0.13	6.667	2.12	12.733	0.88	18.80	0.13
0.633	0.13	6.700	2.12	12.767	0.88	18.83	0.13
0.667	0.13	6.733	2.12	12.800	0.88	18.87	0.13
0.700	0.13	6.767	2.12	12.833	0.88	18.90	0.13
0.733	0.13	6.800	2.12	12.867	0.88	18.93	0.13
0.767	0.13	6.833	2.12	12.900	0.88	18.97	0.13
0.800	0.13	6.867	2.12	12.933	0.88	19.00	0.13
0.833	0.13	6.900	2.12	12.967	0.88	19.03	0.13
0.867	0.13	6.933	2.12	13.000	0.88	19.07	0.13
0.900	0.13	6.967	2.12	13.033	0.88	19.10	0.13
0.933	0.13	7.000	2.12	13.067	0.88	19.13	0.13
0.967	0.13	7.033	2.12	13.100	0.88	19.17	0.13
1.000	0.13	7.067	2.12	13.133	0.88	19.20	0.13
1.033	0.13	7.100	2.12	13.167	0.88	19.23	0.13
1.067	0.13	7.133	2.12	13.200	0.88	19.27	0.13
1.100	0.13	7.167	2.12	13.233	0.88	19.30	0.13
1.133	0.13	7.200	2.12	13.267	0.88	19.33	0.13
1.167	0.13	7.233	2.12	13.300	0.88	19.37	0.13
1.200	0.13	7.267	2.12	13.333	0.88	19.40	0.13
1.233	0.13	7.300	2.12	13.367	0.88	19.43	0.13
1.267	0.13	7.333	2.12	13.400	0.88	19.47	0.13
1.300	0.13	7.367	2.12	13.433	0.88	19.50	0.13
1.333	0.13	7.400	2.12	13.467	0.88	19.53	0.13
1.367	0.13	7.433	2.12	13.500	0.88	19.57	0.13
1.400	0.13	7.467	2.12	13.533	0.88	19.60	0.13
1.433	0.13	7.500	2.12	13.567	0.88	19.63	0.13
1.467	0.13	7.533	2.12	13.600	0.88	19.67	0.13
1.500	0.13	7.567	2.12	13.633	0.88	19.70	0.13
1.533	0.13	7.600	2.12	13.667	0.88	19.73	0.13
1.567	0.13	7.633	2.12	13.700	0.88	19.77	0.13
1.600	0.13	7.667	2.12	13.733	0.88	19.80	0.13
1.633	0.13	7.700	2.12	13.767	0.88	19.83	0.13
1.667	0.13	7.733	2.12	13.800	0.88	19.87	0.13
1.700	0.13	7.767	2.12	13.833	0.88	19.90	0.13
1.733	0.13	7.800	2.12	13.867	0.88	19.93	0.13
1.767	0.13	7.833	2.12	13.900	0.88	19.97	0.13
1.800	0.13	7.867	2.12	13.933	0.88	20.00	0.13
1.833	0.13	7.900	2.12	13.967	0.88	20.03	0.13
1.867	0.13	7.933	2.12	14.000	0.88	20.07	0.13
1.900	0.13	7.967	2.12	14.033	0.88	20.10	0.13
1.933	0.13	8.000	2.12	14.067	0.88	20.13	0.13
1.967	0.13	8.033	2.12	14.100	0.88	20.17	0.13
2.000	0.13	8.067	2.12	14.133	0.88	20.20	0.13
2.033	0.13	8.100	2.12	14.167	0.88	20.23	0.13
2.067	0.13	8.133	2.12	14.200	0.88	20.27	0.13
2.100	0.13	8.167	2.12	14.233	0.88	20.30	0.13
2.133	0.13	8.200	2.12	14.267	0.69	20.33	0.13
2.167	0.13	8.233	2.12	14.300	0.50	20.37	0.13
2.200	0.13	8.267	3.93	14.333	0.50	20.40	0.13
2.233	0.13	8.300	5.75	14.367	0.50	20.43	0.13
2.267	0.13	8.333	5.75	14.400	0.50	20.47	0.13
2.300	0.13	8.367	5.75	14.433	0.50	20.50	0.13
2.333	0.13	8.400	5.75	14.467	0.50	20.53	0.13
2.367	0.13	8.433	5.75	14.500	0.50	20.57	0.13
2.400	0.13	8.467	5.75	14.533	0.50	20.60	0.13
2.433	0.13	8.500	5.75	14.567	0.50	20.63	0.13
2.467	0.13	8.533	5.75	14.600	0.50	20.67	0.13
2.500	0.13	8.567	5.75	14.633	0.50	20.70	0.13
2.533	0.13	8.600	5.75	14.667	0.50	20.73	0.13
2.567	0.13	8.633	5.75	14.700	0.50	20.77	0.13
2.600	0.13	8.667	5.75	14.733	0.50	20.80	0.13
2.633	0.13	8.700	5.75	14.767	0.50	20.83	0.13
2.667	0.13	8.733	5.75	14.800	0.50	20.87	0.13
2.700	0.13	8.767	5.75	14.833	0.50	20.90	0.13
2.733	0.13	8.800	5.75	14.867	0.50	20.93	0.13
2.767	0.13	8.833	5.75	14.900	0.50	20.97	0.13
2.800	0.13	8.867	5.75	14.933	0.50	21.00	0.13
2.833	0.13	8.900	5.75	14.967	0.50	21.03	0.13
2.867	0.13	8.933	5.75	15.000	0.50	21.07	0.13
2.900	0.13	8.967	5.75	15.033	0.50	21.10	0.13
2.933	0.13	9.000	5.75	15.067	0.50	21.13	0.13
2.967	0.13	9.033	5.75	15.100	0.50	21.17	0.13
3.000	0.13	9.067	5.75	15.133	0.50	21.20	0.13
3.033	0.13	9.100	5.75	15.167	0.50	21.23	0.13
3.067	0.13	9.133	5.75	15.200	0.50	21.27	0.13
3.100	0.13	9.167	5.75	15.233	0.50	21.30	0.13
3.133	0.13	9.200	5.75	15.267	0.50	21.33	0.13
3.167	0.13	9.233	5.75	15.300	0.50	21.37	0.13
3.200	0.13	9.267	5.75	15.333	0.50	21.40	0.13
3.233	0.13	9.300	5.75	15.367	0.50	21.43	0.13
3.267	0.13	9.333	5.75	15.400	0.50	21.47	0.13
3.300	0.13	9.367	5.75	15.433	0.50	21.50	0.13
3.333	0.13	9.400	5.75	15.467	0.50	21.53	0.13
3.367	0.13	9.433	5.75	15.500	0.50	21.57	0.13
3.400	0.13	9.467	5.75	15.533	0.50	21.60	0.13
3.433	0.13	9.500	5.75	15.567	0.50	21.63	0.13
3.467	0.13	9.533	5.75	15.600	0.50	21.67	0.13
3.500	0.13	9.567	5.75	15.633	0.50	21.70	0.13
3.533	0.13	9.600	5.75	15.667	0.50	21.73	0.13
3.567	0.13	9.633	5.75	15.700	0.50	21.77	0.13
3.600	0.13	9.667	5.75	15.733	0.50	21.80	0.13
3.633	0.13	9.700	5.75	15.767	0.50	21.83	0.13
3.667	0.13	9.733	5.75	15.800	0.50	21.87	0.13
3.700	0.13	9.767	5.75	15.833	0.50	21.90	0.13
3.733	0.13	9.800	5.75	15.867	0.50	21.93	0.13
3.767	0.13	9.833	5.75	15.900	0.50	21.97	0.13
3.800	0.13	9.867	5.75	15.933	0.50	22.00	0.13
3.833	0.13	9.900	5.75	15.967	0.50	22.03	0.13
3.867	0.13	9.933	5.75	16.000	0.50	22.07	0.13
3.900	0.13	9.967	5.75	16.033	0.50	22.10	0.13
3.933	0.13	10.000	5.75	16.067	0.50	22.13	0.13
3.967	0.13	10.033	5.75	16.100	0.50	22.17	0.13
4.000	0.13	10.067	5.75	16.133	0.50	22.20	0.13
4.033	0.13	10.100	5.75	16.167	0.50	22.23	0.13
4.067	0.13	10.133	5.75	16.200	0.50	22.27	0.13
4.100	0.13	10.167	5.75	16.233	0.50	22.30	0.13
4.133	0.13	10.200	5.75	16.267	0.37	22.33	0.13
4.167	0.13	10.233	5.75	16.300	0.25	22.37	0.13
4.200	0.13	10.267	3.68	16.333	0.25	22.40	0.13
4.233	0.13	10.300	1.62	16.367	0.25	22.43	0.13
4.267	0.44	10.333	1.62	16.400	0.25	22.47	0.13
4.300	0.75	10.367	1.62	16.433	0.25	22.50	0.13
4.333	0.75	10.400	1.62	16.467	0.25	22.53	0.13
4.367	0.75	10.433	1.62	16.500	0.25	22.57	0.13
4.400	0.75	10.467	1.62	16.533	0.25	22.60	0.13
4.433	0.75	10.500	1.62	16.567	0.25	22.63	0.13
4.467	0.75	10.533	1.62	16.600	0.25	22.67	0.13
4.500	0.75	10.567	1.62	16.633	0.25	22.70	0.13
4.533	0.75	10.600	1.62	16.667	0.25	22.73	0.13
4.567	0.75	10.633	1.62	16.700	0.25	22.77	0.13
4.600	0.75	10.667	1.62	16.733	0.25	22.80	0.13
4.633	0.75	10.700	1.62	16.767	0.25	22.83	0.13
4.667	0.75	10.733	1.62	16.800	0.25	22.87	0.13
4.700	0.75	10.767	1.62	16.833	0.25	22.90	0.13
4.733	0.75	10.800	1.62	16.867	0.25	22.93	0.13
4.767	0.75	10.833	1.62	16.900	0.25	22.97	0.13
4.800	0.75	10.867	1.62	16.933	0.25	23.00	0.13
4.833	0.75	10.900	1.62	16.967	0.25	23.03	0.13
4.867	0.75	10.933	1.62	17.000	0.25	23.07	0.13
4.900	0.75	10.967	1.62	17.033	0.25	23.10	0.13

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4.933	0.75	11.000	1.62	17.067	0.25	23.13	0.13
4.967	0.75	11.033	1.62	17.100	0.25	23.17	0.13
5.000	0.75	11.067	1.62	17.133	0.25	23.20	0.13
5.033	0.75	11.100	1.62	17.167	0.25	23.23	0.13
5.067	0.75	11.133	1.62	17.200	0.25	23.27	0.13
5.100	0.75	11.167	1.62	17.233	0.25	23.30	0.13
5.133	0.75	11.200	1.62	17.267	0.25	23.33	0.13
5.167	0.75	11.233	1.62	17.300	0.25	23.37	0.13
5.200	0.75	11.267	1.62	17.333	0.25	23.40	0.13
5.233	0.75	11.300	1.62	17.367	0.25	23.43	0.13
5.267	0.75	11.333	1.62	17.400	0.25	23.47	0.13
5.300	0.75	11.367	1.62	17.433	0.25	23.50	0.13
5.333	0.75	11.400	1.62	17.467	0.25	23.53	0.13
5.367	0.75	11.433	1.62	17.500	0.25	23.57	0.13
5.400	0.75	11.467	1.62	17.533	0.25	23.60	0.13
5.433	0.75	11.500	1.62	17.567	0.25	23.63	0.13
5.467	0.75	11.533	1.62	17.600	0.25	23.67	0.13
5.500	0.75	11.567	1.62	17.633	0.25	23.70	0.13
5.533	0.75	11.600	1.62	17.667	0.25	23.73	0.13
5.567	0.75	11.633	1.62	17.700	0.25	23.77	0.13
5.600	0.75	11.667	1.62	17.733	0.25	23.80	0.13
5.633	0.75	11.700	1.62	17.767	0.25	23.83	0.13
5.667	0.75	11.733	1.62	17.800	0.25	23.87	0.13
5.700	0.75	11.767	1.62	17.833	0.25	23.90	0.13
5.733	0.75	11.800	1.62	17.867	0.25	23.93	0.13
5.767	0.75	11.833	1.62	17.900	0.25	23.97	0.13
5.800	0.75	11.867	1.62	17.933	0.25	24.00	0.13
5.833	0.75	11.900	1.62	17.967	0.25	24.03	0.13
5.867	0.75	11.933	1.62	18.000	0.25	24.07	0.13
5.900	0.75	11.967	1.62	18.033	0.25	24.10	0.13
5.933	0.75	12.000	1.62	18.067	0.25	24.13	0.13
5.967	0.75	12.033	1.62	18.100	0.25	24.17	0.13
6.000	0.75	12.067	1.62	18.133	0.25	24.20	0.13
6.033	0.75	12.100	1.62	18.167	0.25	24.23	0.13
6.067	0.75	12.133	1.62	18.200	0.25	24.27	0.07

```
Max.Eff.Inten.(mm/hr)=       5.75          1.42
            over (min)      16.00         22.00
Storage Coeff.  (min)=      15.77 (ii)    20.79 (ii)
Unit Hyd. Tpeak (min)=      16.00         22.00
Unit Hyd. peak  (cms)=       0.07          0.05
                                                        *TOTALS*
PEAK FLOW       (cms)=       0.22          0.00          0.225 (iii)
TIME TO PEAK    (hrs)=      10.23         10.33          10.23
RUNOFF VOLUME    (mm)=      24.04          4.01          23.56
TOTAL RAINFALL   (mm)=      25.04         25.04          25.04
RUNOFF COEFFICIENT   =       0.96          0.16           0.94


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654     0.8399
                          0.0111     0.0722   |   0.2796     0.9338
                          0.0509     0.1444   |   0.2932     1.0277
                          0.0712     0.2166   |   0.3061     1.1216
                          0.0868     0.2888   |   0.3185     1.2155
                          0.1000     0.3706   |   0.3304     1.3093
                          0.1117     0.4644   |   0.3420     1.4032
                          0.1222     0.5583   |   0.3531     1.4971
                          0.1319     0.6522   |   0.3639     1.5910
                          0.2504     0.7461   |   0.3745     1.6846

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)    14.360     0.225     10.23      23.56
   OUTFLOW: ID= 1 (  0004)    14.360     0.066     11.50      23.02
   OVERFLOW:ID= 3 (  0003)     0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.33
                    TIME SHIFT OF PEAK FLOW         (min)= 76.00

                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.1979

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

  --------------------------
  | Junction Command(0055) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)     0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.76          0.33
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      283.90         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	6.100	0.75	12.167	1.62	18.23	0.25
0.067	0.00	6.133	0.75	12.200	1.62	18.27	0.19
0.100	0.00	6.167	0.75	12.233	1.62	18.30	0.13
0.133	0.00	6.200	0.75	12.267	1.25	18.33	0.13
0.167	0.00	6.233	0.75	12.300	0.88	18.37	0.13
0.200	0.00	6.267	1.43	12.333	0.88	18.40	0.13
0.233	0.00	6.300	2.12	12.367	0.88	18.43	0.13
0.267	0.07	6.333	2.12	12.400	0.88	18.47	0.13
0.300	0.13	6.367	2.12	12.433	0.88	18.50	0.13
0.333	0.13	6.400	2.12	12.467	0.88	18.53	0.13
0.367	0.13	6.433	2.12	12.500	0.88	18.57	0.13
0.400	0.13	6.467	2.12	12.533	0.88	18.60	0.13
0.433	0.13	6.500	2.12	12.567	0.88	18.63	0.13
0.467	0.13	6.533	2.12	12.600	0.88	18.67	0.13
0.500	0.13	6.567	2.12	12.633	0.88	18.70	0.13
0.533	0.13	6.600	2.12	12.667	0.88	18.73	0.13
0.567	0.13	6.633	2.12	12.700	0.88	18.77	0.13
0.600	0.13	6.667	2.12	12.733	0.88	18.80	0.13
0.633	0.13	6.700	2.12	12.767	0.88	18.83	0.13
0.667	0.13	6.733	2.12	12.800	0.88	18.87	0.13
0.700	0.13	6.767	2.12	12.833	0.88	18.90	0.13
0.733	0.13	6.800	2.12	12.867	0.88	18.93	0.13
0.767	0.13	6.833	2.12	12.900	0.88	18.97	0.13
0.800	0.13	6.867	2.12	12.933	0.88	19.00	0.13
0.833	0.13	6.900	2.12	12.967	0.88	19.03	0.13
0.867	0.13	6.933	2.12	13.000	0.88	19.07	0.13
0.900	0.13	6.967	2.12	13.033	0.88	19.10	0.13
0.933	0.13	7.000	2.12	13.067	0.88	19.13	0.13
0.967	0.13	7.033	2.12	13.100	0.88	19.17	0.13
1.000	0.13	7.067	2.12	13.133	0.88	19.20	0.13
1.033	0.13	7.100	2.12	13.167	0.88	19.23	0.13
1.067	0.13	7.133	2.12	13.200	0.88	19.27	0.13
1.100	0.13	7.167	2.12	13.233	0.88	19.30	0.13
1.133	0.13	7.200	2.12	13.267	0.88	19.33	0.13
1.167	0.13	7.233	2.12	13.300	0.88	19.37	0.13
1.200	0.13	7.267	2.12	13.333	0.88	19.40	0.13
1.233	0.13	7.300	2.12	13.367	0.88	19.43	0.13
1.267	0.13	7.333	2.12	13.400	0.88	19.47	0.13
1.300	0.13	7.367	2.12	13.433	0.88	19.50	0.13
1.333	0.13	7.400	2.12	13.467	0.88	19.53	0.13
1.367	0.13	7.433	2.12	13.500	0.88	19.57	0.13
1.400	0.13	7.467	2.12	13.533	0.88	19.60	0.13
1.433	0.13	7.500	2.12	13.567	0.88	19.63	0.13
1.467	0.13	7.533	2.12	13.600	0.88	19.67	0.13
1.500	0.13	7.567	2.12	13.633	0.88	19.70	0.13
1.533	0.13	7.600	2.12	13.667	0.88	19.73	0.13
1.567	0.13	7.633	2.12	13.700	0.88	19.77	0.13
1.600	0.13	7.667	2.12	13.733	0.88	19.80	0.13
1.633	0.13	7.700	2.12	13.767	0.88	19.83	0.13
1.667	0.13	7.733	2.12	13.800	0.88	19.87	0.13
1.700	0.13	7.767	2.12	13.833	0.88	19.90	0.13
1.733	0.13	7.800	2.12	13.867	0.88	19.93	0.13

TOWN OF CALEDON
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1.767	0.13	7.833	2.12	13.900	0.88	19.97	0.13
1.800	0.13	7.867	2.12	13.933	0.88	20.00	0.13
1.833	0.13	7.900	2.12	13.967	0.88	20.03	0.13
1.867	0.13	7.933	2.12	14.000	0.88	20.07	0.13
1.900	0.13	7.967	2.12	14.033	0.88	20.10	0.13
1.933	0.13	8.000	2.12	14.067	0.88	20.13	0.13
1.967	0.13	8.033	2.12	14.100	0.88	20.17	0.13
2.000	0.13	8.067	2.12	14.133	0.88	20.20	0.13
2.033	0.13	8.100	2.12	14.167	0.88	20.23	0.13
2.067	0.13	8.133	2.12	14.200	0.88	20.27	0.13
2.100	0.13	8.167	2.12	14.233	0.88	20.30	0.13
2.133	0.13	8.200	2.12	14.267	0.69	20.33	0.13
2.167	0.13	8.233	2.12	14.300	0.50	20.37	0.13
2.200	0.13	8.267	3.93	14.333	0.50	20.40	0.13
2.233	0.13	8.300	5.75	14.367	0.50	20.43	0.13
2.267	0.13	8.333	5.75	14.400	0.50	20.47	0.13
2.300	0.13	8.367	5.75	14.433	0.50	20.50	0.13
2.333	0.13	8.400	5.75	14.467	0.50	20.53	0.13
2.367	0.13	8.433	5.75	14.500	0.50	20.57	0.13
2.400	0.13	8.467	5.75	14.533	0.50	20.60	0.13
2.433	0.13	8.500	5.75	14.567	0.50	20.63	0.13
2.467	0.13	8.533	5.75	14.600	0.50	20.67	0.13
2.500	0.13	8.567	5.75	14.633	0.50	20.70	0.13
2.533	0.13	8.600	5.75	14.667	0.50	20.73	0.13
2.567	0.13	8.633	5.75	14.700	0.50	20.77	0.13
2.600	0.13	8.667	5.75	14.733	0.50	20.80	0.13
2.633	0.13	8.700	5.75	14.767	0.50	20.83	0.13
2.667	0.13	8.733	5.75	14.800	0.50	20.87	0.13
2.700	0.13	8.767	5.75	14.833	0.50	20.90	0.13
2.733	0.13	8.800	5.75	14.867	0.50	20.93	0.13
2.767	0.13	8.833	5.75	14.900	0.50	20.97	0.13
2.800	0.13	8.867	5.75	14.933	0.50	21.00	0.13
2.833	0.13	8.900	5.75	14.967	0.50	21.03	0.13
2.867	0.13	8.933	5.75	15.000	0.50	21.07	0.13
2.900	0.13	8.967	5.75	15.033	0.50	21.10	0.13
2.933	0.13	9.000	5.75	15.067	0.50	21.13	0.13
2.967	0.13	9.033	5.75	15.100	0.50	21.17	0.13
3.000	0.13	9.067	5.75	15.133	0.50	21.20	0.13
3.033	0.13	9.100	5.75	15.167	0.50	21.23	0.13
3.067	0.13	9.133	5.75	15.200	0.50	21.27	0.13
3.100	0.13	9.167	5.75	15.233	0.50	21.30	0.13
3.133	0.13	9.200	5.75	15.267	0.50	21.33	0.13
3.167	0.13	9.233	5.75	15.300	0.50	21.37	0.13
3.200	0.13	9.267	5.75	15.333	0.50	21.40	0.13
3.233	0.13	9.300	5.75	15.367	0.50	21.43	0.13
3.267	0.13	9.333	5.75	15.400	0.50	21.47	0.13
3.300	0.13	9.367	5.75	15.433	0.50	21.50	0.13
3.333	0.13	9.400	5.75	15.467	0.50	21.53	0.13
3.367	0.13	9.433	5.75	15.500	0.50	21.57	0.13
3.400	0.13	9.467	5.75	15.533	0.50	21.60	0.13
3.433	0.13	9.500	5.75	15.567	0.50	21.63	0.13
3.467	0.13	9.533	5.75	15.600	0.50	21.67	0.13
3.500	0.13	9.567	5.75	15.633	0.50	21.70	0.13
3.533	0.13	9.600	5.75	15.667	0.50	21.73	0.13
3.567	0.13	9.633	5.75	15.700	0.50	21.77	0.13
3.600	0.13	9.667	5.75	15.733	0.50	21.80	0.13
3.633	0.13	9.700	5.75	15.767	0.50	21.83	0.13
3.667	0.13	9.733	5.75	15.800	0.50	21.87	0.13
3.700	0.13	9.767	5.75	15.833	0.50	21.90	0.13
3.733	0.13	9.800	5.75	15.867	0.50	21.93	0.13
3.767	0.13	9.833	5.75	15.900	0.50	21.97	0.13
3.800	0.13	9.867	5.75	15.933	0.50	22.00	0.13
3.833	0.13	9.900	5.75	15.967	0.50	22.03	0.13
3.867	0.13	9.933	5.75	16.000	0.50	22.07	0.13
3.900	0.13	9.967	5.75	16.033	0.50	22.10	0.13
3.933	0.13	10.000	5.75	16.067	0.50	22.13	0.13
3.967	0.13	10.033	5.75	16.100	0.50	22.17	0.13
4.000	0.13	10.067	5.75	16.133	0.50	22.20	0.13
4.033	0.13	10.100	5.75	16.167	0.50	22.23	0.13
4.067	0.13	10.133	5.75	16.200	0.50	22.27	0.13
4.100	0.13	10.167	5.75	16.233	0.50	22.30	0.13
4.133	0.13	10.200	5.75	16.267	0.37	22.33	0.13
4.167	0.13	10.233	5.75	16.300	0.25	22.37	0.13
4.200	0.13	10.267	3.68	16.333	0.25	22.40	0.13
4.233	0.13	10.300	1.62	16.367	0.25	22.43	0.13
4.267	0.44	10.333	1.62	16.400	0.25	22.47	0.13
4.300	0.75	10.367	1.62	16.433	0.25	22.50	0.13
4.333	0.75	10.400	1.62	16.467	0.25	22.53	0.13
4.367	0.75	10.433	1.62	16.500	0.25	22.57	0.13
4.400	0.75	10.467	1.62	16.533	0.25	22.60	0.13
4.433	0.75	10.500	1.62	16.567	0.25	22.63	0.13
4.467	0.75	10.533	1.62	16.600	0.25	22.67	0.13
4.500	0.75	10.567	1.62	16.633	0.25	22.70	0.13
4.533	0.75	10.600	1.62	16.667	0.25	22.73	0.13
4.567	0.75	10.633	1.62	16.700	0.25	22.77	0.13
4.600	0.75	10.667	1.62	16.733	0.25	22.80	0.13
4.633	0.75	10.700	1.62	16.767	0.25	22.83	0.13
4.667	0.75	10.733	1.62	16.800	0.25	22.87	0.13
4.700	0.75	10.767	1.62	16.833	0.25	22.90	0.13
4.733	0.75	10.800	1.62	16.867	0.25	22.93	0.13
4.767	0.75	10.833	1.62	16.900	0.25	22.97	0.13
4.800	0.75	10.867	1.62	16.933	0.25	23.00	0.13
4.833	0.75	10.900	1.62	16.967	0.25	23.03	0.13
4.867	0.75	10.933	1.62	17.000	0.25	23.07	0.13
4.900	0.75	10.967	1.62	17.033	0.25	23.10	0.13
4.933	0.75	11.000	1.62	17.067	0.25	23.13	0.13
4.967	0.75	11.033	1.62	17.100	0.25	23.17	0.13
5.000	0.75	11.067	1.62	17.133	0.25	23.20	0.13
5.033	0.75	11.100	1.62	17.167	0.25	23.23	0.13
5.067	0.75	11.133	1.62	17.200	0.25	23.27	0.13
5.100	0.75	11.167	1.62	17.233	0.25	23.30	0.13
5.133	0.75	11.200	1.62	17.267	0.25	23.33	0.13
5.167	0.75	11.233	1.62	17.300	0.25	23.37	0.13
5.200	0.75	11.267	1.62	17.333	0.25	23.40	0.13
5.233	0.75	11.300	1.62	17.367	0.25	23.43	0.13
5.267	0.75	11.333	1.62	17.400	0.25	23.47	0.13
5.300	0.75	11.367	1.62	17.433	0.25	23.50	0.13
5.333	0.75	11.400	1.62	17.467	0.25	23.53	0.13
5.367	0.75	11.433	1.62	17.500	0.25	23.57	0.13
5.400	0.75	11.467	1.62	17.533	0.25	23.60	0.13
5.433	0.75	11.500	1.62	17.567	0.25	23.63	0.13
5.467	0.75	11.533	1.62	17.600	0.25	23.67	0.13
5.500	0.75	11.567	1.62	17.633	0.25	23.70	0.13
5.533	0.75	11.600	1.62	17.667	0.25	23.73	0.13
5.567	0.75	11.633	1.62	17.700	0.25	23.77	0.13
5.600	0.75	11.667	1.62	17.733	0.25	23.80	0.13
5.633	0.75	11.700	1.62	17.767	0.25	23.83	0.13
5.667	0.75	11.733	1.62	17.800	0.25	23.87	0.13
5.700	0.75	11.767	1.62	17.833	0.25	23.90	0.13
5.733	0.75	11.800	1.62	17.867	0.25	23.93	0.13
5.767	0.75	11.833	1.62	17.900	0.25	23.97	0.13
5.800	0.75	11.867	1.62	17.933	0.25	24.00	0.13
5.833	0.75	11.900	1.62	17.967	0.25	24.03	0.13
5.867	0.75	11.933	1.62	18.000	0.25	24.07	0.13
5.900	0.75	11.967	1.62	18.033	0.25	24.10	0.13
5.933	0.75	12.000	1.62	18.067	0.25	24.13	0.13
5.967	0.75	12.033	1.62	18.100	0.25	24.17	0.13
6.000	0.75	12.067	1.62	18.133	0.25	24.20	0.13
6.033	0.75	12.100	1.62	18.167	0.25	24.23	0.13
6.067	0.75	12.133	1.62	18.200	0.25	24.27	0.07

```
Max.Eff.Inten.(mm/hr)=       5.75         1.42
            over (min)      14.00        22.00
Storage Coeff.  (min)=      14.98 (ii)   20.25 (ii)
Unit Hyd. Tpeak (min)=      14.00        22.00
Unit Hyd. peak  (cms)=       0.08         0.05
                                                      *TOTALS*
PEAK FLOW       (cms)=       0.19         0.00          0.189 (iii)
TIME TO PEAK    (hrs)=      10.23        10.33          10.23
RUNOFF VOLUME    (mm)=      24.04         4.01          23.50
TOTAL RAINFALL   (mm)=      25.04        25.04          25.04
RUNOFF COEFFICIENT   =       0.96         0.16           0.94


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  76.0     Ia = Dep. 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 (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=          8.18          0.01
Dep. Storage     (mm)=          1.00          5.00
Average Slope     (%)=          1.00          2.00
Length            (m)=        233.67         40.00
Mannings n           =         0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


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

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.00	6.100	0.75	12.167	1.62	18.23	0.25
0.067	0.00	6.133	0.75	12.200	1.62	18.27	0.19
0.100	0.00	6.167	0.75	12.233	1.62	18.30	0.13
0.133	0.00	6.200	0.75	12.267	1.25	18.33	0.13
0.167	0.00	6.233	0.75	12.300	0.88	18.37	0.13
0.200	0.00	6.267	1.43	12.333	0.88	18.40	0.13
0.233	0.00	6.300	2.12	12.367	0.88	18.43	0.13
0.267	0.07	6.333	2.12	12.400	0.88	18.47	0.13
0.300	0.13	6.367	2.12	12.433	0.88	18.50	0.13
0.333	0.13	6.400	2.12	12.467	0.88	18.53	0.13
0.367	0.13	6.433	2.12	12.500	0.88	18.57	0.13
0.400	0.13	6.467	2.12	12.533	0.88	18.60	0.13
0.433	0.13	6.500	2.12	12.567	0.88	18.63	0.13
0.467	0.13	6.533	2.12	12.600	0.88	18.67	0.13
0.500	0.13	6.567	2.12	12.633	0.88	18.70	0.13
0.533	0.13	6.600	2.12	12.667	0.88	18.73	0.13
0.567	0.13	6.633	2.12	12.700	0.88	18.77	0.13
0.600	0.13	6.667	2.12	12.733	0.88	18.80	0.13
0.633	0.13	6.700	2.12	12.767	0.88	18.83	0.13
0.667	0.13	6.733	2.12	12.800	0.88	18.87	0.13
0.700	0.13	6.767	2.12	12.833	0.88	18.90	0.13
0.733	0.13	6.800	2.12	12.867	0.88	18.93	0.13
0.767	0.13	6.833	2.12	12.900	0.88	18.97	0.13
0.800	0.13	6.867	2.12	12.933	0.88	19.00	0.13
0.833	0.13	6.900	2.12	12.967	0.88	19.03	0.13
0.867	0.13	6.933	2.12	13.000	0.88	19.07	0.13
0.900	0.13	6.967	2.12	13.033	0.88	19.10	0.13
0.933	0.13	7.000	2.12	13.067	0.88	19.13	0.13
0.967	0.13	7.033	2.12	13.100	0.88	19.17	0.13
1.000	0.13	7.067	2.12	13.133	0.88	19.20	0.13
1.033	0.13	7.100	2.12	13.167	0.88	19.23	0.13
1.067	0.13	7.133	2.12	13.200	0.88	19.27	0.13
1.100	0.13	7.167	2.12	13.233	0.88	19.30	0.13
1.133	0.13	7.200	2.12	13.267	0.88	19.33	0.13
1.167	0.13	7.233	2.12	13.300	0.88	19.37	0.13
1.200	0.13	7.267	2.12	13.333	0.88	19.40	0.13
1.233	0.13	7.300	2.12	13.367	0.88	19.43	0.13
1.267	0.13	7.333	2.12	13.400	0.88	19.47	0.13
1.300	0.13	7.367	2.12	13.433	0.88	19.50	0.13
1.333	0.13	7.400	2.12	13.467	0.88	19.53	0.13
1.367	0.13	7.433	2.12	13.500	0.88	19.57	0.13
1.400	0.13	7.467	2.12	13.533	0.88	19.60	0.13
1.433	0.13	7.500	2.12	13.567	0.88	19.63	0.13
1.467	0.13	7.533	2.12	13.600	0.88	19.67	0.13
1.500	0.13	7.567	2.12	13.633	0.88	19.70	0.13
1.533	0.13	7.600	2.12	13.667	0.88	19.73	0.13
1.567	0.13	7.633	2.12	13.700	0.88	19.77	0.13
1.600	0.13	7.667	2.12	13.733	0.88	19.80	0.13
1.633	0.13	7.700	2.12	13.767	0.88	19.83	0.13
1.667	0.13	7.733	2.12	13.800	0.88	19.87	0.13
1.700	0.13	7.767	2.12	13.833	0.88	19.90	0.13
1.733	0.13	7.800	2.12	13.867	0.88	19.93	0.13
1.767	0.13	7.833	2.12	13.900	0.88	19.97	0.13
1.800	0.13	7.867	2.12	13.933	0.88	20.00	0.13
1.833	0.13	7.900	2.12	13.967	0.88	20.03	0.13
1.867	0.13	7.933	2.12	14.000	0.88	20.07	0.13
1.900	0.13	7.967	2.12	14.033	0.88	20.10	0.13
1.933	0.13	8.000	2.12	14.067	0.88	20.13	0.13
1.967	0.13	8.033	2.12	14.100	0.88	20.17	0.13
2.000	0.13	8.067	2.12	14.133	0.88	20.20	0.13
2.033	0.13	8.100	2.12	14.167	0.88	20.23	0.13
2.067	0.13	8.133	2.12	14.200	0.88	20.27	0.13
2.100	0.13	8.167	2.12	14.233	0.88	20.30	0.13
2.133	0.13	8.200	2.12	14.267	0.69	20.33	0.13
2.167	0.13	8.233	2.12	14.300	0.50	20.37	0.13
2.200	0.13	8.267	3.93	14.333	0.50	20.40	0.13
2.233	0.13	8.300	5.75	14.367	0.50	20.43	0.13
2.267	0.13	8.333	5.75	14.400	0.50	20.47	0.13
2.300	0.13	8.367	5.75	14.433	0.50	20.50	0.13
2.333	0.13	8.400	5.75	14.467	0.50	20.53	0.13
2.367	0.13	8.433	5.75	14.500	0.50	20.57	0.13
2.400	0.13	8.467	5.75	14.533	0.50	20.60	0.13
2.433	0.13	8.500	5.75	14.567	0.50	20.63	0.13
2.467	0.13	8.533	5.75	14.600	0.50	20.67	0.13
2.500	0.13	8.567	5.75	14.633	0.50	20.70	0.13
2.533	0.13	8.600	5.75	14.667	0.50	20.73	0.13
2.567	0.13	8.633	5.75	14.700	0.50	20.77	0.13
2.600	0.13	8.667	5.75	14.733	0.50	20.80	0.13
2.633	0.13	8.700	5.75	14.767	0.50	20.83	0.13
2.667	0.13	8.733	5.75	14.800	0.50	20.87	0.13
2.700	0.13	8.767	5.75	14.833	0.50	20.90	0.13
2.733	0.13	8.800	5.75	14.867	0.50	20.93	0.13
2.767	0.13	8.833	5.75	14.900	0.50	20.97	0.13
2.800	0.13	8.867	5.75	14.933	0.50	21.00	0.13
2.833	0.13	8.900	5.75	14.967	0.50	21.03	0.13
2.867	0.13	8.933	5.75	15.000	0.50	21.07	0.13
2.900	0.13	8.967	5.75	15.033	0.50	21.10	0.13
2.933	0.13	9.000	5.75	15.067	0.50	21.13	0.13
2.967	0.13	9.033	5.75	15.100	0.50	21.17	0.13
3.000	0.13	9.067	5.75	15.133	0.50	21.20	0.13
3.033	0.13	9.100	5.75	15.167	0.50	21.23	0.13
3.067	0.13	9.133	5.75	15.200	0.50	21.27	0.13
3.100	0.13	9.167	5.75	15.233	0.50	21.30	0.13
3.133	0.13	9.200	5.75	15.267	0.50	21.33	0.13
3.167	0.13	9.233	5.75	15.300	0.50	21.37	0.13
3.200	0.13	9.267	5.75	15.333	0.50	21.40	0.13
3.233	0.13	9.300	5.75	15.367	0.50	21.43	0.13
3.267	0.13	9.333	5.75	15.400	0.50	21.47	0.13
3.300	0.13	9.367	5.75	15.433	0.50	21.50	0.13
3.333	0.13	9.400	5.75	15.467	0.50	21.53	0.13
3.367	0.13	9.433	5.75	15.500	0.50	21.57	0.13
3.400	0.13	9.467	5.75	15.533	0.50	21.60	0.13
3.433	0.13	9.500	5.75	15.567	0.50	21.63	0.13
3.467	0.13	9.533	5.75	15.600	0.50	21.67	0.13
3.500	0.13	9.567	5.75	15.633	0.50	21.70	0.13
3.533	0.13	9.600	5.75	15.667	0.50	21.73	0.13
3.567	0.13	9.633	5.75	15.700	0.50	21.77	0.13
3.600	0.13	9.667	5.75	15.733	0.50	21.80	0.13
3.633	0.13	9.700	5.75	15.767	0.50	21.83	0.13
3.667	0.13	9.733	5.75	15.800	0.50	21.87	0.13
3.700	0.13	9.767	5.75	15.833	0.50	21.90	0.13
3.733	0.13	9.800	5.75	15.867	0.50	21.93	0.13
3.767	0.13	9.833	5.75	15.900	0.50	21.97	0.13
3.800	0.13	9.867	5.75	15.933	0.50	22.00	0.13
3.833	0.13	9.900	5.75	15.967	0.50	22.03	0.13
3.867	0.13	9.933	5.75	16.000	0.50	22.07	0.13
3.900	0.13	9.967	5.75	16.033	0.50	22.10	0.13
3.933	0.13	10.000	5.75	16.067	0.50	22.13	0.13
3.967	0.13	10.033	5.75	16.100	0.50	22.17	0.13
4.000	0.13	10.067	5.75	16.133	0.50	22.20	0.13
4.033	0.13	10.100	5.75	16.167	0.50	22.23	0.13
4.067	0.13	10.133	5.75	16.200	0.50	22.27	0.13
4.100	0.13	10.167	5.75	16.233	0.50	22.30	0.13
4.133	0.13	10.200	5.75	16.267	0.37	22.33	0.13
4.167	0.13	10.233	5.75	16.300	0.25	22.37	0.13
4.200	0.13	10.267	3.68	16.333	0.25	22.40	0.13
4.233	0.13	10.300	1.62	16.367	0.25	22.43	0.13
4.267	0.44	10.333	1.62	16.400	0.25	22.47	0.13
4.300	0.75	10.367	1.62	16.433	0.25	22.50	0.13
4.333	0.75	10.400	1.62	16.467	0.25	22.53	0.13
4.367	0.75	10.433	1.62	16.500	0.25	22.57	0.13
4.400	0.75	10.467	1.62	16.533	0.25	22.60	0.13
4.433	0.75	10.500	1.62	16.567	0.25	22.63	0.13
4.467	0.75	10.533	1.62	16.600	0.25	22.67	0.13
4.500	0.75	10.567	1.62	16.633	0.25	22.70	0.13
4.533	0.75	10.600	1.62	16.667	0.25	22.73	0.13
4.567	0.75	10.633	1.62	16.700	0.25	22.77	0.13
4.600	0.75	10.667	1.62	16.733	0.25	22.80	0.13
4.633	0.75	10.700	1.62	16.767	0.25	22.83	0.13
4.667	0.75	10.733	1.62	16.800	0.25	22.87	0.13
4.700	0.75	10.767	1.62	16.833	0.25	22.90	0.13
4.733	0.75	10.800	1.62	16.867	0.25	22.93	0.13
4.767	0.75	10.833	1.62	16.900	0.25	22.97	0.13
4.800	0.75	10.867	1.62	16.933	0.25	23.00	0.13
4.833	0.75	10.900	1.62	16.967	0.25	23.03	0.13
4.867	0.75	10.933	1.62	17.000	0.25	23.07	0.13
4.900	0.75	10.967	1.62	17.033	0.25	23.10	0.13
4.933	0.75	11.000	1.62	17.067	0.25	23.13	0.13
4.967	0.75	11.033	1.62	17.100	0.25	23.17	0.13
5.000	0.75	11.067	1.62	17.133	0.25	23.20	0.13
5.033	0.75	11.100	1.62	17.167	0.25	23.23	0.13
5.067	0.75	11.133	1.62	17.200	0.25	23.27	0.13
5.100	0.75	11.167	1.62	17.233	0.25	23.30	0.13
5.133	0.75	11.200	1.62	17.267	0.25	23.33	0.13
5.167	0.75	11.233	1.62	17.300	0.25	23.37	0.13
5.200	0.75	11.267	1.62	17.333	0.25	23.40	0.13
5.233	0.75	11.300	1.62	17.367	0.25	23.43	0.13
5.267	0.75	11.333	1.62	17.400	0.25	23.47	0.13
5.300	0.75	11.367	1.62	17.433	0.25	23.50	0.13
5.333	0.75	11.400	1.62	17.467	0.25	23.53	0.13
5.367	0.75	11.433	1.62	17.500	0.25	23.57	0.13
5.400	0.75	11.467	1.62	17.533	0.25	23.60	0.13
5.433	0.75	11.500	1.62	17.567	0.25	23.63	0.13
5.467	0.75	11.533	1.62	17.600	0.25	23.67	0.13
5.500	0.75	11.567	1.62	17.633	0.25	23.70	0.13
5.533	0.75	11.600	1.62	17.667	0.25	23.73	0.13
5.567	0.75	11.633	1.62	17.700	0.25	23.77	0.13

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

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                5.600    0.75 |11.667    1.62 |17.733    0.25 | 23.80    0.13
                5.633    0.75 |11.700    1.62 |17.767    0.25 | 23.83    0.13
                5.667    0.75 |11.733    1.62 |17.800    0.25 | 23.87    0.13
                5.700    0.75 |11.767    1.62 |17.833    0.25 | 23.90    0.13
                5.733    0.75 |11.800    1.62 |17.867    0.25 | 23.93    0.13
                5.767    0.75 |11.833    1.62 |17.900    0.25 | 23.97    0.13
                5.800    0.75 |11.867    1.62 |17.933    0.25 | 24.00    0.13
                5.833    0.75 |11.900    1.62 |17.967    0.25 | 24.03    0.13
                5.867    0.75 |11.933    1.62 |18.000    0.25 | 24.07    0.13
                5.900    0.75 |11.967    1.62 |18.033    0.25 | 24.10    0.13
                5.933    0.75 |12.000    1.62 |18.067    0.25 | 24.13    0.13
                5.967    0.75 |12.033    1.62 |18.100    0.25 | 24.17    0.13
                6.000    0.75 |12.067    1.62 |18.133    0.25 | 24.20    0.13
                6.033    0.75 |12.100    1.62 |18.167    0.25 | 24.23    0.13
                6.067    0.75 |12.133    1.62 |18.200    0.25 | 24.27    0.07

     Max.Eff.Inten.(mm/hr)=       5.75         1.42
                over (min)       14.00        16.00
     Storage Coeff.  (min)=      13.32 (ii)   14.72 (ii)
     Unit Hyd. Tpeak (min)=      14.00        16.00
     Unit Hyd. peak  (cms)=       0.08         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.00       0.131 (iii)
     TIME TO PEAK    (hrs)=      10.23        10.30       10.23
     RUNOFF VOLUME    (mm)=      24.04         4.01       24.02
     TOTAL RAINFALL   (mm)=      25.04        25.04       25.04
     RUNOFF COEFFICIENT   =       0.96         0.16        0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190     0.131     10.23      24.02
   OUTFLOW: ID= 1 (  0001)      8.190     0.017     14.50      21.60
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.69
                   TIME SHIFT OF PEAK FLOW         (min)=256.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.1456

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.017    14.50    21.60
      + ID2= 2 (  0100):    12.09    0.189    10.23    23.50
        ==================================================
        ID = 3 (  0051):    20.28    0.202    10.23    22.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)    0.00      0.00    0.00     0.00

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--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00    0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28    0.202    10.23    22.73
        ==================================================
        ID = 3 (  0052):    20.28    0.202    10.23    22.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
                          0.1087     0.2218   |   0.2271      0.7737
                          0.1256     0.2662   |   0.6000      0.8403
                          0.1406     0.3105   |   0.6881      0.9081
                          0.1541     0.3596   |   0.7636      0.9760
                          0.1665     0.4159   |   0.8309      1.0439

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280     0.202     10.23      22.73
   OUTFLOW: ID= 1 (  0002)     20.280     0.085     10.90      18.27
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 41.93
                   TIME SHIFT OF PEAK FLOW         (min)= 40.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.1709

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  --------------------------
  | Junction Command(0053) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)    0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
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| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.30          0.40
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      33.67         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.033    0.00 | 6.100    0.75 |12.167    1.62 | 18.23    0.25
                 0.067    0.00 | 6.133    0.75 |12.200    1.62 | 18.27    0.19
                 0.100    0.00 | 6.167    0.75 |12.233    1.62 | 18.30    0.13
                 0.133    0.00 | 6.200    0.75 |12.267    1.25 | 18.33    0.13
                 0.167    0.00 | 6.233    0.75 |12.300    0.88 | 18.37    0.13
                 0.200    0.00 | 6.267    1.43 |12.333    0.88 | 18.40    0.13
                 0.233    0.00 | 6.300    2.12 |12.367    0.88 | 18.43    0.13
                 0.267    0.07 | 6.333    2.12 |12.400    0.88 | 18.47    0.13
                 0.300    0.13 | 6.367    2.12 |12.433    0.88 | 18.50    0.13
                 0.333    0.13 | 6.400    2.12 |12.467    0.88 | 18.53    0.13
                 0.367    0.13 | 6.433    2.12 |12.500    0.88 | 18.57    0.13
                 0.400    0.13 | 6.467    2.12 |12.533    0.88 | 18.60    0.13
                 0.433    0.13 | 6.500    2.12 |12.567    0.88 | 18.63    0.13
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TOWN OF CALEDON
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0.467	0.13	6.533	2.12	12.600	0.88	18.67	0.13
0.500	0.13	6.567	2.12	12.633	0.88	18.70	0.13
0.533	0.13	6.600	2.12	12.667	0.88	18.73	0.13
0.567	0.13	6.633	2.12	12.700	0.88	18.77	0.13
0.600	0.13	6.667	2.12	12.733	0.88	18.80	0.13
0.633	0.13	6.700	2.12	12.767	0.88	18.83	0.13
0.667	0.13	6.733	2.12	12.800	0.88	18.87	0.13
0.700	0.13	6.767	2.12	12.833	0.88	18.90	0.13
0.733	0.13	6.800	2.12	12.867	0.88	18.93	0.13
0.767	0.13	6.833	2.12	12.900	0.88	18.97	0.13
0.800	0.13	6.867	2.12	12.933	0.88	19.00	0.13
0.833	0.13	6.900	2.12	12.967	0.88	19.03	0.13
0.867	0.13	6.933	2.12	13.000	0.88	19.07	0.13
0.900	0.13	6.967	2.12	13.033	0.88	19.10	0.13
0.933	0.13	7.000	2.12	13.067	0.88	19.13	0.13
0.967	0.13	7.033	2.12	13.100	0.88	19.17	0.13
1.000	0.13	7.067	2.12	13.133	0.88	19.20	0.13
1.033	0.13	7.100	2.12	13.167	0.88	19.23	0.13
1.067	0.13	7.133	2.12	13.200	0.88	19.27	0.13
1.100	0.13	7.167	2.12	13.233	0.88	19.30	0.13
1.133	0.13	7.200	2.12	13.267	0.88	19.33	0.13
1.167	0.13	7.233	2.12	13.300	0.88	19.37	0.13
1.200	0.13	7.267	2.12	13.333	0.88	19.40	0.13
1.233	0.13	7.300	2.12	13.367	0.88	19.43	0.13
1.267	0.13	7.333	2.12	13.400	0.88	19.47	0.13
1.300	0.13	7.367	2.12	13.433	0.88	19.50	0.13
1.333	0.13	7.400	2.12	13.467	0.88	19.53	0.13
1.367	0.13	7.433	2.12	13.500	0.88	19.57	0.13
1.400	0.13	7.467	2.12	13.533	0.88	19.60	0.13
1.433	0.13	7.500	2.12	13.567	0.88	19.63	0.13
1.467	0.13	7.533	2.12	13.600	0.88	19.67	0.13
1.500	0.13	7.567	2.12	13.633	0.88	19.70	0.13
1.533	0.13	7.600	2.12	13.667	0.88	19.73	0.13
1.567	0.13	7.633	2.12	13.700	0.88	19.77	0.13
1.600	0.13	7.667	2.12	13.733	0.88	19.80	0.13
1.633	0.13	7.700	2.12	13.767	0.88	19.83	0.13
1.667	0.13	7.733	2.12	13.800	0.88	19.87	0.13
1.700	0.13	7.767	2.12	13.833	0.88	19.90	0.13
1.733	0.13	7.800	2.12	13.867	0.88	19.93	0.13
1.767	0.13	7.833	2.12	13.900	0.88	19.97	0.13
1.800	0.13	7.867	2.12	13.933	0.88	20.00	0.13
1.833	0.13	7.900	2.12	13.967	0.88	20.03	0.13
1.867	0.13	7.933	2.12	14.000	0.88	20.07	0.13
1.900	0.13	7.967	2.12	14.033	0.88	20.10	0.13
1.933	0.13	8.000	2.12	14.067	0.88	20.13	0.13
1.967	0.13	8.033	2.12	14.100	0.88	20.17	0.13
2.000	0.13	8.067	2.12	14.133	0.88	20.20	0.13
2.033	0.13	8.100	2.12	14.167	0.88	20.23	0.13
2.067	0.13	8.133	2.12	14.200	0.88	20.27	0.13
2.100	0.13	8.167	2.12	14.233	0.88	20.30	0.13
2.133	0.13	8.200	2.12	14.267	0.69	20.33	0.13
2.167	0.13	8.233	2.12	14.300	0.50	20.37	0.13
2.200	0.13	8.267	3.93	14.333	0.50	20.40	0.13
2.233	0.13	8.300	5.75	14.367	0.50	20.43	0.13
2.267	0.13	8.333	5.75	14.400	0.50	20.47	0.13
2.300	0.13	8.367	5.75	14.433	0.50	20.50	0.13
2.333	0.13	8.400	5.75	14.467	0.50	20.53	0.13
2.367	0.13	8.433	5.75	14.500	0.50	20.57	0.13
2.400	0.13	8.467	5.75	14.533	0.50	20.60	0.13
2.433	0.13	8.500	5.75	14.567	0.50	20.63	0.13
2.467	0.13	8.533	5.75	14.600	0.50	20.67	0.13
2.500	0.13	8.567	5.75	14.633	0.50	20.70	0.13
2.533	0.13	8.600	5.75	14.667	0.50	20.73	0.13
2.567	0.13	8.633	5.75	14.700	0.50	20.77	0.13
2.600	0.13	8.667	5.75	14.733	0.50	20.80	0.13
2.633	0.13	8.700	5.75	14.767	0.50	20.83	0.13
2.667	0.13	8.733	5.75	14.800	0.50	20.87	0.13
2.700	0.13	8.767	5.75	14.833	0.50	20.90	0.13
2.733	0.13	8.800	5.75	14.867	0.50	20.93	0.13
2.767	0.13	8.833	5.75	14.900	0.50	20.97	0.13
2.800	0.13	8.867	5.75	14.933	0.50	21.00	0.13
2.833	0.13	8.900	5.75	14.967	0.50	21.03	0.13
2.867	0.13	8.933	5.75	15.000	0.50	21.07	0.13
2.900	0.13	8.967	5.75	15.033	0.50	21.10	0.13
2.933	0.13	9.000	5.75	15.067	0.50	21.13	0.13
2.967	0.13	9.033	5.75	15.100	0.50	21.17	0.13
3.000	0.13	9.067	5.75	15.133	0.50	21.20	0.13
3.033	0.13	9.100	5.75	15.167	0.50	21.23	0.13
3.067	0.13	9.133	5.75	15.200	0.50	21.27	0.13
3.100	0.13	9.167	5.75	15.233	0.50	21.30	0.13
3.133	0.13	9.200	5.75	15.267	0.50	21.33	0.13
3.167	0.13	9.233	5.75	15.300	0.50	21.37	0.13
3.200	0.13	9.267	5.75	15.333	0.50	21.40	0.13
3.233	0.13	9.300	5.75	15.367	0.50	21.43	0.13

3.267	0.13	9.333	5.75	15.400	0.50	21.47	0.13
3.300	0.13	9.367	5.75	15.433	0.50	21.50	0.13
3.333	0.13	9.400	5.75	15.467	0.50	21.53	0.13
3.367	0.13	9.433	5.75	15.500	0.50	21.57	0.13
3.400	0.13	9.467	5.75	15.533	0.50	21.60	0.13
3.433	0.13	9.500	5.75	15.567	0.50	21.63	0.13
3.467	0.13	9.533	5.75	15.600	0.50	21.67	0.13
3.500	0.13	9.567	5.75	15.633	0.50	21.70	0.13
3.533	0.13	9.600	5.75	15.667	0.50	21.73	0.13
3.567	0.13	9.633	5.75	15.700	0.50	21.77	0.13
3.600	0.13	9.667	5.75	15.733	0.50	21.80	0.13
3.633	0.13	9.700	5.75	15.767	0.50	21.83	0.13
3.667	0.13	9.733	5.75	15.800	0.50	21.87	0.13
3.700	0.13	9.767	5.75	15.833	0.50	21.90	0.13
3.733	0.13	9.800	5.75	15.867	0.50	21.93	0.13
3.767	0.13	9.833	5.75	15.900	0.50	21.97	0.13
3.800	0.13	9.867	5.75	15.933	0.50	22.00	0.13
3.833	0.13	9.900	5.75	15.967	0.50	22.03	0.13
3.867	0.13	9.933	5.75	16.000	0.50	22.07	0.13
3.900	0.13	9.967	5.75	16.033	0.50	22.10	0.13
3.933	0.13	10.000	5.75	16.067	0.50	22.13	0.13
3.967	0.13	10.033	5.75	16.100	0.50	22.17	0.13
4.000	0.13	10.067	5.75	16.133	0.50	22.20	0.13
4.033	0.13	10.100	5.75	16.167	0.50	22.23	0.13
4.067	0.13	10.133	5.75	16.200	0.50	22.27	0.13
4.100	0.13	10.167	5.75	16.233	0.50	22.30	0.13
4.133	0.13	10.200	5.75	16.267	0.37	22.33	0.13
4.167	0.13	10.233	5.75	16.300	0.25	22.37	0.13
4.200	0.13	10.267	3.68	16.333	0.25	22.40	0.13
4.233	0.13	10.300	1.62	16.367	0.25	22.43	0.13
4.267	0.44	10.333	1.62	16.400	0.25	22.47	0.13
4.300	0.75	10.367	1.62	16.433	0.25	22.50	0.13
4.333	0.75	10.400	1.62	16.467	0.25	22.53	0.13
4.367	0.75	10.433	1.62	16.500	0.25	22.57	0.13
4.400	0.75	10.467	1.62	16.533	0.25	22.60	0.13
4.433	0.75	10.500	1.62	16.567	0.25	22.63	0.13
4.467	0.75	10.533	1.62	16.600	0.25	22.67	0.13
4.500	0.75	10.567	1.62	16.633	0.25	22.70	0.13
4.533	0.75	10.600	1.62	16.667	0.25	22.73	0.13
4.567	0.75	10.633	1.62	16.700	0.25	22.77	0.13
4.600	0.75	10.667	1.62	16.733	0.25	22.80	0.13
4.633	0.75	10.700	1.62	16.767	0.25	22.83	0.13
4.667	0.75	10.733	1.62	16.800	0.25	22.87	0.13
4.700	0.75	10.767	1.62	16.833	0.25	22.90	0.13
4.733	0.75	10.800	1.62	16.867	0.25	22.93	0.13
4.767	0.75	10.833	1.62	16.900	0.25	22.97	0.13
4.800	0.75	10.867	1.62	16.933	0.25	23.00	0.13
4.833	0.75	10.900	1.62	16.967	0.25	23.03	0.13
4.867	0.75	10.933	1.62	17.000	0.25	23.07	0.13
4.900	0.75	10.967	1.62	17.033	0.25	23.10	0.13
4.933	0.75	11.000	1.62	17.067	0.25	23.13	0.13
4.967	0.75	11.033	1.62	17.100	0.25	23.17	0.13
5.000	0.75	11.067	1.62	17.133	0.25	23.20	0.13
5.033	0.75	11.100	1.62	17.167	0.25	23.23	0.13
5.067	0.75	11.133	1.62	17.200	0.25	23.27	0.13
5.100	0.75	11.167	1.62	17.233	0.25	23.30	0.13
5.133	0.75	11.200	1.62	17.267	0.25	23.33	0.13
5.167	0.75	11.233	1.62	17.300	0.25	23.37	0.13
5.200	0.75	11.267	1.62	17.333	0.25	23.40	0.13
5.233	0.75	11.300	1.62	17.367	0.25	23.43	0.13
5.267	0.75	11.333	1.62	17.400	0.25	23.47	0.13
5.300	0.75	11.367	1.62	17.433	0.25	23.50	0.13
5.333	0.75	11.400	1.62	17.467	0.25	23.53	0.13
5.367	0.75	11.433	1.62	17.500	0.25	23.57	0.13
5.400	0.75	11.467	1.62	17.533	0.25	23.60	0.13
5.433	0.75	11.500	1.62	17.567	0.25	23.63	0.13
5.467	0.75	11.533	1.62	17.600	0.25	23.67	0.13
5.500	0.75	11.567	1.62	17.633	0.25	23.70	0.13
5.533	0.75	11.600	1.62	17.667	0.25	23.73	0.13
5.567	0.75	11.633	1.62	17.700	0.25	23.77	0.13
5.600	0.75	11.667	1.62	17.733	0.25	23.80	0.13
5.633	0.75	11.700	1.62	17.767	0.25	23.83	0.13
5.667	0.75	11.733	1.62	17.800	0.25	23.87	0.13
5.700	0.75	11.767	1.62	17.833	0.25	23.90	0.13
5.733	0.75	11.800	1.62	17.867	0.25	23.93	0.13
5.767	0.75	11.833	1.62	17.900	0.25	23.97	0.13
5.800	0.75	11.867	1.62	17.933	0.25	24.00	0.13
5.833	0.75	11.900	1.62	17.967	0.25	24.03	0.13
5.867	0.75	11.933	1.62	18.000	0.25	24.07	0.13
5.900	0.75	11.967	1.62	18.033	0.25	24.10	0.13
5.933	0.75	12.000	1.62	18.067	0.25	24.13	0.13
5.967	0.75	12.033	1.62	18.100	0.25	24.17	0.13
6.000	0.75	12.067	1.62	18.133	0.25	24.20	0.13
6.033	0.75	12.100	1.62	18.167	0.25	24.23	0.13

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                6.067    0.75 |12.133    1.62 |18.200    0.25 | 24.27    0.07

     Max.Eff.Inten.(mm/hr)=       5.75         1.42
                over (min)      16.00        22.00
     Storage Coeff.  (min)=     16.50 (ii)   21.52 (ii)
     Unit Hyd. Tpeak (min)=     16.00        22.00
     Unit Hyd. peak  (cms)=      0.07         0.05
                                                          *TOTALS*
     PEAK FLOW       (cms)=      0.26         0.00         0.261 (iii)
     TIME TO PEAK    (hrs)=     10.23        10.33         10.23
     RUNOFF VOLUME    (mm)=     24.04         4.01         23.56
     TOTAL RAINFALL   (mm)=     25.04        25.04         25.04
     RUNOFF COEFFICIENT   =      0.96         0.16          0.94


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     16.700     0.261     10.23      23.56
   OUTFLOW: ID= 1 (  0003)     16.700     0.065     12.47      16.09
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 25.01
                   TIME SHIFT OF PEAK FLOW         (min)=134.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.2604

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  --------------------------
  | Junction Command(0054) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0003)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)   0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      8.20         0.01
     Dep. Storage     (mm)=      1.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=    233.95        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 6.100    0.75 |12.167    1.62 | 18.23    0.25
                0.067    0.00 | 6.133    0.75 |12.200    1.62 | 18.27    0.19
                0.100    0.00 | 6.167    0.75 |12.233    1.62 | 18.30    0.13
                0.133    0.00 | 6.200    0.75 |12.267    1.25 | 18.33    0.13
                0.167    0.00 | 6.233    0.75 |12.300    0.88 | 18.37    0.13
                0.200    0.00 | 6.267    1.43 |12.333    0.88 | 18.40    0.13
                0.233    0.00 | 6.300    2.12 |12.367    0.88 | 18.43    0.13
                0.267    0.07 | 6.333    2.12 |12.400    0.88 | 18.47    0.13
                0.300    0.13 | 6.367    2.12 |12.433    0.88 | 18.50    0.13
                0.333    0.13 | 6.400    2.12 |12.467    0.88 | 18.53    0.13
                0.367    0.13 | 6.433    2.12 |12.500    0.88 | 18.57    0.13
                0.400    0.13 | 6.467    2.12 |12.533    0.88 | 18.60    0.13
                0.433    0.13 | 6.500    2.12 |12.567    0.88 | 18.63    0.13
                0.467    0.13 | 6.533    2.12 |12.600    0.88 | 18.67    0.13
                0.500    0.13 | 6.567    2.12 |12.633    0.88 | 18.70    0.13
                0.533    0.13 | 6.600    2.12 |12.667    0.88 | 18.73    0.13
                0.567    0.13 | 6.633    2.12 |12.700    0.88 | 18.77    0.13
                0.600    0.13 | 6.667    2.12 |12.733    0.88 | 18.80    0.13
                0.633    0.13 | 6.700    2.12 |12.767    0.88 | 18.83    0.13
                0.667    0.13 | 6.733    2.12 |12.800    0.88 | 18.87    0.13
                0.700    0.13 | 6.767    2.12 |12.833    0.88 | 18.90    0.13
                0.733    0.13 | 6.800    2.12 |12.867    0.88 | 18.93    0.13
                0.767    0.13 | 6.833    2.12 |12.900    0.88 | 18.97    0.13
                0.800    0.13 | 6.867    2.12 |12.933    0.88 | 19.00    0.13
                0.833    0.13 | 6.900    2.12 |12.967    0.88 | 19.03    0.13
                0.867    0.13 | 6.933    2.12 |13.000    0.88 | 19.07    0.13
                0.900    0.13 | 6.967    2.12 |13.033    0.88 | 19.10    0.13
                0.933    0.13 | 7.000    2.12 |13.067    0.88 | 19.13    0.13
                0.967    0.13 | 7.033    2.12 |13.100    0.88 | 19.17    0.13
                1.000    0.13 | 7.067    2.12 |13.133    0.88 | 19.20    0.13
                1.033    0.13 | 7.100    2.12 |13.167    0.88 | 19.23    0.13
                1.067    0.13 | 7.133    2.12 |13.200    0.88 | 19.27    0.13
                1.100    0.13 | 7.167    2.12 |13.233    0.88 | 19.30    0.13
                1.133    0.13 | 7.200    2.12 |13.267    0.88 | 19.33    0.13
                1.167    0.13 | 7.233    2.12 |13.300    0.88 | 19.37    0.13
                1.200    0.13 | 7.267    2.12 |13.333    0.88 | 19.40    0.13
                1.233    0.13 | 7.300    2.12 |13.367    0.88 | 19.43    0.13
                1.267    0.13 | 7.333    2.12 |13.400    0.88 | 19.47    0.13
                1.300    0.13 | 7.367    2.12 |13.433    0.88 | 19.50    0.13
                1.333    0.13 | 7.400    2.12 |13.467    0.88 | 19.53    0.13
                1.367    0.13 | 7.433    2.12 |13.500    0.88 | 19.57    0.13
                1.400    0.13 | 7.467    2.12 |13.533    0.88 | 19.60    0.13
                1.433    0.13 | 7.500    2.12 |13.567    0.88 | 19.63    0.13
                1.467    0.13 | 7.533    2.12 |13.600    0.88 | 19.67    0.13
                1.500    0.13 | 7.567    2.12 |13.633    0.88 | 19.70    0.13
                1.533    0.13 | 7.600    2.12 |13.667    0.88 | 19.73    0.13
                1.567    0.13 | 7.633    2.12 |13.700    0.88 | 19.77    0.13
                1.600    0.13 | 7.667    2.12 |13.733    0.88 | 19.80    0.13
                1.633    0.13 | 7.700    2.12 |13.767    0.88 | 19.83    0.13
                1.667    0.13 | 7.733    2.12 |13.800    0.88 | 19.87    0.13
                1.700    0.13 | 7.767    2.12 |13.833    0.88 | 19.90    0.13
                1.733    0.13 | 7.800    2.12 |13.867    0.88 | 19.93    0.13
                1.767    0.13 | 7.833    2.12 |13.900    0.88 | 19.97    0.13
                1.800    0.13 | 7.867    2.12 |13.933    0.88 | 20.00    0.13
                1.833    0.13 | 7.900    2.12 |13.967    0.88 | 20.03    0.13
                1.867    0.13 | 7.933    2.12 |14.000    0.88 | 20.07    0.13
                1.900    0.13 | 7.967    2.12 |14.033    0.88 | 20.10    0.13
                1.933    0.13 | 8.000    2.12 |14.067    0.88 | 20.13    0.13
                1.967    0.13 | 8.033    2.12 |14.100    0.88 | 20.17    0.13
                2.000    0.13 | 8.067    2.12 |14.133    0.88 | 20.20    0.13
                2.033    0.13 | 8.100    2.12 |14.167    0.88 | 20.23    0.13
                2.067    0.13 | 8.133    2.12 |14.200    0.88 | 20.27    0.13
                2.100    0.13 | 8.167    2.12 |14.233    0.88 | 20.30    0.13
                2.133    0.13 | 8.200    2.12 |14.267    0.69 | 20.33    0.13
                2.167    0.13 | 8.233    2.12 |14.300    0.50 | 20.37    0.13
                2.200    0.13 | 8.267    3.93 |14.333    0.50 | 20.40    0.13
                2.233    0.13 | 8.300    5.75 |14.367    0.50 | 20.43    0.13
                2.267    0.13 | 8.333    5.75 |14.400    0.50 | 20.47    0.13
                2.300    0.13 | 8.367    5.75 |14.433    0.50 | 20.50    0.13
                2.333    0.13 | 8.400    5.75 |14.467    0.50 | 20.53    0.13
                2.367    0.13 | 8.433    5.75 |14.500    0.50 | 20.57    0.13
                2.400    0.13 | 8.467    5.75 |14.533    0.50 | 20.60    0.13
                2.433    0.13 | 8.500    5.75 |14.567    0.50 | 20.63    0.13
                2.467    0.13 | 8.533    5.75 |14.600    0.50 | 20.67    0.13
                2.500    0.13 | 8.567    5.75 |14.633    0.50 | 20.70    0.13
                2.533    0.13 | 8.600    5.75 |14.667    0.50 | 20.73    0.13
                2.567    0.13 | 8.633    5.75 |14.700    0.50 | 20.77    0.13
                2.600    0.13 | 8.667    5.75 |14.733    0.50 | 20.80    0.13
                2.633    0.13 | 8.700    5.75 |14.767    0.50 | 20.83    0.13
                2.667    0.13 | 8.733    5.75 |14.800    0.50 | 20.87    0.13
                2.700    0.13 | 8.767    5.75 |14.833    0.50 | 20.90    0.13
                2.733    0.13 | 8.800    5.75 |14.867    0.50 | 20.93    0.13
                2.767    0.13 | 8.833    5.75 |14.900    0.50 | 20.97    0.13
                2.800    0.13 | 8.867    5.75 |14.933    0.50 | 21.00    0.13
                2.833    0.13 | 8.900    5.75 |14.967    0.50 | 21.03    0.13
                2.867    0.13 | 8.933    5.75 |15.000    0.50 | 21.07    0.13
```

TOWN OF CALEDON
PLANNING
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2.900	0.13	8.967	5.75	15.033	0.50	21.10	0.13
2.933	0.13	9.000	5.75	15.067	0.50	21.13	0.13
2.967	0.13	9.033	5.75	15.100	0.50	21.17	0.13
3.000	0.13	9.067	5.75	15.133	0.50	21.20	0.13
3.033	0.13	9.100	5.75	15.167	0.50	21.23	0.13
3.067	0.13	9.133	5.75	15.200	0.50	21.27	0.13
3.100	0.13	9.167	5.75	15.233	0.50	21.30	0.13
3.133	0.13	9.200	5.75	15.267	0.50	21.33	0.13
3.167	0.13	9.233	5.75	15.300	0.50	21.37	0.13
3.200	0.13	9.267	5.75	15.333	0.50	21.40	0.13
3.233	0.13	9.300	5.75	15.367	0.50	21.43	0.13
3.267	0.13	9.333	5.75	15.400	0.50	21.47	0.13
3.300	0.13	9.367	5.75	15.433	0.50	21.50	0.13
3.333	0.13	9.400	5.75	15.467	0.50	21.53	0.13
3.367	0.13	9.433	5.75	15.500	0.50	21.57	0.13
3.400	0.13	9.467	5.75	15.533	0.50	21.60	0.13
3.433	0.13	9.500	5.75	15.567	0.50	21.63	0.13
3.467	0.13	9.533	5.75	15.600	0.50	21.67	0.13
3.500	0.13	9.567	5.75	15.633	0.50	21.70	0.13
3.533	0.13	9.600	5.75	15.667	0.50	21.73	0.13
3.567	0.13	9.633	5.75	15.700	0.50	21.77	0.13
3.600	0.13	9.667	5.75	15.733	0.50	21.80	0.13
3.633	0.13	9.700	5.75	15.767	0.50	21.83	0.13
3.667	0.13	9.733	5.75	15.800	0.50	21.87	0.13
3.700	0.13	9.767	5.75	15.833	0.50	21.90	0.13
3.733	0.13	9.800	5.75	15.867	0.50	21.93	0.13
3.767	0.13	9.833	5.75	15.900	0.50	21.97	0.13
3.800	0.13	9.867	5.75	15.933	0.50	22.00	0.13
3.833	0.13	9.900	5.75	15.967	0.50	22.03	0.13
3.867	0.13	9.933	5.75	16.000	0.50	22.07	0.13
3.900	0.13	9.967	5.75	16.033	0.50	22.10	0.13
3.933	0.13	10.000	5.75	16.067	0.50	22.13	0.13
3.967	0.13	10.033	5.75	16.100	0.50	22.17	0.13
4.000	0.13	10.067	5.75	16.133	0.50	22.20	0.13
4.033	0.13	10.100	5.75	16.167	0.50	22.23	0.13
4.067	0.13	10.133	5.75	16.200	0.50	22.27	0.13
4.100	0.13	10.167	5.75	16.233	0.50	22.30	0.13
4.133	0.13	10.200	5.75	16.267	0.37	22.33	0.13
4.167	0.13	10.233	5.75	16.300	0.25	22.37	0.13
4.200	0.13	10.267	3.68	16.333	0.25	22.40	0.13
4.233	0.13	10.300	1.62	16.367	0.25	22.43	0.13
4.267	0.44	10.333	1.62	16.400	0.25	22.47	0.13
4.300	0.75	10.367	1.62	16.433	0.25	22.50	0.13
4.333	0.75	10.400	1.62	16.467	0.25	22.53	0.13
4.367	0.75	10.433	1.62	16.500	0.25	22.57	0.13
4.400	0.75	10.467	1.62	16.533	0.25	22.60	0.13
4.433	0.75	10.500	1.62	16.567	0.25	22.63	0.13
4.467	0.75	10.533	1.62	16.600	0.25	22.67	0.13
4.500	0.75	10.567	1.62	16.633	0.25	22.70	0.13
4.533	0.75	10.600	1.62	16.667	0.25	22.73	0.13
4.567	0.75	10.633	1.62	16.700	0.25	22.77	0.13
4.600	0.75	10.667	1.62	16.733	0.25	22.80	0.13
4.633	0.75	10.700	1.62	16.767	0.25	22.83	0.13
4.667	0.75	10.733	1.62	16.800	0.25	22.87	0.13
4.700	0.75	10.767	1.62	16.833	0.25	22.90	0.13
4.733	0.75	10.800	1.62	16.867	0.25	22.93	0.13
4.767	0.75	10.833	1.62	16.900	0.25	22.97	0.13
4.800	0.75	10.867	1.62	16.933	0.25	23.00	0.13
4.833	0.75	10.900	1.62	16.967	0.25	23.03	0.13
4.867	0.75	10.933	1.62	17.000	0.25	23.07	0.13
4.900	0.75	10.967	1.62	17.033	0.25	23.10	0.13
4.933	0.75	11.000	1.62	17.067	0.25	23.13	0.13
4.967	0.75	11.033	1.62	17.100	0.25	23.17	0.13
5.000	0.75	11.067	1.62	17.133	0.25	23.20	0.13
5.033	0.75	11.100	1.62	17.167	0.25	23.23	0.13
5.067	0.75	11.133	1.62	17.200	0.25	23.27	0.13
5.100	0.75	11.167	1.62	17.233	0.25	23.30	0.13
5.133	0.75	11.200	1.62	17.267	0.25	23.33	0.13
5.167	0.75	11.233	1.62	17.300	0.25	23.37	0.13
5.200	0.75	11.267	1.62	17.333	0.25	23.40	0.13
5.233	0.75	11.300	1.62	17.367	0.25	23.43	0.13
5.267	0.75	11.333	1.62	17.400	0.25	23.47	0.13
5.300	0.75	11.367	1.62	17.433	0.25	23.50	0.13
5.333	0.75	11.400	1.62	17.467	0.25	23.53	0.13
5.367	0.75	11.433	1.62	17.500	0.25	23.57	0.13
5.400	0.75	11.467	1.62	17.533	0.25	23.60	0.13
5.433	0.75	11.500	1.62	17.567	0.25	23.63	0.13
5.467	0.75	11.533	1.62	17.600	0.25	23.67	0.13
5.500	0.75	11.567	1.62	17.633	0.25	23.70	0.13
5.533	0.75	11.600	1.62	17.667	0.25	23.73	0.13
5.567	0.75	11.633	1.62	17.700	0.25	23.77	0.13
5.600	0.75	11.667	1.62	17.733	0.25	23.80	0.13
5.633	0.75	11.700	1.62	17.767	0.25	23.83	0.13
5.667	0.75	11.733	1.62	17.800	0.25	23.87	0.13
5.700	0.75	11.767	1.62	17.833	0.25	23.90	0.13
5.733	0.75	11.800	1.62	17.867	0.25	23.93	0.13
5.767	0.75	11.833	1.62	17.900	0.25	23.97	0.13
5.800	0.75	11.867	1.62	17.933	0.25	24.00	0.13
5.833	0.75	11.900	1.62	17.967	0.25	24.03	0.13
5.867	0.75	11.933	1.62	18.000	0.25	24.07	0.13
5.900	0.75	11.967	1.62	18.033	0.25	24.10	0.13
5.933	0.75	12.000	1.62	18.067	0.25	24.13	0.13
5.967	0.75	12.033	1.62	18.100	0.25	24.17	0.13
6.000	0.75	12.067	1.62	18.133	0.25	24.20	0.13
6.033	0.75	12.100	1.62	18.167	0.25	24.23	0.13
6.067	0.75	12.133	1.62	18.200	0.25	24.27	0.07

```
Max.Eff.Inten.(mm/hr)=       5.75          2.45
            over (min)      14.00         16.00
Storage Coeff.  (min)=      13.33 (ii)    14.73 (ii)
Unit Hyd. Tpeak (min)=      14.00         16.00
Unit Hyd. peak  (cms)=       0.08          0.07
                                                        *TOTALS*
PEAK FLOW       (cms)=       0.13          0.00          0.131 (iii)
TIME TO PEAK    (hrs)=      10.23         10.27          10.23
RUNOFF VOLUME    (mm)=      24.04          6.92          24.02
TOTAL RAINFALL   (mm)=      25.04         25.04          25.04
RUNOFF COEFFICIENT   =       0.96          0.28           0.96


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
                      DEPTH        STORAGE          |   DEPTH      STORAGE
                      (mm)         (cu.m.)          |   (mm)       (cu.m.)
                        0.00           0.00          |   1041.00      3759.30
                       25.00          49.47          |   1067.00      3854.08
                       51.00          98.94          |   1092.00      3948.08
                       76.00         148.40          |   1118.00      4041.25
                      102.00         197.87          |   1143.00      4133.57
                      127.00         247.34          |   1168.00      4225.00
                      152.00         296.81          |   1194.00      4315.50
                      178.00         346.27          |   1219.00      4405.03
                      203.00         395.74          |   1245.00      4493.56
                      229.00         445.21          |   1270.00      4581.02
                      254.00         554.10          |   1295.00      4667.39
                      279.00         662.70          |   1321.00      4752.59
                      305.00         771.11          |   1346.00      4836.57
                      330.00         879.30          |   1372.00      4919.26
                      356.00         987.27          |   1397.00      5000.60
                      381.00        1095.00          |   1422.00      5080.50
                      406.00        1202.48          |   1448.00      5158.85
                      432.00        1309.70          |   1473.00      5235.54
                      457.00        1416.63          |   1499.00      5310.45
                      483.00        1523.27          |   1524.00      5383.37
                      508.00        1629.60          |   1549.00      5454.08
                      533.00        1735.60          |   1575.00      5522.23
                      559.00        1841.25          |   1600.00      5587.25
                      584.00        1946.55          |   1626.00      5647.31
                      610.00        2051.46          |   1651.00      5703.06
                      635.00        2155.99          |   1676.00      5757.41
                      660.00        2260.10          |   1702.00      5810.73
                      686.00        2363.78          |   1727.00      5862.91
                      711.00        2467.02          |   1753.00      5913.33
                      737.00        2569.79          |   1778.00      5962.80
                      762.00        2672.07          |   1803.00      6012.26
                      787.00        2773.85          |   1829.00      6061.73
                      813.00        2875.11          |   1854.00      6111.20
                      838.00        2975.83          |   1880.00      6160.67
                      864.00        3075.97          |   1905.00      6210.14
                      889.00        3175.53          |   1930.00      6259.60
                      914.00        3274.49          |   1956.00      6309.07
                      940.00        3372.81          |   1981.00      6358.54
                      965.00        3470.48          |   2007.00      6408.01
                      991.00        3567.46          |   2032.00      6457.47
                     1016.00        3663.75          |   2057.00      6506.94

                    DEPTH        DISCHARGE        |   DEPTH      DISCHARGE
                      (m)          (cms)          |    (m)         (cms)
```

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.131	10.23	24.02
OUTFLOW:ID= 1	8.21	0.037	10.95	13.21
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)=		45.03
Time to reach Max storage	(Hr)=	10.95
Volume of water for drawdown in LID (cu.m.)=		389.37
Volume of maximum water storage	(cu.m.)=	1060.43
Calculated Drawdown Time	(Hr)=	15.67

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| Junction Command(0056) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.04	10.95	13.21
OUTFLOW: ID= 2(0056)	8.21	0.04	10.95	13.21

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| Junction Command(0057) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

```
**********************************
** SIMULATION:Regional HurrHaz **
**********************************
--------------------
| CALIB            |
| STANDHYD ( 0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	52.99
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.98
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
3.000	6.00	6.000	13.00	9.000	13.01	12.00	12.98

Max.Eff.Inten.(mm/hr)=		53.00	46.65	
over (min)		6.00	10.00	
Storage Coeff. (min)=		6.49 (ii)	8.55 (ii)	
Unit Hyd. Tpeak (min)=		6.00	10.00	
Unit Hyd. peak (cms)=		0.18	0.13	
				TOTALS
PEAK FLOW	(cms)=	2.06	0.04	2.107 (iii)
TIME TO PEAK	(hrs)=	10.00	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	149.19	209.52

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     TOTAL RAINFALL   (mm)=     212.00       212.00         212.00
     RUNOFF COEFFICIENT   =       1.00         0.70           0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654      0.8399
                          0.0111     0.0722   |   0.2796      0.9338
                          0.0509     0.1444   |   0.2932      1.0277
                          0.0712     0.2166   |   0.3061      1.1216
                          0.0868     0.2888   |   0.3185      1.2155
                          0.1000     0.3706   |   0.3304      1.3093
                          0.1117     0.4644   |   0.3420      1.4032
                          0.1222     0.5583   |   0.3531      1.4971
                          0.1319     0.6522   |   0.3639      1.5910
                          0.2504     0.7461   |   0.3745      1.6846

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360     2.107     10.00     209.52
   OUTFLOW: ID= 1 (  0004)     12.025     0.375     10.13     208.03
   OVERFLOW:ID= 3 (  0003)      2.335     1.395     10.13     208.03

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.77
                   TIME SHIFT OF PEAK FLOW         (min)=  8.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.6846

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  | Junction Command(0055) |
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                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)   2.33     1.39   10.13   208.03
  OUTFLOW: ID= 2(  0055)   2.33     1.39   10.13   208.03

  ------------------------------------------------------------------------------
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| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76          0.33
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     283.90         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    6.00 | 3.033   13.00 | 6.033   23.00 |  9.03   53.00
               0.067    6.00 | 3.067   13.00 | 6.067   23.00 |  9.07   53.00
               0.100    6.00 | 3.100   13.00 | 6.100   23.00 |  9.10   53.00
               0.133    6.00 | 3.133   13.00 | 6.133   23.00 |  9.13   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.200    6.00 | 3.200   13.00 | 6.200   23.00 |  9.20   53.00
               0.233    6.00 | 3.233   13.00 | 6.233   23.00 |  9.23   53.00
               0.267    6.00 | 3.267   13.00 | 6.267   23.00 |  9.27   53.00
               0.300    6.00 | 3.300   13.00 | 6.300   23.00 |  9.30   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.367    6.00 | 3.367   13.00 | 6.367   23.00 |  9.37   53.00
               0.400    6.00 | 3.400   13.00 | 6.400   23.00 |  9.40   53.00
               0.433    6.00 | 3.433   13.00 | 6.433   23.00 |  9.43   53.00
               0.467    6.00 | 3.467   13.00 | 6.467   23.00 |  9.47   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.533    6.00 | 3.533   13.00 | 6.533   23.00 |  9.53   53.00
               0.567    6.00 | 3.567   13.00 | 6.567   23.00 |  9.57   53.00
               0.600    6.00 | 3.600   13.00 | 6.600   23.00 |  9.60   53.00
               0.633    6.00 | 3.633   13.00 | 6.633   23.00 |  9.63   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.700    6.00 | 3.700   13.00 | 6.700   23.00 |  9.70   53.00
               0.733    6.00 | 3.733   13.00 | 6.733   23.00 |  9.73   53.00
               0.767    6.00 | 3.767   13.00 | 6.767   23.00 |  9.77   53.00
               0.800    6.00 | 3.800   13.00 | 6.800   23.00 |  9.80   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.867    6.00 | 3.867   13.00 | 6.867   23.00 |  9.87   53.00
               0.900    6.00 | 3.900   13.00 | 6.900   23.00 |  9.90   53.00
               0.933    6.00 | 3.933   13.00 | 6.933   23.00 |  9.93   53.00
               0.967    6.00 | 3.967   13.00 | 6.967   23.00 |  9.97   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   52.99
               1.033    4.00 | 4.033   17.00 | 7.033   13.00 | 10.03   38.00
               1.067    4.00 | 4.067   17.00 | 7.067   13.00 | 10.07   38.00
               1.100    4.00 | 4.100   17.00 | 7.100   13.00 | 10.10   38.00
               1.133    4.00 | 4.133   17.00 | 7.133   13.00 | 10.13   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.200    4.00 | 4.200   17.00 | 7.200   13.00 | 10.20   38.00
               1.233    4.00 | 4.233   17.00 | 7.233   13.00 | 10.23   38.00
               1.267    4.00 | 4.267   17.00 | 7.267   13.00 | 10.27   38.00
               1.300    4.00 | 4.300   17.00 | 7.300   13.00 | 10.30   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.367    4.00 | 4.367   17.00 | 7.367   13.00 | 10.37   38.00
               1.400    4.00 | 4.400   17.00 | 7.400   13.00 | 10.40   38.00
               1.433    4.00 | 4.433   17.00 | 7.433   13.00 | 10.43   38.00
               1.467    4.00 | 4.467   17.00 | 7.467   13.00 | 10.47   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.533    4.00 | 4.533   17.00 | 7.533   13.00 | 10.53   38.00
               1.567    4.00 | 4.567   17.00 | 7.567   13.00 | 10.57   38.00
               1.600    4.00 | 4.600   17.00 | 7.600   13.00 | 10.60   38.00
               1.633    4.00 | 4.633   17.00 | 7.633   13.00 | 10.63   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.700    4.00 | 4.700   17.00 | 7.700   13.00 | 10.70   38.00
               1.733    4.00 | 4.733   17.00 | 7.733   13.00 | 10.73   38.00
               1.767    4.00 | 4.767   17.00 | 7.767   13.00 | 10.77   38.00
               1.800    4.00 | 4.800   17.00 | 7.800   13.00 | 10.80   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.867    4.00 | 4.867   17.00 | 7.867   13.00 | 10.87   38.00
               1.900    4.00 | 4.900   17.00 | 7.900   13.00 | 10.90   38.00
               1.933    4.00 | 4.933   17.00 | 7.933   13.00 | 10.93   38.00
               1.967    4.00 | 4.967   17.00 | 7.967   13.00 | 10.97   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   37.98
               2.033    6.00 | 5.033   13.00 | 8.033   13.00 | 11.03   13.00
               2.067    6.00 | 5.067   13.00 | 8.067   13.00 | 11.07   13.00
               2.100    6.00 | 5.100   13.00 | 8.100   13.00 | 11.10   13.00
               2.133    6.00 | 5.133   13.00 | 8.133   13.00 | 11.13   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.200    6.00 | 5.200   13.00 | 8.200   13.00 | 11.20   13.00
               2.233    6.00 | 5.233   13.00 | 8.233   13.00 | 11.23   13.00
               2.267    6.00 | 5.267   13.00 | 8.267   13.00 | 11.27   13.00
               2.300    6.00 | 5.300   13.00 | 8.300   13.00 | 11.30   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.367    6.00 | 5.367   13.00 | 8.367   13.00 | 11.37   13.00
               2.400    6.00 | 5.400   13.00 | 8.400   13.00 | 11.40   13.00
               2.433    6.00 | 5.433   13.00 | 8.433   13.00 | 11.43   13.00
               2.467    6.00 | 5.467   13.00 | 8.467   13.00 | 11.47   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.533    6.00 | 5.533   13.00 | 8.533   13.00 | 11.53   13.00
               2.567    6.00 | 5.567   13.00 | 8.567   13.00 | 11.57   13.00
               2.600    6.00 | 5.600   13.00 | 8.600   13.00 | 11.60   13.00
               2.633    6.00 | 5.633   13.00 | 8.633   13.00 | 11.63   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.700    6.00 | 5.700   13.00 | 8.700   13.00 | 11.70   13.00
               2.733    6.00 | 5.733   13.00 | 8.733   13.00 | 11.73   13.00
               2.767    6.00 | 5.767   13.00 | 8.767   13.00 | 11.77   13.00
               2.800    6.00 | 5.800   13.00 | 8.800   13.00 | 11.80   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.867    6.00 | 5.867   13.00 | 8.867   13.00 | 11.87   13.00
               2.900    6.00 | 5.900   13.00 | 8.900   13.00 | 11.90   13.00
               2.933    6.00 | 5.933   13.00 | 8.933   13.00 | 11.93   13.00
               2.967    6.00 | 5.967   13.00 | 8.967   13.00 | 11.97   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.01 | 12.00   12.98

     Max.Eff.Inten.(mm/hr)=      53.00        46.65
                over (min)        6.00        10.00
     Storage Coeff.  (min)=       6.16 (ii)    8.33 (ii)
     Unit Hyd. Tpeak (min)=       6.00        10.00
     Unit Hyd. peak  (cms)=       0.18         0.13
                                                          *TOTALS*
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     PEAK FLOW       (cms)=       1.73         0.04          1.774 (iii)
     TIME TO PEAK    (hrs)=      10.00        10.00         10.00
     RUNOFF VOLUME    (mm)=     211.00       149.19        209.33
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00         0.70          0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.67        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    6.00 | 3.033   13.00 | 6.033   23.00 |  9.03   53.00
               0.067    6.00 | 3.067   13.00 | 6.067   23.00 |  9.07   53.00
               0.100    6.00 | 3.100   13.00 | 6.100   23.00 |  9.10   53.00
               0.133    6.00 | 3.133   13.00 | 6.133   23.00 |  9.13   53.00
               0.167    6.00 | 3.167   13.00 | 6.167   23.00 |  9.17   53.00
               0.200    6.00 | 3.200   13.00 | 6.200   23.00 |  9.20   53.00
               0.233    6.00 | 3.233   13.00 | 6.233   23.00 |  9.23   53.00
               0.267    6.00 | 3.267   13.00 | 6.267   23.00 |  9.27   53.00
               0.300    6.00 | 3.300   13.00 | 6.300   23.00 |  9.30   53.00
               0.333    6.00 | 3.333   13.00 | 6.333   23.00 |  9.33   53.00
               0.367    6.00 | 3.367   13.00 | 6.367   23.00 |  9.37   53.00
               0.400    6.00 | 3.400   13.00 | 6.400   23.00 |  9.40   53.00
               0.433    6.00 | 3.433   13.00 | 6.433   23.00 |  9.43   53.00
               0.467    6.00 | 3.467   13.00 | 6.467   23.00 |  9.47   53.00
               0.500    6.00 | 3.500   13.00 | 6.500   23.00 |  9.50   53.00
               0.533    6.00 | 3.533   13.00 | 6.533   23.00 |  9.53   53.00
               0.567    6.00 | 3.567   13.00 | 6.567   23.00 |  9.57   53.00
               0.600    6.00 | 3.600   13.00 | 6.600   23.00 |  9.60   53.00
               0.633    6.00 | 3.633   13.00 | 6.633   23.00 |  9.63   53.00
               0.667    6.00 | 3.667   13.00 | 6.667   23.00 |  9.67   53.00
               0.700    6.00 | 3.700   13.00 | 6.700   23.00 |  9.70   53.00
               0.733    6.00 | 3.733   13.00 | 6.733   23.00 |  9.73   53.00
               0.767    6.00 | 3.767   13.00 | 6.767   23.00 |  9.77   53.00
               0.800    6.00 | 3.800   13.00 | 6.800   23.00 |  9.80   53.00
               0.833    6.00 | 3.833   13.00 | 6.833   23.00 |  9.83   53.00
               0.867    6.00 | 3.867   13.00 | 6.867   23.00 |  9.87   53.00
               0.900    6.00 | 3.900   13.00 | 6.900   23.00 |  9.90   53.00
               0.933    6.00 | 3.933   13.00 | 6.933   23.00 |  9.93   53.00
               0.967    6.00 | 3.967   13.00 | 6.967   23.00 |  9.97   53.00
               1.000    6.00 | 4.000   13.00 | 7.000   23.00 | 10.00   52.99
               1.033    4.00 | 4.033   17.00 | 7.033   13.00 | 10.03   38.00
               1.067    4.00 | 4.067   17.00 | 7.067   13.00 | 10.07   38.00
               1.100    4.00 | 4.100   17.00 | 7.100   13.00 | 10.10   38.00
               1.133    4.00 | 4.133   17.00 | 7.133   13.00 | 10.13   38.00
               1.167    4.00 | 4.167   17.00 | 7.167   13.00 | 10.17   38.00
               1.200    4.00 | 4.200   17.00 | 7.200   13.00 | 10.20   38.00
               1.233    4.00 | 4.233   17.00 | 7.233   13.00 | 10.23   38.00
               1.267    4.00 | 4.267   17.00 | 7.267   13.00 | 10.27   38.00
               1.300    4.00 | 4.300   17.00 | 7.300   13.00 | 10.30   38.00
               1.333    4.00 | 4.333   17.00 | 7.333   13.00 | 10.33   38.00
               1.367    4.00 | 4.367   17.00 | 7.367   13.00 | 10.37   38.00
               1.400    4.00 | 4.400   17.00 | 7.400   13.00 | 10.40   38.00
               1.433    4.00 | 4.433   17.00 | 7.433   13.00 | 10.43   38.00
               1.467    4.00 | 4.467   17.00 | 7.467   13.00 | 10.47   38.00
               1.500    4.00 | 4.500   17.00 | 7.500   13.00 | 10.50   38.00
               1.533    4.00 | 4.533   17.00 | 7.533   13.00 | 10.53   38.00
               1.567    4.00 | 4.567   17.00 | 7.567   13.00 | 10.57   38.00
               1.600    4.00 | 4.600   17.00 | 7.600   13.00 | 10.60   38.00
               1.633    4.00 | 4.633   17.00 | 7.633   13.00 | 10.63   38.00
               1.667    4.00 | 4.667   17.00 | 7.667   13.00 | 10.67   38.00
               1.700    4.00 | 4.700   17.00 | 7.700   13.00 | 10.70   38.00
               1.733    4.00 | 4.733   17.00 | 7.733   13.00 | 10.73   38.00
               1.767    4.00 | 4.767   17.00 | 7.767   13.00 | 10.77   38.00
               1.800    4.00 | 4.800   17.00 | 7.800   13.00 | 10.80   38.00
               1.833    4.00 | 4.833   17.00 | 7.833   13.00 | 10.83   38.00
               1.867    4.00 | 4.867   17.00 | 7.867   13.00 | 10.87   38.00
               1.900    4.00 | 4.900   17.00 | 7.900   13.00 | 10.90   38.00
               1.933    4.00 | 4.933   17.00 | 7.933   13.00 | 10.93   38.00
               1.967    4.00 | 4.967   17.00 | 7.967   13.00 | 10.97   38.00
               2.000    4.00 | 5.000   17.00 | 8.000   13.00 | 11.00   37.98
               2.033    6.00 | 5.033   13.00 | 8.033   13.00 | 11.03   13.00
               2.067    6.00 | 5.067   13.00 | 8.067   13.00 | 11.07   13.00
               2.100    6.00 | 5.100   13.00 | 8.100   13.00 | 11.10   13.00
               2.133    6.00 | 5.133   13.00 | 8.133   13.00 | 11.13   13.00
               2.167    6.00 | 5.167   13.00 | 8.167   13.00 | 11.17   13.00
               2.200    6.00 | 5.200   13.00 | 8.200   13.00 | 11.20   13.00
               2.233    6.00 | 5.233   13.00 | 8.233   13.00 | 11.23   13.00
               2.267    6.00 | 5.267   13.00 | 8.267   13.00 | 11.27   13.00
               2.300    6.00 | 5.300   13.00 | 8.300   13.00 | 11.30   13.00
               2.333    6.00 | 5.333   13.00 | 8.333   13.00 | 11.33   13.00
               2.367    6.00 | 5.367   13.00 | 8.367   13.00 | 11.37   13.00
               2.400    6.00 | 5.400   13.00 | 8.400   13.00 | 11.40   13.00
               2.433    6.00 | 5.433   13.00 | 8.433   13.00 | 11.43   13.00
               2.467    6.00 | 5.467   13.00 | 8.467   13.00 | 11.47   13.00
               2.500    6.00 | 5.500   13.00 | 8.500   13.00 | 11.50   13.00
               2.533    6.00 | 5.533   13.00 | 8.533   13.00 | 11.53   13.00
               2.567    6.00 | 5.567   13.00 | 8.567   13.00 | 11.57   13.00
               2.600    6.00 | 5.600   13.00 | 8.600   13.00 | 11.60   13.00
               2.633    6.00 | 5.633   13.00 | 8.633   13.00 | 11.63   13.00
               2.667    6.00 | 5.667   13.00 | 8.667   13.00 | 11.67   13.00
               2.700    6.00 | 5.700   13.00 | 8.700   13.00 | 11.70   13.00
               2.733    6.00 | 5.733   13.00 | 8.733   13.00 | 11.73   13.00
               2.767    6.00 | 5.767   13.00 | 8.767   13.00 | 11.77   13.00
               2.800    6.00 | 5.800   13.00 | 8.800   13.00 | 11.80   13.00
               2.833    6.00 | 5.833   13.00 | 8.833   13.00 | 11.83   13.00
               2.867    6.00 | 5.867   13.00 | 8.867   13.00 | 11.87   13.00
               2.900    6.00 | 5.900   13.00 | 8.900   13.00 | 11.90   13.00
               2.933    6.00 | 5.933   13.00 | 8.933   13.00 | 11.93   13.00
               2.967    6.00 | 5.967   13.00 | 8.967   13.00 | 11.97   13.00
               3.000    6.00 | 6.000   13.00 | 9.000   13.01 | 12.00   12.98

     Max.Eff.Inten.(mm/hr)=      53.00        46.65
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.48 (ii)    6.05 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.20         0.17
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.20         0.00          1.206 (iii)
     TIME TO PEAK    (hrs)=       9.97        10.00          9.97
     RUNOFF VOLUME    (mm)=     211.00       149.19        210.94
     TOTAL RAINFALL   (mm)=     212.00       212.00        212.00
     RUNOFF COEFFICIENT   =       1.00         0.70          0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190      1.206      9.97     210.94
   OUTFLOW: ID= 1 (  0001)      3.648      0.070      7.33     202.87
   OVERFLOW:ID= 3 (  0003)      4.542      1.136      9.97     202.87

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.81
                    TIME SHIFT OF PEAK FLOW         (min)=******
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.6145

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| ADD HYD  (  0051)|
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|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      3.65   0.070     7.33   202.87
      + ID2= 2 (  0100):     12.09   1.774    10.00   209.33
        ====================================================
        ID = 3 (  0051):     15.74   1.844    10.00   207.83

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)    4.54     1.14    9.97   202.87
  OUTFLOW: ID= 2(  0050)    4.54     1.14    9.97   202.87

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

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| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0050):      4.54   1.136     9.97   202.87
      + ID2= 2 (  0051):     15.74   1.844    10.00   207.83
        ====================================================
        ID = 3 (  0052):     20.28   1.844    10.00   252.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780     0.4721
                          0.0000     0.0444   |   0.1888     0.5284
                          0.0000     0.0887   |   0.1991     0.5880
                          0.0622     0.1331   |   0.2088     0.6499
                          0.0885     0.1775   |   0.2181     0.7118
                          0.1087     0.2218   |   0.2271     0.7737
                          0.1256     0.2662   |   0.6000     0.8403
                          0.1406     0.3105   |   0.6881     0.9081
                          0.1541     0.3596   |   0.7636     0.9760
                          0.1665     0.4159   |   0.8309     1.0439

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)    20.280     1.844     10.00     252.16
   OUTFLOW: ID= 1 (  0002)    18.587     0.831      9.70     248.14
   OVERFLOW:ID= 3 (  0003)     1.693     1.369      9.70     248.14

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 45.07
                   TIME SHIFT OF PEAK FLOW         (min)=-18.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  1.0439

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  --------------------------
  | Junction Command(0053) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)    1.69     1.37    9.70   248.14
  OUTFLOW: ID= 2(  0053)    1.69     1.37    9.70   248.14

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
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Mannings n           =      0.013        0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	52.99
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.98
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00
2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00

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2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
3.000	6.00	6.000	13.00	9.000	13.01	12.00	12.98

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Max.Eff.Inten.(mm/hr)=      53.00        46.65
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.79 (ii)    8.85 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.17         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       2.40         0.05        2.451 (iii)
TIME TO PEAK    (hrs)=      10.00        10.00        10.00
RUNOFF VOLUME    (mm)=     211.00       149.19       209.51
TOTAL RAINFALL   (mm)=     212.00       212.00       212.00
RUNOFF COEFFICIENT   =       1.00         0.70         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0110)     16.700      2.451     10.00     209.51
  OUTFLOW: ID= 1 (  0003)     16.700      0.630     11.47     202.05
  OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 25.71
                TIME SHIFT OF PEAK FLOW         (min)= 88.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  2.3274

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

  --------------------------
  | Junction Command(0054) |
  --------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0003)  0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)  0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20         0.01

Dep. Storage     (mm)=       1.00         5.00
Average Slope     (%)=       1.00         2.00
Length            (m)=     233.95        40.00
Mannings n           =      0.013        0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	6.00	3.033	13.00	6.033	23.00	9.03	53.00
0.067	6.00	3.067	13.00	6.067	23.00	9.07	53.00
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.133	6.00	3.133	13.00	6.133	23.00	9.13	53.00
0.167	6.00	3.167	13.00	6.167	23.00	9.17	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.233	6.00	3.233	13.00	6.233	23.00	9.23	53.00
0.267	6.00	3.267	13.00	6.267	23.00	9.27	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.333	6.00	3.333	13.00	6.333	23.00	9.33	53.00
0.367	6.00	3.367	13.00	6.367	23.00	9.37	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.433	6.00	3.433	13.00	6.433	23.00	9.43	53.00
0.467	6.00	3.467	13.00	6.467	23.00	9.47	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.533	6.00	3.533	13.00	6.533	23.00	9.53	53.00
0.567	6.00	3.567	13.00	6.567	23.00	9.57	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.633	6.00	3.633	13.00	6.633	23.00	9.63	53.00
0.667	6.00	3.667	13.00	6.667	23.00	9.67	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.733	6.00	3.733	13.00	6.733	23.00	9.73	53.00
0.767	6.00	3.767	13.00	6.767	23.00	9.77	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.833	6.00	3.833	13.00	6.833	23.00	9.83	53.00
0.867	6.00	3.867	13.00	6.867	23.00	9.87	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
0.933	6.00	3.933	13.00	6.933	23.00	9.93	53.00
0.967	6.00	3.967	13.00	6.967	23.00	9.97	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	52.99
1.033	4.00	4.033	17.00	7.033	13.00	10.03	38.00
1.067	4.00	4.067	17.00	7.067	13.00	10.07	38.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.133	4.00	4.133	17.00	7.133	13.00	10.13	38.00
1.167	4.00	4.167	17.00	7.167	13.00	10.17	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.233	4.00	4.233	17.00	7.233	13.00	10.23	38.00
1.267	4.00	4.267	17.00	7.267	13.00	10.27	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.333	4.00	4.333	17.00	7.333	13.00	10.33	38.00
1.367	4.00	4.367	17.00	7.367	13.00	10.37	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.433	4.00	4.433	17.00	7.433	13.00	10.43	38.00
1.467	4.00	4.467	17.00	7.467	13.00	10.47	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.533	4.00	4.533	17.00	7.533	13.00	10.53	38.00
1.567	4.00	4.567	17.00	7.567	13.00	10.57	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.633	4.00	4.633	17.00	7.633	13.00	10.63	38.00
1.667	4.00	4.667	17.00	7.667	13.00	10.67	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.733	4.00	4.733	17.00	7.733	13.00	10.73	38.00
1.767	4.00	4.767	17.00	7.767	13.00	10.77	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.833	4.00	4.833	17.00	7.833	13.00	10.83	38.00
1.867	4.00	4.867	17.00	7.867	13.00	10.87	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
1.933	4.00	4.933	17.00	7.933	13.00	10.93	38.00
1.967	4.00	4.967	17.00	7.967	13.00	10.97	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	37.98
2.033	6.00	5.033	13.00	8.033	13.00	11.03	13.00
2.067	6.00	5.067	13.00	8.067	13.00	11.07	13.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.133	6.00	5.133	13.00	8.133	13.00	11.13	13.00
2.167	6.00	5.167	13.00	8.167	13.00	11.17	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.233	6.00	5.233	13.00	8.233	13.00	11.23	13.00
2.267	6.00	5.267	13.00	8.267	13.00	11.27	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.333	6.00	5.333	13.00	8.333	13.00	11.33	13.00
2.367	6.00	5.367	13.00	8.367	13.00	11.37	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.433	6.00	5.433	13.00	8.433	13.00	11.43	13.00

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2.467	6.00	5.467	13.00	8.467	13.00	11.47	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.533	6.00	5.533	13.00	8.533	13.00	11.53	13.00
2.567	6.00	5.567	13.00	8.567	13.00	11.57	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.633	6.00	5.633	13.00	8.633	13.00	11.63	13.00
2.667	6.00	5.667	13.00	8.667	13.00	11.67	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.733	6.00	5.733	13.00	8.733	13.00	11.73	13.00
2.767	6.00	5.767	13.00	8.767	13.00	11.77	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.833	6.00	5.833	13.00	8.833	13.00	11.83	13.00
2.867	6.00	5.867	13.00	8.867	13.00	11.87	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
2.933	6.00	5.933	13.00	8.933	13.00	11.93	13.00
2.967	6.00	5.967	13.00	8.967	13.00	11.97	13.00
3.000	6.00	6.000	13.00	9.000	13.01	12.00	12.98

```
Max.Eff.Inten.(mm/hr)=      53.00        50.87
            over (min)       6.00         8.00
Storage Coeff.  (min)=       5.48 (ii)    6.06 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.20         0.17
                                                   *TOTALS*
PEAK FLOW       (cms)=       1.21         0.00        1.209 (iii)
TIME TO PEAK    (hrs)=       9.97        10.00         9.97
RUNOFF VOLUME    (mm)=     211.00       174.93       210.96
TOTAL RAINFALL   (mm)=     212.00       212.00       212.00
RUNOFF COEFFICIENT   =       1.00         0.83         1.00


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	1.209	9.97	210.96
OUTFLOW:ID= 1	4.68	0.140	9.10	194.67
OVERFLOW:ID= 3	3.53	1.062	9.97	194.67

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=        7.72
Time to reach Max storage              (Hr)=        9.10
Volume of water for drawdown in LID (cu.m.)=     6194.34
Volume of maximum water storage     (cu.m.)=     6498.55
Calculated Drawdown Time               (Hr)=       41.25

-------------------------
| Junction Command(0056) |
-------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	4.68	0.14	9.10	194.67
OUTFLOW: ID= 2(0056)	4.68	0.14	9.10	194.67

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| Junction Command(0057) |
-------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	3.53	1.06	9.97	194.67
OUTFLOW: ID= 2(0057)	3.53	1.06	9.97	194.67

```
--------------------------------------------------------------------------------
************************************
** SIMULATION:Run 02 2yr 6hr AES **
************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

```
NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72

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0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)=	33.12	10.67	
over (min)	8.00	12.00	
Storage Coeff. (min)=	7.83 (ii)	10.32 (ii)	
Unit Hyd. Tpeak (min)=	8.00	12.00	
Unit Hyd. peak (cms)=	0.14	0.10	
			TOTALS
PEAK FLOW (cms)=	1.26	0.01	1.264 (iii)
TIME TO PEAK (hrs)=	2.73	2.83	2.73
RUNOFF VOLUME (mm)=	35.00	8.64	34.37
TOTAL RAINFALL (mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT =	0.97	0.24	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004)	OVERFLOW IS ON			
IN= 2---> OUT= 1				
DT= 2.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2654	0.8399
	0.0111	0.0722	0.2796	0.9338
	0.0509	0.1444	0.2932	1.0277
	0.0712	0.2166	0.3061	1.1216
	0.0868	0.2888	0.3185	1.2155
	0.1000	0.3706	0.3304	1.3093
	0.1117	0.4644	0.3420	1.4032
	0.1222	0.5583	0.3531	1.4971
	0.1319	0.6522	0.3639	1.5910
	0.2504	0.7461	0.3745	1.6846

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0120)	14.360	1.264	2.73	34.37
OUTFLOW: ID= 1 (0004)	14.360	0.103	4.33	33.95
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.18

TIME SHIFT OF PEAK FLOW (min)= 96.00
MAXIMUM STORAGE USED (ha.m.)= 0.3973

Junction Command(0055)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0004)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0055)	0.00	0.00	0.00	0.00

CALIB		
STANDHYD (0100)	Area (ha)= 12.09	
ID= 1 DT= 2.0 min	Total Imp(%)= 97.30	Dir. Conn.(%)= 97.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)=	33.12	10.67
over (min)	8.00	12.00
Storage Coeff. (min)=	7.43 (ii)	10.05 (ii)

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     Unit Hyd. Tpeak (min)=       8.00         12.00
     Unit Hyd. peak  (cms)=       0.15          0.11
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.06          0.01        1.066 (iii)
     TIME TO PEAK    (hrs)=       2.73          2.83         2.73
     RUNOFF VOLUME    (mm)=      35.00          8.64        34.29
     TOTAL RAINFALL   (mm)=      36.00         36.00        36.00
     RUNOFF COEFFICIENT   =       0.97          0.24         0.95


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.67         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    4.32 | 3.167    9.36 |  4.73    1.44
               0.067    0.00 | 1.633    4.32 | 3.200    9.36 |  4.77    1.08
               0.100    0.00 | 1.667    4.32 | 3.233    9.36 |  4.80    0.72
               0.133    0.00 | 1.700    4.32 | 3.267    7.20 |  4.83    0.72
               0.167    0.00 | 1.733    4.32 | 3.300    5.04 |  4.87    0.72
               0.200    0.00 | 1.767    8.28 | 3.333    5.04 |  4.90    0.72
               0.233    0.00 | 1.800   12.24 | 3.367    5.04 |  4.93    0.72
               0.267    0.36 | 1.833   12.24 | 3.400    5.04 |  4.97    0.72
               0.300    0.72 | 1.867   12.24 | 3.433    5.04 |  5.00    0.72
               0.333    0.72 | 1.900   12.24 | 3.467    5.04 |  5.03    0.72
               0.367    0.72 | 1.933   12.24 | 3.500    5.04 |  5.07    0.72
               0.400    0.72 | 1.967   12.24 | 3.533    5.04 |  5.10    0.72
               0.433    0.72 | 2.000   12.24 | 3.567    5.04 |  5.13    0.72
               0.467    0.72 | 2.033   12.24 | 3.600    5.04 |  5.17    0.72
               0.500    0.72 | 2.067   12.24 | 3.633    5.04 |  5.20    0.72
               0.533    0.72 | 2.100   12.24 | 3.667    5.04 |  5.23    0.72
               0.567    0.72 | 2.133   12.24 | 3.700    5.04 |  5.27    0.72
               0.600    0.72 | 2.167   12.24 | 3.733    5.04 |  5.30    0.72
               0.633    0.72 | 2.200   12.24 | 3.767    3.96 |  5.33    0.72
               0.667    0.72 | 2.233   12.24 | 3.800    2.88 |  5.37    0.72
               0.700    0.72 | 2.267   22.68 | 3.833    2.88 |  5.40    0.72
               0.733    0.72 | 2.300   33.12 | 3.867    2.88 |  5.43    0.72
               0.767    0.72 | 2.333   33.12 | 3.900    2.88 |  5.47    0.72
               0.800    0.72 | 2.367   33.12 | 3.933    2.88 |  5.50    0.72
               0.833    0.72 | 2.400   33.12 | 3.967    2.88 |  5.53    0.72
               0.867    0.72 | 2.433   33.12 | 4.000    2.88 |  5.57    0.72
               0.900    0.72 | 2.467   33.12 | 4.033    2.88 |  5.60    0.72
               0.933    0.72 | 2.500   33.12 | 4.067    2.88 |  5.63    0.72
               0.967    0.72 | 2.533   33.12 | 4.100    2.88 |  5.67    0.72
               1.000    0.72 | 2.567   33.12 | 4.133    2.88 |  5.70    0.72
               1.033    0.72 | 2.600   33.12 | 4.167    2.88 |  5.73    0.72
               1.067    0.72 | 2.633   33.12 | 4.200    2.88 |  5.77    0.72
               1.100    0.72 | 2.667   33.12 | 4.233    2.88 |  5.80    0.72
               1.133    0.72 | 2.700   33.12 | 4.267    2.16 |  5.83    0.72
               1.167    0.72 | 2.733   33.12 | 4.300    1.44 |  5.87    0.72
               1.200    0.72 | 2.767   21.24 | 4.333    1.44 |  5.90    0.72
               1.233    0.72 | 2.800    9.36 | 4.367    1.44 |  5.93    0.72
               1.267    2.52 | 2.833    9.36 | 4.400    1.44 |  5.97    0.72
               1.300    4.32 | 2.867    9.36 | 4.433    1.44 |  6.00    0.72
               1.333    4.32 | 2.900    9.36 | 4.467    1.44 |  6.03    0.72
               1.367    4.32 | 2.933    9.36 | 4.500    1.44 |  6.07    0.72
               1.400    4.32 | 2.967    9.36 | 4.533    1.44 |  6.10    0.72
               1.433    4.32 | 3.000    9.36 | 4.567    1.44 |  6.13    0.72
               1.467    4.32 | 3.033    9.36 | 4.600    1.44 |  6.17    0.72
               1.500    4.32 | 3.067    9.36 | 4.633    1.44 |  6.20    0.72
               1.533    4.32 | 3.100    9.36 | 4.667    1.44 |  6.23    0.72
               1.567    4.32 | 3.133    9.36 | 4.700    1.44 |  6.27    0.36

     Max.Eff.Inten.(mm/hr)=      33.12         10.67
```

```
                over (min)        6.00          8.00
     Storage Coeff.  (min)=       6.61 (ii)     7.31 (ii)
     Unit Hyd. Tpeak (min)=       6.00          8.00
     Unit Hyd. peak  (cms)=       0.18          0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.74          0.00        0.744 (iii)
     TIME TO PEAK    (hrs)=       2.73          2.77         2.73
     RUNOFF VOLUME    (mm)=      35.00          8.64        34.97
     TOTAL RAINFALL   (mm)=      36.00         36.00        36.00
     RUNOFF COEFFICIENT   =       0.97          0.24         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.0700     0.6145

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190      0.744      2.73      34.97
   OUTFLOW: ID= 1 (  0001)      8.190      0.029      4.83      32.42
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.89
                    TIME SHIFT OF PEAK FLOW         (min)=126.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.2542

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

--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.029     4.83    32.42
      + ID2= 2 (  0100):    12.09    1.066     2.73    34.29
        ==================================================
        ID = 3 (  0051):    20.28    1.083     2.73    33.53

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00      0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00    0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28    1.083     2.73    33.53
        ==================================================
        ID = 3 (  0052):    20.28    1.083     2.73    33.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.1780     0.4721
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0.0000	0.0444	0.1888	0.5284
0.0000	0.0887	0.1991	0.5880
0.0622	0.1331	0.2088	0.6499
0.0885	0.1775	0.2181	0.7118
0.1087	0.2218	0.2271	0.7737
0.1256	0.2662	0.6000	0.8403
0.1406	0.3105	0.6881	0.9081
0.1541	0.3596	0.7636	0.9760
0.1665	0.4159	0.8309	1.0439

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0052)	20.280	1.083	2.73	33.53
OUTFLOW: ID= 1 (0002)	20.280	0.144	3.97	29.07
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.26
TIME SHIFT OF PEAK FLOW (min)= 74.00
MAXIMUM STORAGE USED (ha.m.)= 0.3218

Junction Command(0053)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0002)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0053)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0110) ID= 1 DT= 2.0 min	Area (ha)= 16.30 Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	16.30	0.40
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	333.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

			TOTALS
Max.Eff.Inten.(mm/hr)=	33.12	10.67	
over (min)	8.00	12.00	
Storage Coeff. (min)=	8.19 (ii)	10.68 (ii)	
Unit Hyd. Tpeak (min)=	8.00	12.00	
Unit Hyd. peak (cms)=	0.14	0.10	
PEAK FLOW (cms)=	1.46	0.01	1.464 (iii)
TIME TO PEAK (hrs)=	2.73	2.83	2.73
RUNOFF VOLUME (mm)=	35.00	8.64	34.37
TOTAL RAINFALL (mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT =	0.97	0.24	0.95

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS ON			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.4765	1.3727
	0.0000	0.1242	0.5033	1.5204
	0.0621	0.2484	0.5288	1.6681
	0.0961	0.3725	0.5531	1.8158
	0.1208	0.5019	0.5764	1.9635
	0.1413	0.6343	0.5988	2.1112
	0.1592	0.7820	0.6204	2.2589
	0.1752	0.9297	0.6413	2.4066
	0.4176	1.0774	0.6615	2.5543
	0.4480	1.2251	0.6811	2.7020

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	16.700	1.464	2.73	34.37
OUTFLOW: ID= 1 (0003)	16.700	0.115	4.37	26.90
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.87
TIME SHIFT OF PEAK FLOW (min)= 98.00
MAXIMUM STORAGE USED (ha.m.)= 0.4725

Junction Command(0054)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0003)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0054)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0130) ID= 1 DT= 2.0 min	Area (ha)= 8.21 Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90

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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.20	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.95	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	4.32	3.167	9.36	4.73	1.44
0.067	0.00	1.633	4.32	3.200	9.36	4.77	1.08
0.100	0.00	1.667	4.32	3.233	9.36	4.80	0.72
0.133	0.00	1.700	4.32	3.267	7.20	4.83	0.72
0.167	0.00	1.733	4.32	3.300	5.04	4.87	0.72
0.200	0.00	1.767	8.28	3.333	5.04	4.90	0.72
0.233	0.00	1.800	12.24	3.367	5.04	4.93	0.72
0.267	0.36	1.833	12.24	3.400	5.04	4.97	0.72
0.300	0.72	1.867	12.24	3.433	5.04	5.00	0.72
0.333	0.72	1.900	12.24	3.467	5.04	5.03	0.72
0.367	0.72	1.933	12.24	3.500	5.04	5.07	0.72
0.400	0.72	1.967	12.24	3.533	5.04	5.10	0.72
0.433	0.72	2.000	12.24	3.567	5.04	5.13	0.72
0.467	0.72	2.033	12.24	3.600	5.04	5.17	0.72
0.500	0.72	2.067	12.24	3.633	5.04	5.20	0.72
0.533	0.72	2.100	12.24	3.667	5.04	5.23	0.72
0.567	0.72	2.133	12.24	3.700	5.04	5.27	0.72
0.600	0.72	2.167	12.24	3.733	5.04	5.30	0.72
0.633	0.72	2.200	12.24	3.767	3.96	5.33	0.72
0.667	0.72	2.233	12.24	3.800	2.88	5.37	0.72
0.700	0.72	2.267	22.68	3.833	2.88	5.40	0.72
0.733	0.72	2.300	33.12	3.867	2.88	5.43	0.72
0.767	0.72	2.333	33.12	3.900	2.88	5.47	0.72
0.800	0.72	2.367	33.12	3.933	2.88	5.50	0.72
0.833	0.72	2.400	33.12	3.967	2.88	5.53	0.72
0.867	0.72	2.433	33.12	4.000	2.88	5.57	0.72
0.900	0.72	2.467	33.12	4.033	2.88	5.60	0.72
0.933	0.72	2.500	33.12	4.067	2.88	5.63	0.72
0.967	0.72	2.533	33.12	4.100	2.88	5.67	0.72
1.000	0.72	2.567	33.12	4.133	2.88	5.70	0.72
1.033	0.72	2.600	33.12	4.167	2.88	5.73	0.72
1.067	0.72	2.633	33.12	4.200	2.88	5.77	0.72
1.100	0.72	2.667	33.12	4.233	2.88	5.80	0.72
1.133	0.72	2.700	33.12	4.267	2.16	5.83	0.72
1.167	0.72	2.733	33.12	4.300	1.44	5.87	0.72
1.200	0.72	2.767	21.24	4.333	1.44	5.90	0.72
1.233	0.72	2.800	9.36	4.367	1.44	5.93	0.72
1.267	2.52	2.833	9.36	4.400	1.44	5.97	0.72
1.300	4.32	2.867	9.36	4.433	1.44	6.00	0.72
1.333	4.32	2.900	9.36	4.467	1.44	6.03	0.72
1.367	4.32	2.933	9.36	4.500	1.44	6.07	0.72
1.400	4.32	2.967	9.36	4.533	1.44	6.10	0.72
1.433	4.32	3.000	9.36	4.567	1.44	6.13	0.72
1.467	4.32	3.033	9.36	4.600	1.44	6.17	0.72
1.500	4.32	3.067	9.36	4.633	1.44	6.20	0.72
1.533	4.32	3.100	9.36	4.667	1.44	6.23	0.72
1.567	4.32	3.133	9.36	4.700	1.44	6.27	0.36

Max.Eff.Inten.(mm/hr)=		33.12	17.42	
over (min)		6.00	8.00	
Storage Coeff.	(min)=	6.62 (ii)	7.31 (ii)	
Unit Hyd. Tpeak	(min)=	6.00	8.00	
Unit Hyd. peak	(cms)=	0.18	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.75	0.00	0.746 (iii)
TIME TO PEAK	(hrs)=	2.73	2.77	2.73
RUNOFF VOLUME	(mm)=	35.00	13.94	34.98
TOTAL RAINFALL	(mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT	=	0.97	0.39	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 87.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CHAMBER(0060)| OUTFLOW: ON, UNDERDRAIN: OFF, INFIL: ON

|IN= 2--> OUT= 3 | CHAMBER:
| DT= 1.0 min | MAX STO VOL (cu.m.)= 6506.94 Bottom Area(m2) = 4870.00

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.746	2.73	34.98
OUTFLOW:ID= 1	8.21	0.063	4.05	24.78
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin]	(%)=	29.15
Time to reach Max storage	(Hr)=	4.05
Volume of water for drawdown in LID	(cu.m.)=	1793.25
Volume of maximum water storage	(cu.m.)=	2234.01
Calculated Drawdown Time	(Hr)=	28.17

| Junction Command(0056) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.06	4.05	24.78
OUTFLOW: ID= 2(0056)	8.21	0.06	4.05	24.78

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  | Junction Command(0057) |
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                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0060)    0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0057)    0.00     0.00    0.00     0.00

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************************************
** SIMULATION:Run 03 5yr 6hr AES **
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| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02          0.34
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     309.41         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    5.74 | 3.167   12.43 |  4.73    1.91
                0.067    0.00 | 1.633    5.74 | 3.200   12.43 |  4.77    1.44
                0.100    0.00 | 1.667    5.74 | 3.233   12.43 |  4.80    0.96
                0.133    0.00 | 1.700    5.74 | 3.267    9.56 |  4.83    0.96
                0.167    0.00 | 1.733    5.74 | 3.300    6.69 |  4.87    0.96
                0.200    0.00 | 1.767   10.99 | 3.333    6.69 |  4.90    0.96
                0.233    0.00 | 1.800   16.25 | 3.367    6.69 |  4.93    0.96
                0.267    0.48 | 1.833   16.25 | 3.400    6.69 |  4.97    0.96
                0.300    0.96 | 1.867   16.25 | 3.433    6.69 |  5.00    0.96
                0.333    0.96 | 1.900   16.25 | 3.467    6.69 |  5.03    0.96
                0.367    0.96 | 1.933   16.25 | 3.500    6.69 |  5.07    0.96
                0.400    0.96 | 1.967   16.25 | 3.533    6.69 |  5.10    0.96
                0.433    0.96 | 2.000   16.25 | 3.567    6.69 |  5.13    0.96
                0.467    0.96 | 2.033   16.25 | 3.600    6.69 |  5.17    0.96
                0.500    0.96 | 2.067   16.25 | 3.633    6.69 |  5.20    0.96
                0.533    0.96 | 2.100   16.25 | 3.667    6.69 |  5.23    0.96
                0.567    0.96 | 2.133   16.25 | 3.700    6.69 |  5.27    0.96
                0.600    0.96 | 2.167   16.25 | 3.733    6.69 |  5.30    0.96
                0.633    0.96 | 2.200   16.25 | 3.767    5.26 |  5.33    0.96
                0.667    0.96 | 2.233   16.25 | 3.800    3.82 |  5.37    0.96
                0.700    0.96 | 2.267   30.11 | 3.833    3.82 |  5.40    0.96
                0.733    0.96 | 2.300   43.98 | 3.867    3.82 |  5.43    0.96
                0.767    0.96 | 2.333   43.98 | 3.900    3.82 |  5.47    0.96
                0.800    0.96 | 2.367   43.98 | 3.933    3.82 |  5.50    0.96
                0.833    0.96 | 2.400   43.98 | 3.967    3.82 |  5.53    0.96
                0.867    0.96 | 2.433   43.98 | 4.000    3.82 |  5.57    0.96
                0.900    0.96 | 2.467   43.98 | 4.033    3.82 |  5.60    0.96
                0.933    0.96 | 2.500   43.98 | 4.067    3.82 |  5.63    0.96
                0.967    0.96 | 2.533   43.98 | 4.100    3.82 |  5.67    0.96
                1.000    0.96 | 2.567   43.98 | 4.133    3.82 |  5.70    0.96
                1.033    0.96 | 2.600   43.98 | 4.167    3.82 |  5.73    0.96
                1.067    0.96 | 2.633   43.98 | 4.200    3.82 |  5.77    0.96
                1.100    0.96 | 2.667   43.98 | 4.233    3.82 |  5.80    0.96
                1.133    0.96 | 2.700   43.98 | 4.267    2.87 |  5.83    0.96
                1.167    0.96 | 2.733   43.98 | 4.300    1.91 |  5.87    0.96
                1.200    0.96 | 2.767   28.21 | 4.333    1.91 |  5.90    0.96
                1.233    0.96 | 2.800   12.43 | 4.367    1.91 |  5.93    0.96
                1.267    3.35 | 2.833   12.43 | 4.400    1.91 |  5.97    0.96
                1.300    5.74 | 2.867   12.43 | 4.433    1.91 |  6.00    0.96
                1.333    5.74 | 2.900   12.43 | 4.467    1.91 |  6.03    0.96
                1.367    5.74 | 2.933   12.43 | 4.500    1.91 |  6.07    0.96
                1.400    5.74 | 2.967   12.43 | 4.533    1.91 |  6.10    0.96
                1.433    5.74 | 3.000   12.43 | 4.567    1.91 |  6.13    0.96
                1.467    5.74 | 3.033   12.43 | 4.600    1.91 |  6.17    0.96
                1.500    5.74 | 3.067   12.43 | 4.633    1.91 |  6.20    0.96
                1.533    5.74 | 3.100   12.43 | 4.667    1.91 |  6.23    0.96
                1.567    5.74 | 3.133   12.43 | 4.700    1.91 |  6.27    0.48

     Max.Eff.Inten.(mm/hr)=      43.98        18.16
                over (min)        6.00        10.00
     Storage Coeff.  (min)=       6.99 (ii)    9.21 (ii)

     Unit Hyd. Tpeak (min)=       6.00        10.00
     Unit Hyd. peak  (cms)=       0.17         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.69         0.01        1.701 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.80         2.73
     RUNOFF VOLUME    (mm)=      46.81        14.90        46.04
     TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
     RUNOFF COEFFICIENT   =       0.98         0.31         0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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  | RESERVOIR(  0004)|     OVERFLOW IS ON
  | IN= 2---> OUT= 1 |
  | DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
  --------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                            0.0000     0.0000   |   0.2654     0.8399
                            0.0111     0.0722   |   0.2796     0.9338
                            0.0509     0.1444   |   0.2932     1.0277
                            0.0712     0.2166   |   0.3061     1.1216
                            0.0868     0.2888   |   0.3185     1.2155
                            0.1000     0.3706   |   0.3304     1.3093
                            0.1117     0.4644   |   0.3420     1.4032
                            0.1222     0.5583   |   0.3531     1.4971
                            0.1319     0.6522   |   0.3639     1.5910
                            0.2504     0.7461   |   0.3745     1.6846

                                   AREA     QPEAK     TPEAK       R.V.
                                   (ha)     (cms)     (hrs)       (mm)
    INFLOW : ID= 2 (  0120)     14.360     1.701      2.73      46.04
    OUTFLOW: ID= 1 (  0004)     14.360     0.120      4.37      45.53
    OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                     TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                     CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                     PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                     PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.08
                     TIME SHIFT OF PEAK FLOW         (min)= 98.00
                     MAXIMUM  STORAGE   USED       (ha.m.)=  0.5420

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    | Junction Command(0055) |
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                             AREA     QPEAK   TPEAK     R.V.
                             (ha)     (cms)   (hrs)     (mm)
    INFLOW : ID= 3(  0004)    0.00     0.00    0.00     0.00
    OUTFLOW: ID= 2(  0055)    0.00     0.00    0.00     0.00

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  --------------------
  | CALIB            |
  | STANDHYD (  0100)|   Area    (ha)=  12.09
  |ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
  --------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76          0.33
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     283.90         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                            ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    5.74 | 3.167   12.43 |  4.73    1.91
                0.067    0.00 | 1.633    5.74 | 3.200   12.43 |  4.77    1.44
                0.100    0.00 | 1.667    5.74 | 3.233   12.43 |  4.80    0.96
                0.133    0.00 | 1.700    5.74 | 3.267    9.56 |  4.83    0.96
                0.167    0.00 | 1.733    5.74 | 3.300    6.69 |  4.87    0.96
                0.200    0.00 | 1.767   10.99 | 3.333    6.69 |  4.90    0.96
                0.233    0.00 | 1.800   16.25 | 3.367    6.69 |  4.93    0.96
```

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0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

```
Max.Eff.Inten.(mm/hr)=      43.98        18.16
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.64 (ii)    8.97 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.18         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.42         0.01        1.433 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      46.81        14.90        45.95
TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
RUNOFF COEFFICIENT   =       0.98         0.31         0.96

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. 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 (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=          8.18          0.01
Dep. Storage     (mm)=          1.00          5.00
Average Slope     (%)=          1.00          2.00
Length            (m)=        233.67         40.00
Mannings n           =         0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	5.74	3.167	12.43	4.73	1.91
0.067	0.00	1.633	5.74	3.200	12.43	4.77	1.44
0.100	0.00	1.667	5.74	3.233	12.43	4.80	0.96
0.133	0.00	1.700	5.74	3.267	9.56	4.83	0.96
0.167	0.00	1.733	5.74	3.300	6.69	4.87	0.96
0.200	0.00	1.767	10.99	3.333	6.69	4.90	0.96
0.233	0.00	1.800	16.25	3.367	6.69	4.93	0.96
0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

```
Max.Eff.Inten.(mm/hr)=      43.98        18.16
            over (min)       6.00         8.00
Storage Coeff.  (min)=       5.90 (ii)    6.52 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.19         0.16
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.99         0.00        0.993 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      46.81        14.90        46.78
TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
RUNOFF COEFFICIENT   =       0.98         0.31         0.98

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190     0.993      2.73      46.78
   OUTFLOW: ID= 1 (  0001)      8.190     0.039      4.80      43.36
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.90
                TIME SHIFT OF PEAK FLOW         (min)=124.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.3399
```

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19   0.039     4.80    43.36
      + ID2= 2 (  0100):     12.09   1.433     2.73    45.95
        ===================================================
        ID = 3 (  0051):     20.28   1.457     2.73    44.90

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00      0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):      0.00   0.000     0.00      0.00
      + ID2= 2 (  0051):     20.28   1.457     2.73     44.90
        ===================================================
        ID = 3 (  0052):     20.28   1.457     2.73     44.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
                          0.1087     0.2218   |   0.2271      0.7737
                          0.1256     0.2662   |   0.6000      0.8403
                          0.1406     0.3105   |   0.6881      0.9081
                          0.1541     0.3596   |   0.7636      0.9760
                          0.1665     0.4159   |   0.8309      1.0439

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280     1.457      2.73      44.90
   OUTFLOW: ID= 1 (  0002)     20.280     0.171      4.10      40.41
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.73
                    TIME SHIFT OF PEAK FLOW         (min)= 82.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.4378

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  --------------------------
  | Junction Command(0053) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)     0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    5.74 | 3.167   12.43 |  4.73    1.91
                0.067    0.00 | 1.633    5.74 | 3.200   12.43 |  4.77    1.44
                0.100    0.00 | 1.667    5.74 | 3.233   12.43 |  4.80    0.96
                0.133    0.00 | 1.700    5.74 | 3.267    9.56 |  4.83    0.96
                0.167    0.00 | 1.733    5.74 | 3.300    6.69 |  4.87    0.96
                0.200    0.00 | 1.767   10.99 | 3.333    6.69 |  4.90    0.96
                0.233    0.00 | 1.800   16.25 | 3.367    6.69 |  4.93    0.96
                0.267    0.48 | 1.833   16.25 | 3.400    6.69 |  4.97    0.96
                0.300    0.96 | 1.867   16.25 | 3.433    6.69 |  5.00    0.96
                0.333    0.96 | 1.900   16.25 | 3.467    6.69 |  5.03    0.96
                0.367    0.96 | 1.933   16.25 | 3.500    6.69 |  5.07    0.96
                0.400    0.96 | 1.967   16.25 | 3.533    6.69 |  5.10    0.96
                0.433    0.96 | 2.000   16.25 | 3.567    6.69 |  5.13    0.96
                0.467    0.96 | 2.033   16.25 | 3.600    6.69 |  5.17    0.96
                0.500    0.96 | 2.067   16.25 | 3.633    6.69 |  5.20    0.96
                0.533    0.96 | 2.100   16.25 | 3.667    6.69 |  5.23    0.96
                0.567    0.96 | 2.133   16.25 | 3.700    6.69 |  5.27    0.96
                0.600    0.96 | 2.167   16.25 | 3.733    6.69 |  5.30    0.96
                0.633    0.96 | 2.200   16.25 | 3.767    5.26 |  5.33    0.96
                0.667    0.96 | 2.233   16.25 | 3.800    3.82 |  5.37    0.96
                0.700    0.96 | 2.267   30.11 | 3.833    3.82 |  5.40    0.96
                0.733    0.96 | 2.300   43.98 | 3.867    3.82 |  5.43    0.96
                0.767    0.96 | 2.333   43.98 | 3.900    3.82 |  5.47    0.96
                0.800    0.96 | 2.367   43.98 | 3.933    3.82 |  5.50    0.96
                0.833    0.96 | 2.400   43.98 | 3.967    3.82 |  5.53    0.96
                0.867    0.96 | 2.433   43.98 | 4.000    3.82 |  5.57    0.96
                0.900    0.96 | 2.467   43.98 | 4.033    3.82 |  5.60    0.96
                0.933    0.96 | 2.500   43.98 | 4.067    3.82 |  5.63    0.96
                0.967    0.96 | 2.533   43.98 | 4.100    3.82 |  5.67    0.96
                1.000    0.96 | 2.567   43.98 | 4.133    3.82 |  5.70    0.96
                1.033    0.96 | 2.600   43.98 | 4.167    3.82 |  5.73    0.96
                1.067    0.96 | 2.633   43.98 | 4.200    3.82 |  5.77    0.96
                1.100    0.96 | 2.667   43.98 | 4.233    3.82 |  5.80    0.96
                1.133    0.96 | 2.700   43.98 | 4.267    2.87 |  5.83    0.96
                1.167    0.96 | 2.733   43.98 | 4.300    1.91 |  5.87    0.96
                1.200    0.96 | 2.767   28.21 | 4.333    1.91 |  5.90    0.96
                1.233    0.96 | 2.800   12.43 | 4.367    1.91 |  5.93    0.96
                1.267    3.35 | 2.833   12.43 | 4.400    1.91 |  5.97    0.96
                1.300    5.74 | 2.867   12.43 | 4.433    1.91 |  6.00    0.96
                1.333    5.74 | 2.900   12.43 | 4.467    1.91 |  6.03    0.96
                1.367    5.74 | 2.933   12.43 | 4.500    1.91 |  6.07    0.96
                1.400    5.74 | 2.967   12.43 | 4.533    1.91 |  6.10    0.96
                1.433    5.74 | 3.000   12.43 | 4.567    1.91 |  6.13    0.96
                1.467    5.74 | 3.033   12.43 | 4.600    1.91 |  6.17    0.96
                1.500    5.74 | 3.067   12.43 | 4.633    1.91 |  6.20    0.96
                1.533    5.74 | 3.100   12.43 | 4.667    1.91 |  6.23    0.96
                1.567    5.74 | 3.133   12.43 | 4.700    1.91 |  6.27    0.48

     Max.Eff.Inten.(mm/hr)=      43.98        18.16
                over (min)        8.00        10.00
     Storage Coeff.  (min)=       7.31 (ii)    9.54 (ii)
     Unit Hyd. Tpeak (min)=       8.00        10.00
     Unit Hyd. peak  (cms)=       0.15         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.95         0.02        1.967 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.80         2.73
     RUNOFF VOLUME    (mm)=      46.81        14.90        46.04
     TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
     RUNOFF COEFFICIENT   =       0.98         0.31         0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0003)|     OVERFLOW IS ON
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```
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |
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OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4765	1.3727
0.0000	0.1242	0.5033	1.5204
0.0621	0.2484	0.5288	1.6681
0.0961	0.3725	0.5531	1.8158
0.1208	0.5019	0.5764	1.9635
0.1413	0.6343	0.5988	2.1112
0.1592	0.7820	0.6204	2.2589
0.1752	0.9297	0.6413	2.4066
0.4176	1.0774	0.6615	2.5543
0.4480	1.2251	0.6811	2.7020

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	16.700	1.967	2.73	46.04
OUTFLOW: ID= 1 (0003)	16.700	0.142	4.37	38.58
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

```
TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.20
TIME SHIFT OF PEAK FLOW         (min)= 98.00
MAXIMUM  STORAGE   USED       (ha.m.)=  0.6374
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| Junction Command(0054) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0003)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0054)	0.00	0.00	0.00	0.00

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--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
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```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	8.20	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	233.95	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	5.74	3.167	12.43	4.73	1.91
0.067	0.00	1.633	5.74	3.200	12.43	4.77	1.44
0.100	0.00	1.667	5.74	3.233	12.43	4.80	0.96
0.133	0.00	1.700	5.74	3.267	9.56	4.83	0.96
0.167	0.00	1.733	5.74	3.300	6.69	4.87	0.96
0.200	0.00	1.767	10.99	3.333	6.69	4.90	0.96
0.233	0.00	1.800	16.25	3.367	6.69	4.93	0.96
0.267	0.48	1.833	16.25	3.400	6.69	4.97	0.96
0.300	0.96	1.867	16.25	3.433	6.69	5.00	0.96
0.333	0.96	1.900	16.25	3.467	6.69	5.03	0.96
0.367	0.96	1.933	16.25	3.500	6.69	5.07	0.96
0.400	0.96	1.967	16.25	3.533	6.69	5.10	0.96
0.433	0.96	2.000	16.25	3.567	6.69	5.13	0.96
0.467	0.96	2.033	16.25	3.600	6.69	5.17	0.96
0.500	0.96	2.067	16.25	3.633	6.69	5.20	0.96
0.533	0.96	2.100	16.25	3.667	6.69	5.23	0.96
0.567	0.96	2.133	16.25	3.700	6.69	5.27	0.96
0.600	0.96	2.167	16.25	3.733	6.69	5.30	0.96
0.633	0.96	2.200	16.25	3.767	5.26	5.33	0.96
0.667	0.96	2.233	16.25	3.800	3.82	5.37	0.96
0.700	0.96	2.267	30.11	3.833	3.82	5.40	0.96
0.733	0.96	2.300	43.98	3.867	3.82	5.43	0.96
0.767	0.96	2.333	43.98	3.900	3.82	5.47	0.96
0.800	0.96	2.367	43.98	3.933	3.82	5.50	0.96
0.833	0.96	2.400	43.98	3.967	3.82	5.53	0.96
0.867	0.96	2.433	43.98	4.000	3.82	5.57	0.96
0.900	0.96	2.467	43.98	4.033	3.82	5.60	0.96
0.933	0.96	2.500	43.98	4.067	3.82	5.63	0.96
0.967	0.96	2.533	43.98	4.100	3.82	5.67	0.96
1.000	0.96	2.567	43.98	4.133	3.82	5.70	0.96
1.033	0.96	2.600	43.98	4.167	3.82	5.73	0.96
1.067	0.96	2.633	43.98	4.200	3.82	5.77	0.96
1.100	0.96	2.667	43.98	4.233	3.82	5.80	0.96
1.133	0.96	2.700	43.98	4.267	2.87	5.83	0.96
1.167	0.96	2.733	43.98	4.300	1.91	5.87	0.96
1.200	0.96	2.767	28.21	4.333	1.91	5.90	0.96
1.233	0.96	2.800	12.43	4.367	1.91	5.93	0.96
1.267	3.35	2.833	12.43	4.400	1.91	5.97	0.96
1.300	5.74	2.867	12.43	4.433	1.91	6.00	0.96
1.333	5.74	2.900	12.43	4.467	1.91	6.03	0.96
1.367	5.74	2.933	12.43	4.500	1.91	6.07	0.96
1.400	5.74	2.967	12.43	4.533	1.91	6.10	0.96
1.433	5.74	3.000	12.43	4.567	1.91	6.13	0.96
1.467	5.74	3.033	12.43	4.600	1.91	6.17	0.96
1.500	5.74	3.067	12.43	4.633	1.91	6.20	0.96
1.533	5.74	3.100	12.43	4.667	1.91	6.23	0.96
1.567	5.74	3.133	12.43	4.700	1.91	6.27	0.48

			TOTALS
Max.Eff.Inten.(mm/hr)=	43.98	27.71	
over (min)	6.00	8.00	
Storage Coeff. (min)=	5.91 (ii)	6.53 (ii)	
Unit Hyd. Tpeak (min)=	6.00	8.00	
Unit Hyd. peak (cms)=	0.19	0.16	
PEAK FLOW (cms)=	0.99	0.00	0.995 (iii)
TIME TO PEAK (hrs)=	2.73	2.77	2.73
RUNOFF VOLUME (mm)=	46.81	22.69	46.79
TOTAL RAINFALL (mm)=	47.81	47.81	47.81
RUNOFF COEFFICIENT =	0.98	0.47	0.98

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 87.0 Ia = Dep. 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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| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
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```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14

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                889.00       3175.53        |   1930.00      6259.60
                914.00       3274.49        |   1956.00      6309.07
                940.00       3372.81        |   1981.00      6358.54
                965.00       3470.48        |   2007.00      6408.01
                991.00       3567.46        |   2032.00      6457.47
               1016.00       3663.75        |   2057.00      6506.94

              DEPTH       DISCHARGE       |   DEPTH      DISCHARGE
                (m)         (cms)         |    (m)         (cms)
              0.000        0.000          |  0.460        0.066
              0.010        0.011          |  0.510        0.069
              0.060        0.024          |  0.560        0.072
              0.110        0.032          |  0.610        0.075
              0.160        0.039          |  0.660        0.079
              0.210        0.045          |  0.710        0.081
              0.260        0.049          |  0.760        0.084
              0.310        0.054          |  0.810        0.087
              0.360        0.058          |  0.860        0.090
              0.410        0.062          |  0.910        0.092

             NATIVE SOIL LAYER:
             Infiltration (m/hr) = 0.0051

                AREA         QPEAK            TPEAK         R.V.
                (ha)         (cms)            (hrs)         (mm)
     INFLOW:ID= 2     8.21         0.995            2.73        46.79
    OUTFLOW:ID= 1     8.21         0.077            4.28        35.66
   OVERFLOW:ID= 3     0.00         0.000            0.00         0.00

            Volume Reduction Rate[(RVin-RVout)/RVin](%)=       23.78
            Time to reach Max storage              (Hr)=        4.28
            Volume of water for drawdown in LID (cu.m.)=     2542.59
            Volume of maximum water storage     (cu.m.)=     3044.54
            Calculated Drawdown Time               (Hr)=       31.22

  --------------------------
  | Junction Command(0056) |
  --------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 1(  0060)   8.21     0.08    4.28    35.66
  OUTFLOW: ID= 2(  0056)   8.21     0.08    4.28    35.66

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  --------------------------
  | Junction Command(0057) |
  --------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0060)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0057)   0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
************************************
** SIMULATION:Run 04 10yr 6hr AES **
************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     309.41        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    6.68 | 3.167   14.48 |  4.73    2.23
                0.067    0.00 | 1.633    6.68 | 3.200   14.48 |  4.77    1.67
                0.100    0.00 | 1.667    6.68 | 3.233   14.48 |  4.80    1.11
                0.133    0.00 | 1.700    6.68 | 3.267   11.14 |  4.83    1.11
                0.167    0.00 | 1.733    6.68 | 3.300    7.80 |  4.87    1.11
                0.200    0.00 | 1.767   12.81 | 3.333    7.80 |  4.90    1.11
                0.233    0.00 | 1.800   18.94 | 3.367    7.80 |  4.93    1.11
                0.267    0.56 | 1.833   18.94 | 3.400    7.80 |  4.97    1.11
                0.300    1.11 | 1.867   18.94 | 3.433    7.80 |  5.00    1.11
                0.333    1.11 | 1.900   18.94 | 3.467    7.80 |  5.03    1.11
                0.367    1.11 | 1.933   18.94 | 3.500    7.80 |  5.07    1.11
                0.400    1.11 | 1.967   18.94 | 3.533    7.80 |  5.10    1.11
                0.433    1.11 | 2.000   18.94 | 3.567    7.80 |  5.13    1.11
                0.467    1.11 | 2.033   18.94 | 3.600    7.80 |  5.17    1.11
                0.500    1.11 | 2.067   18.94 | 3.633    7.80 |  5.20    1.11
                0.533    1.11 | 2.100   18.94 | 3.667    7.80 |  5.23    1.11
                0.567    1.11 | 2.133   18.94 | 3.700    7.80 |  5.27    1.11
                0.600    1.11 | 2.167   18.94 | 3.733    7.80 |  5.30    1.11
                0.633    1.11 | 2.200   18.94 | 3.767    6.13 |  5.33    1.11
                0.667    1.11 | 2.233   18.94 | 3.800    4.46 |  5.37    1.11
                0.700    1.11 | 2.267   35.09 | 3.833    4.46 |  5.40    1.11
                0.733    1.11 | 2.300   51.24 | 3.867    4.46 |  5.43    1.11
                0.767    1.11 | 2.333   51.24 | 3.900    4.46 |  5.47    1.11
                0.800    1.11 | 2.367   51.24 | 3.933    4.46 |  5.50    1.11
                0.833    1.11 | 2.400   51.24 | 3.967    4.46 |  5.53    1.11
                0.867    1.11 | 2.433   51.24 | 4.000    4.46 |  5.57    1.11
                0.900    1.11 | 2.467   51.24 | 4.033    4.46 |  5.60    1.11
                0.933    1.11 | 2.500   51.24 | 4.067    4.46 |  5.63    1.11
                0.967    1.11 | 2.533   51.24 | 4.100    4.46 |  5.67    1.11
                1.000    1.11 | 2.567   51.24 | 4.133    4.46 |  5.70    1.11
                1.033    1.11 | 2.600   51.24 | 4.167    4.46 |  5.73    1.11
                1.067    1.11 | 2.633   51.24 | 4.200    4.46 |  5.77    1.11
                1.100    1.11 | 2.667   51.24 | 4.233    4.46 |  5.80    1.11
                1.133    1.11 | 2.700   51.24 | 4.267    3.35 |  5.83    1.11
                1.167    1.11 | 2.733   51.24 | 4.300    2.23 |  5.87    1.11
                1.200    1.11 | 2.767   32.86 | 4.333    2.23 |  5.90    1.11
                1.233    1.11 | 2.800   14.48 | 4.367    2.23 |  5.93    1.11
                1.267    3.90 | 2.833   14.48 | 4.400    2.23 |  5.97    1.11
                1.300    6.68 | 2.867   14.48 | 4.433    2.23 |  6.00    1.11
                1.333    6.68 | 2.900   14.48 | 4.467    2.23 |  6.03    1.11
                1.367    6.68 | 2.933   14.48 | 4.500    2.23 |  6.07    1.11
                1.400    6.68 | 2.967   14.48 | 4.533    2.23 |  6.10    1.11
                1.433    6.68 | 3.000   14.48 | 4.567    2.23 |  6.13    1.11
                1.467    6.68 | 3.033   14.48 | 4.600    2.23 |  6.17    1.11
                1.500    6.68 | 3.067   14.48 | 4.633    2.23 |  6.20    1.11
                1.533    6.68 | 3.100   14.48 | 4.667    2.23 |  6.23    1.11
                1.567    6.68 | 3.133   14.48 | 4.700    2.23 |  6.27    0.56

     Max.Eff.Inten.(mm/hr)=      51.24        23.77
                over (min)        6.00        10.00
     Storage Coeff.  (min)=       6.57 (ii)    8.67 (ii)
     Unit Hyd. Tpeak (min)=       6.00        10.00
     Unit Hyd. peak  (cms)=       0.18         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.97         0.02        1.991 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.80         2.73
     RUNOFF VOLUME    (mm)=      54.69        19.63        53.85
     TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
     RUNOFF COEFFICIENT   =       0.98         0.35         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

  ------------------------------------------------------------------------------
  --------------------
  | RESERVOIR(  0004)|     OVERFLOW IS ON
  | IN= 2---> OUT= 1 |
  | DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
  --------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                            0.0000     0.0000   |   0.2654      0.8399
                            0.0111     0.0722   |   0.2796      0.9338
                            0.0509     0.1444   |   0.2932      1.0277
                            0.0712     0.2166   |   0.3061      1.1216
                            0.0868     0.2888   |   0.3185      1.2155
                            0.1000     0.3706   |   0.3304      1.3093
                            0.1117     0.4644   |   0.3420      1.4032
                            0.1222     0.5583   |   0.3531      1.4971
                            0.1319     0.6522   |   0.3639      1.5910
                            0.2504     0.7461   |   0.3745      1.6846

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360      1.991      2.73      53.85
   OUTFLOW: ID= 1 (  0004)     14.360      0.131      4.37      53.26
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
```

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CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.56
TIME SHIFT OF PEAK FLOW         (min)= 98.00
MAXIMUM  STORAGE   USED       (ha.m.)=  0.6401
```

```
| Junction Command(0055) |
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0004)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0055)	0.00	0.00	0.00	0.00

```
| CALIB              |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

				TOTALS
Max.Eff.Inten.(mm/hr)=		51.24	23.77	
over (min)		6.00	10.00	
Storage Coeff. (min)=		6.24 (ii)	8.44 (ii)	
Unit Hyd. Tpeak (min)=		6.00	10.00	
Unit Hyd. peak (cms)=		0.18	0.13	
PEAK FLOW	(cms)=	1.66	0.02	1.677 (iii)
TIME TO PEAK	(hrs)=	2.73	2.80	2.73
RUNOFF VOLUME	(mm)=	54.69	19.63	53.74
TOTAL RAINFALL	(mm)=	55.69	55.69	55.69
RUNOFF COEFFICIENT	=	0.98	0.35	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.18	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11

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                1.533    6.68 | 3.100   14.48 | 4.667    2.23 |  6.23    1.11
                1.567    6.68 | 3.133   14.48 | 4.700    2.23 |  6.27    0.56

     Max.Eff.Inten.(mm/hr)=      51.24        23.77
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.55 (ii)    6.14 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.20         0.17
                                                        *TOTALS*
     PEAK FLOW       (cms)=       1.16         0.00        1.159 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77         2.73
     RUNOFF VOLUME    (mm)=      54.69        19.63        54.65
     TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
     RUNOFF COEFFICIENT   =       0.98         0.35         0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190     1.159      2.73      54.65
   OUTFLOW: ID= 1 (  0001)      8.190     0.045      4.80      50.67
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.90
                   TIME SHIFT OF PEAK FLOW         (min)=124.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.3972

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.045     4.80    50.67
      + ID2= 2 (  0100):    12.09   1.677     2.73    53.74
        ==================================================
        ID = 3 (  0051):    20.28   1.705     2.73    52.50

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00     0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28   1.705     2.73    52.50
        ==================================================
        ID = 3 (  0052):    20.28   1.705     2.73    52.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
                          0.1087     0.2218   |   0.2271      0.7737
                          0.1256     0.2662   |   0.6000      0.8403
                          0.1406     0.3105   |   0.6881      0.9081
                          0.1541     0.3596   |   0.7636      0.9760
                          0.1665     0.4159   |   0.8309      1.0439

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280     1.705      2.73      52.50
   OUTFLOW: ID= 1 (  0002)     20.280     0.187      4.30      47.98
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.96
                   TIME SHIFT OF PEAK FLOW         (min)= 94.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.5181

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  --------------------------
  | Junction Command(0053) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)     0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)     0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30          0.40
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     333.67         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    6.68 | 3.167   14.48 |  4.73    2.23
               0.067    0.00 | 1.633    6.68 | 3.200   14.48 |  4.77    1.67
               0.100    0.00 | 1.667    6.68 | 3.233   14.48 |  4.80    1.11
               0.133    0.00 | 1.700    6.68 | 3.267   11.14 |  4.83    1.11
               0.167    0.00 | 1.733    6.68 | 3.300    7.80 |  4.87    1.11
               0.200    0.00 | 1.767   12.81 | 3.333    7.80 |  4.90    1.11
               0.233    0.00 | 1.800   18.94 | 3.367    7.80 |  4.93    1.11
               0.267    0.56 | 1.833   18.94 | 3.400    7.80 |  4.97    1.11
               0.300    1.11 | 1.867   18.94 | 3.433    7.80 |  5.00    1.11
               0.333    1.11 | 1.900   18.94 | 3.467    7.80 |  5.03    1.11
               0.367    1.11 | 1.933   18.94 | 3.500    7.80 |  5.07    1.11
               0.400    1.11 | 1.967   18.94 | 3.533    7.80 |  5.10    1.11
               0.433    1.11 | 2.000   18.94 | 3.567    7.80 |  5.13    1.11
               0.467    1.11 | 2.033   18.94 | 3.600    7.80 |  5.17    1.11
               0.500    1.11 | 2.067   18.94 | 3.633    7.80 |  5.20    1.11
               0.533    1.11 | 2.100   18.94 | 3.667    7.80 |  5.23    1.11
               0.567    1.11 | 2.133   18.94 | 3.700    7.80 |  5.27    1.11
               0.600    1.11 | 2.167   18.94 | 3.733    7.80 |  5.30    1.11
               0.633    1.11 | 2.200   18.94 | 3.767    6.13 |  5.33    1.11
               0.667    1.11 | 2.233   18.94 | 3.800    4.46 |  5.37    1.11
               0.700    1.11 | 2.267   35.09 | 3.833    4.46 |  5.40    1.11
               0.733    1.11 | 2.300   51.24 | 3.867    4.46 |  5.43    1.11
               0.767    1.11 | 2.333   51.24 | 3.900    4.46 |  5.47    1.11
               0.800    1.11 | 2.367   51.24 | 3.933    4.46 |  5.50    1.11
               0.833    1.11 | 2.400   51.24 | 3.967    4.46 |  5.53    1.11
               0.867    1.11 | 2.433   51.24 | 4.000    4.46 |  5.57    1.11
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0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

```
Max.Eff.Inten.(mm/hr)=      51.24        23.77
          over (min)         6.00        10.00
Storage Coeff.  (min)=       6.88 (ii)    8.97 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.17         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       2.29         0.02        2.310 (iii)
TIME TO PEAK    (hrs)=       2.73         2.80         2.73
RUNOFF VOLUME    (mm)=      54.69        19.63        53.85
TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
RUNOFF COEFFICIENT   =       0.98         0.35         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0110)     16.700     2.310      2.73      53.85
  OUTFLOW: ID= 1 (  0003)     16.700     0.155      4.37      46.38
  OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                 TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                 CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                 PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.72
                 TIME SHIFT OF PEAK FLOW         (min)= 98.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.7501

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  | Junction Command(0054) |
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                          AREA     QPEAK    TPEAK     R.V.
                          (ha)     (cms)    (hrs)     (mm)
  INFLOW : ID= 3(  0003)   0.00      0.00     0.00     0.00
  OUTFLOW: ID= 2(  0054)   0.00      0.00     0.00     0.00

  ------------------------------------------------------------------------------
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| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	6.68	3.167	14.48	4.73	2.23
0.067	0.00	1.633	6.68	3.200	14.48	4.77	1.67
0.100	0.00	1.667	6.68	3.233	14.48	4.80	1.11
0.133	0.00	1.700	6.68	3.267	11.14	4.83	1.11
0.167	0.00	1.733	6.68	3.300	7.80	4.87	1.11
0.200	0.00	1.767	12.81	3.333	7.80	4.90	1.11
0.233	0.00	1.800	18.94	3.367	7.80	4.93	1.11
0.267	0.56	1.833	18.94	3.400	7.80	4.97	1.11
0.300	1.11	1.867	18.94	3.433	7.80	5.00	1.11
0.333	1.11	1.900	18.94	3.467	7.80	5.03	1.11
0.367	1.11	1.933	18.94	3.500	7.80	5.07	1.11
0.400	1.11	1.967	18.94	3.533	7.80	5.10	1.11
0.433	1.11	2.000	18.94	3.567	7.80	5.13	1.11
0.467	1.11	2.033	18.94	3.600	7.80	5.17	1.11
0.500	1.11	2.067	18.94	3.633	7.80	5.20	1.11
0.533	1.11	2.100	18.94	3.667	7.80	5.23	1.11
0.567	1.11	2.133	18.94	3.700	7.80	5.27	1.11
0.600	1.11	2.167	18.94	3.733	7.80	5.30	1.11
0.633	1.11	2.200	18.94	3.767	6.13	5.33	1.11
0.667	1.11	2.233	18.94	3.800	4.46	5.37	1.11
0.700	1.11	2.267	35.09	3.833	4.46	5.40	1.11
0.733	1.11	2.300	51.24	3.867	4.46	5.43	1.11
0.767	1.11	2.333	51.24	3.900	4.46	5.47	1.11
0.800	1.11	2.367	51.24	3.933	4.46	5.50	1.11
0.833	1.11	2.400	51.24	3.967	4.46	5.53	1.11
0.867	1.11	2.433	51.24	4.000	4.46	5.57	1.11
0.900	1.11	2.467	51.24	4.033	4.46	5.60	1.11
0.933	1.11	2.500	51.24	4.067	4.46	5.63	1.11
0.967	1.11	2.533	51.24	4.100	4.46	5.67	1.11
1.000	1.11	2.567	51.24	4.133	4.46	5.70	1.11
1.033	1.11	2.600	51.24	4.167	4.46	5.73	1.11
1.067	1.11	2.633	51.24	4.200	4.46	5.77	1.11
1.100	1.11	2.667	51.24	4.233	4.46	5.80	1.11
1.133	1.11	2.700	51.24	4.267	3.35	5.83	1.11
1.167	1.11	2.733	51.24	4.300	2.23	5.87	1.11
1.200	1.11	2.767	32.86	4.333	2.23	5.90	1.11
1.233	1.11	2.800	14.48	4.367	2.23	5.93	1.11
1.267	3.90	2.833	14.48	4.400	2.23	5.97	1.11
1.300	6.68	2.867	14.48	4.433	2.23	6.00	1.11
1.333	6.68	2.900	14.48	4.467	2.23	6.03	1.11
1.367	6.68	2.933	14.48	4.500	2.23	6.07	1.11
1.400	6.68	2.967	14.48	4.533	2.23	6.10	1.11
1.433	6.68	3.000	14.48	4.567	2.23	6.13	1.11
1.467	6.68	3.033	14.48	4.600	2.23	6.17	1.11
1.500	6.68	3.067	14.48	4.633	2.23	6.20	1.11
1.533	6.68	3.100	14.48	4.667	2.23	6.23	1.11
1.567	6.68	3.133	14.48	4.700	2.23	6.27	0.56

```
Max.Eff.Inten.(mm/hr)=      51.24        34.91
          over (min)         6.00         8.00
Storage Coeff.  (min)=       5.56 (ii)    6.14 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.20         0.17
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.16         0.00        1.162 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      54.69        28.99        54.66
TOTAL RAINFALL   (mm)=      55.69        55.69        55.69
RUNOFF COEFFICIENT   =       0.98         0.52         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
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```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	1.162	2.73	54.66
OUTFLOW:ID= 1	8.21	0.085	4.30	42.98
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=       21.37
Time to reach Max storage              (Hr)=        4.30
Volume of water for drawdown in LID (cu.m.)=     3051.46
Volume of maximum water storage     (cu.m.)=     3593.81
Calculated Drawdown Time               (Hr)=       33.00

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| Junction Command(0056) |
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```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.08	4.30	42.98
OUTFLOW: ID= 2(0056)	8.21	0.08	4.30	42.98

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| Junction Command(0057) |
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```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

```
--------------------------------------------------------------------------------
************************************
** SIMULATION:Run 05 25yr 6hr AES **
************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

```
NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	7.87	3.167	17.06	4.73	2.62
0.067	0.00	1.633	7.87	3.200	17.06	4.77	1.97
0.100	0.00	1.667	7.87	3.233	17.06	4.80	1.31
0.133	0.00	1.700	7.87	3.267	13.12	4.83	1.31
0.167	0.00	1.733	7.87	3.300	9.18	4.87	1.31
0.200	0.00	1.767	15.08	3.333	9.18	4.90	1.31
0.233	0.00	1.800	22.30	3.367	9.18	4.93	1.31
0.267	0.66	1.833	22.30	3.400	9.18	4.97	1.31
0.300	1.31	1.867	22.30	3.433	9.18	5.00	1.31
0.333	1.31	1.900	22.30	3.467	9.18	5.03	1.31
0.367	1.31	1.933	22.30	3.500	9.18	5.07	1.31
0.400	1.31	1.967	22.30	3.533	9.18	5.10	1.31
0.433	1.31	2.000	22.30	3.567	9.18	5.13	1.31
0.467	1.31	2.033	22.30	3.600	9.18	5.17	1.31
0.500	1.31	2.067	22.30	3.633	9.18	5.20	1.31
0.533	1.31	2.100	22.30	3.667	9.18	5.23	1.31
0.567	1.31	2.133	22.30	3.700	9.18	5.27	1.31
0.600	1.31	2.167	22.30	3.733	9.18	5.30	1.31
0.633	1.31	2.200	22.30	3.767	7.22	5.33	1.31
0.667	1.31	2.233	22.30	3.800	5.25	5.37	1.31
0.700	1.31	2.267	41.32	3.833	5.25	5.40	1.31
0.733	1.31	2.300	60.35	3.867	5.25	5.43	1.31
0.767	1.31	2.333	60.35	3.900	5.25	5.47	1.31
0.800	1.31	2.367	60.35	3.933	5.25	5.50	1.31
0.833	1.31	2.400	60.35	3.967	5.25	5.53	1.31
0.867	1.31	2.433	60.35	4.000	5.25	5.57	1.31
0.900	1.31	2.467	60.35	4.033	5.25	5.60	1.31
0.933	1.31	2.500	60.35	4.067	5.25	5.63	1.31
0.967	1.31	2.533	60.35	4.100	5.25	5.67	1.31
1.000	1.31	2.567	60.35	4.133	5.25	5.70	1.31
1.033	1.31	2.600	60.35	4.167	5.25	5.73	1.31
1.067	1.31	2.633	60.35	4.200	5.25	5.77	1.31
1.100	1.31	2.667	60.35	4.233	5.25	5.80	1.31
1.133	1.31	2.700	60.35	4.267	3.94	5.83	1.31
1.167	1.31	2.733	60.35	4.300	2.62	5.87	1.31
1.200	1.31	2.767	38.71	4.333	2.62	5.90	1.31
1.233	1.31	2.800	17.06	4.367	2.62	5.93	1.31
1.267	4.59	2.833	17.06	4.400	2.62	5.97	1.31
1.300	7.87	2.867	17.06	4.433	2.62	6.00	1.31
1.333	7.87	2.900	17.06	4.467	2.62	6.03	1.31
1.367	7.87	2.933	17.06	4.500	2.62	6.07	1.31
1.400	7.87	2.967	17.06	4.533	2.62	6.10	1.31
1.433	7.87	3.000	17.06	4.567	2.62	6.13	1.31
1.467	7.87	3.033	17.06	4.600	2.62	6.17	1.31
1.500	7.87	3.067	17.06	4.633	2.62	6.20	1.31
1.533	7.87	3.100	17.06	4.667	2.62	6.23	1.31
1.567	7.87	3.133	17.06	4.700	2.62	6.27	0.66

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```
     Max.Eff.Inten.(mm/hr)=      60.35        31.31
                over (min)        6.00        10.00
     Storage Coeff.  (min)=       6.16 (ii)    8.12 (ii)
     Unit Hyd. Tpeak (min)=       6.00        10.00
     Unit Hyd. peak  (cms)=       0.18         0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.33         0.03          2.354 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.80           2.73
     RUNOFF VOLUME    (mm)=      64.59        26.07          63.67
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.98         0.40           0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.2654      0.8399
                           0.0111     0.0722   |   0.2796      0.9338
                           0.0509     0.1444   |   0.2932      1.0277
                           0.0712     0.2166   |   0.3061      1.1216
                           0.0868     0.2888   |   0.3185      1.2155
                           0.1000     0.3706   |   0.3304      1.3093
                           0.1117     0.4644   |   0.3420      1.4032
                           0.1222     0.5583   |   0.3531      1.4971
                           0.1319     0.6522   |   0.3639      1.5910
                           0.2504     0.7461   |   0.3745      1.6846

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360      2.354      2.73      63.67
   OUTFLOW: ID= 1 (  0004)     14.360      0.235      3.97      63.04
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.98
                   TIME SHIFT OF PEAK FLOW         (min)= 74.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.7338

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  --------------------------
  | Junction Command(0055) |
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                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)    0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76          0.33
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     283.90         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
                0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
                0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
                0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
                0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
                0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
                0.233    0.00 | 1.800   22.30 | 3.367    9.18 |  4.93    1.31
                0.267    0.66 | 1.833   22.30 | 3.400    9.18 |  4.97    1.31
                0.300    1.31 | 1.867   22.30 | 3.433    9.18 |  5.00    1.31
                0.333    1.31 | 1.900   22.30 | 3.467    9.18 |  5.03    1.31
                0.367    1.31 | 1.933   22.30 | 3.500    9.18 |  5.07    1.31
                0.400    1.31 | 1.967   22.30 | 3.533    9.18 |  5.10    1.31
                0.433    1.31 | 2.000   22.30 | 3.567    9.18 |  5.13    1.31
                0.467    1.31 | 2.033   22.30 | 3.600    9.18 |  5.17    1.31
                0.500    1.31 | 2.067   22.30 | 3.633    9.18 |  5.20    1.31
                0.533    1.31 | 2.100   22.30 | 3.667    9.18 |  5.23    1.31
                0.567    1.31 | 2.133   22.30 | 3.700    9.18 |  5.27    1.31
                0.600    1.31 | 2.167   22.30 | 3.733    9.18 |  5.30    1.31
                0.633    1.31 | 2.200   22.30 | 3.767    7.22 |  5.33    1.31
                0.667    1.31 | 2.233   22.30 | 3.800    5.25 |  5.37    1.31
                0.700    1.31 | 2.267   41.32 | 3.833    5.25 |  5.40    1.31
                0.733    1.31 | 2.300   60.35 | 3.867    5.25 |  5.43    1.31
                0.767    1.31 | 2.333   60.35 | 3.900    5.25 |  5.47    1.31
                0.800    1.31 | 2.367   60.35 | 3.933    5.25 |  5.50    1.31
                0.833    1.31 | 2.400   60.35 | 3.967    5.25 |  5.53    1.31
                0.867    1.31 | 2.433   60.35 | 4.000    5.25 |  5.57    1.31
                0.900    1.31 | 2.467   60.35 | 4.033    5.25 |  5.60    1.31
                0.933    1.31 | 2.500   60.35 | 4.067    5.25 |  5.63    1.31
                0.967    1.31 | 2.533   60.35 | 4.100    5.25 |  5.67    1.31
                1.000    1.31 | 2.567   60.35 | 4.133    5.25 |  5.70    1.31
                1.033    1.31 | 2.600   60.35 | 4.167    5.25 |  5.73    1.31
                1.067    1.31 | 2.633   60.35 | 4.200    5.25 |  5.77    1.31
                1.100    1.31 | 2.667   60.35 | 4.233    5.25 |  5.80    1.31
                1.133    1.31 | 2.700   60.35 | 4.267    3.94 |  5.83    1.31
                1.167    1.31 | 2.733   60.35 | 4.300    2.62 |  5.87    1.31
                1.200    1.31 | 2.767   38.71 | 4.333    2.62 |  5.90    1.31
                1.233    1.31 | 2.800   17.06 | 4.367    2.62 |  5.93    1.31
                1.267    4.59 | 2.833   17.06 | 4.400    2.62 |  5.97    1.31
                1.300    7.87 | 2.867   17.06 | 4.433    2.62 |  6.00    1.31
                1.333    7.87 | 2.900   17.06 | 4.467    2.62 |  6.03    1.31
                1.367    7.87 | 2.933   17.06 | 4.500    2.62 |  6.07    1.31
                1.400    7.87 | 2.967   17.06 | 4.533    2.62 |  6.10    1.31
                1.433    7.87 | 3.000   17.06 | 4.567    2.62 |  6.13    1.31
                1.467    7.87 | 3.033   17.06 | 4.600    2.62 |  6.17    1.31
                1.500    7.87 | 3.067   17.06 | 4.633    2.62 |  6.20    1.31
                1.533    7.87 | 3.100   17.06 | 4.667    2.62 |  6.23    1.31
                1.567    7.87 | 3.133   17.06 | 4.700    2.62 |  6.27    0.66
     Max.Eff.Inten.(mm/hr)=      60.35        31.31
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.85 (ii)    7.91 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.19         0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.96         0.03          1.983 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77           2.73
     RUNOFF VOLUME    (mm)=      64.59        26.07          63.55
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.98         0.40           0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.67         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
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0.067	0.00	1.633	7.87	3.200	17.06	4.77	1.97
0.100	0.00	1.667	7.87	3.233	17.06	4.80	1.31
0.133	0.00	1.700	7.87	3.267	13.12	4.83	1.31
0.167	0.00	1.733	7.87	3.300	9.18	4.87	1.31
0.200	0.00	1.767	15.08	3.333	9.18	4.90	1.31
0.233	0.00	1.800	22.30	3.367	9.18	4.93	1.31
0.267	0.66	1.833	22.30	3.400	9.18	4.97	1.31
0.300	1.31	1.867	22.30	3.433	9.18	5.00	1.31
0.333	1.31	1.900	22.30	3.467	9.18	5.03	1.31
0.367	1.31	1.933	22.30	3.500	9.18	5.07	1.31
0.400	1.31	1.967	22.30	3.533	9.18	5.10	1.31
0.433	1.31	2.000	22.30	3.567	9.18	5.13	1.31
0.467	1.31	2.033	22.30	3.600	9.18	5.17	1.31
0.500	1.31	2.067	22.30	3.633	9.18	5.20	1.31
0.533	1.31	2.100	22.30	3.667	9.18	5.23	1.31
0.567	1.31	2.133	22.30	3.700	9.18	5.27	1.31
0.600	1.31	2.167	22.30	3.733	9.18	5.30	1.31
0.633	1.31	2.200	22.30	3.767	7.22	5.33	1.31
0.667	1.31	2.233	22.30	3.800	5.25	5.37	1.31
0.700	1.31	2.267	41.32	3.833	5.25	5.40	1.31
0.733	1.31	2.300	60.35	3.867	5.25	5.43	1.31
0.767	1.31	2.333	60.35	3.900	5.25	5.47	1.31
0.800	1.31	2.367	60.35	3.933	5.25	5.50	1.31
0.833	1.31	2.400	60.35	3.967	5.25	5.53	1.31
0.867	1.31	2.433	60.35	4.000	5.25	5.57	1.31
0.900	1.31	2.467	60.35	4.033	5.25	5.60	1.31
0.933	1.31	2.500	60.35	4.067	5.25	5.63	1.31
0.967	1.31	2.533	60.35	4.100	5.25	5.67	1.31
1.000	1.31	2.567	60.35	4.133	5.25	5.70	1.31
1.033	1.31	2.600	60.35	4.167	5.25	5.73	1.31
1.067	1.31	2.633	60.35	4.200	5.25	5.77	1.31
1.100	1.31	2.667	60.35	4.233	5.25	5.80	1.31
1.133	1.31	2.700	60.35	4.267	3.94	5.83	1.31
1.167	1.31	2.733	60.35	4.300	2.62	5.87	1.31
1.200	1.31	2.767	38.71	4.333	2.62	5.90	1.31
1.233	1.31	2.800	17.06	4.367	2.62	5.93	1.31
1.267	4.59	2.833	17.06	4.400	2.62	5.97	1.31
1.300	7.87	2.867	17.06	4.433	2.62	6.00	1.31
1.333	7.87	2.900	17.06	4.467	2.62	6.03	1.31
1.367	7.87	2.933	17.06	4.500	2.62	6.07	1.31
1.400	7.87	2.967	17.06	4.533	2.62	6.10	1.31
1.433	7.87	3.000	17.06	4.567	2.62	6.13	1.31
1.467	7.87	3.033	17.06	4.600	2.62	6.17	1.31
1.500	7.87	3.067	17.06	4.633	2.62	6.20	1.31
1.533	7.87	3.100	17.06	4.667	2.62	6.23	1.31
1.567	7.87	3.133	17.06	4.700	2.62	6.27	0.66

```
Max.Eff.Inten.(mm/hr)=      60.35        31.31
           over (min)        6.00         6.00
Storage Coeff.  (min)=       5.20 (ii)    5.75 (ii)
Unit Hyd. Tpeak (min)=       6.00         6.00
Unit Hyd. peak  (cms)=       0.21         0.19
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.37         0.00        1.367 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      64.59        26.07        64.55
TOTAL RAINFALL   (mm)=      65.59        65.59        65.59
RUNOFF COEFFICIENT   =       0.98         0.40         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190     1.367      2.73      64.55
   OUTFLOW: ID= 1 (  0001)      8.190     0.053      4.80      59.84
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00
```

```
                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.91
                    TIME SHIFT OF PEAK FLOW         (min)=124.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.4691

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.053     4.80    59.84
      + ID2= 2 (  0100):    12.09    1.983     2.73    63.55
        ==================================================
        ID = 3 (  0051):    20.28    2.017     2.73    62.05

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00      0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00    0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28    2.017     2.73    62.05
        ==================================================
        ID = 3 (  0052):    20.28    2.017     2.73    62.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780     0.4721
                          0.0000     0.0444   |   0.1888     0.5284
                          0.0000     0.0887   |   0.1991     0.5880
                          0.0622     0.1331   |   0.2088     0.6499
                          0.0885     0.1775   |   0.2181     0.7118
                          0.1087     0.2218   |   0.2271     0.7737
                          0.1256     0.2662   |   0.6000     0.8403
                          0.1406     0.3105   |   0.6881     0.9081
                          0.1541     0.3596   |   0.7636     0.9760
                          0.1665     0.4159   |   0.8309     1.0439

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280     2.017      2.73      62.05
   OUTFLOW: ID= 1 (  0002)     20.280     0.204      4.33      57.51
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.13
                    TIME SHIFT OF PEAK FLOW         (min)= 96.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.6211

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  | Junction Command(0053) |
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                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)     0.00      0.00    0.00     0.00

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| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.30         0.40
     Dep. Storage     (mm)=        1.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      333.67        40.00
     Mannings n           =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
               0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
               0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
               0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
               0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
               0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
               0.233    0.00 | 1.800   22.30 | 3.367    9.18 |  4.93    1.31
               0.267    0.66 | 1.833   22.30 | 3.400    9.18 |  4.97    1.31
               0.300    1.31 | 1.867   22.30 | 3.433    9.18 |  5.00    1.31
               0.333    1.31 | 1.900   22.30 | 3.467    9.18 |  5.03    1.31
               0.367    1.31 | 1.933   22.30 | 3.500    9.18 |  5.07    1.31
               0.400    1.31 | 1.967   22.30 | 3.533    9.18 |  5.10    1.31
               0.433    1.31 | 2.000   22.30 | 3.567    9.18 |  5.13    1.31
               0.467    1.31 | 2.033   22.30 | 3.600    9.18 |  5.17    1.31
               0.500    1.31 | 2.067   22.30 | 3.633    9.18 |  5.20    1.31
               0.533    1.31 | 2.100   22.30 | 3.667    9.18 |  5.23    1.31
               0.567    1.31 | 2.133   22.30 | 3.700    9.18 |  5.27    1.31
               0.600    1.31 | 2.167   22.30 | 3.733    9.18 |  5.30    1.31
               0.633    1.31 | 2.200   22.30 | 3.767    7.22 |  5.33    1.31
               0.667    1.31 | 2.233   22.30 | 3.800    5.25 |  5.37    1.31
               0.700    1.31 | 2.267   41.32 | 3.833    5.25 |  5.40    1.31
               0.733    1.31 | 2.300   60.35 | 3.867    5.25 |  5.43    1.31
               0.767    1.31 | 2.333   60.35 | 3.900    5.25 |  5.47    1.31
               0.800    1.31 | 2.367   60.35 | 3.933    5.25 |  5.50    1.31
               0.833    1.31 | 2.400   60.35 | 3.967    5.25 |  5.53    1.31
               0.867    1.31 | 2.433   60.35 | 4.000    5.25 |  5.57    1.31
               0.900    1.31 | 2.467   60.35 | 4.033    5.25 |  5.60    1.31
               0.933    1.31 | 2.500   60.35 | 4.067    5.25 |  5.63    1.31
               0.967    1.31 | 2.533   60.35 | 4.100    5.25 |  5.67    1.31
               1.000    1.31 | 2.567   60.35 | 4.133    5.25 |  5.70    1.31
               1.033    1.31 | 2.600   60.35 | 4.167    5.25 |  5.73    1.31
               1.067    1.31 | 2.633   60.35 | 4.200    5.25 |  5.77    1.31
               1.100    1.31 | 2.667   60.35 | 4.233    5.25 |  5.80    1.31
               1.133    1.31 | 2.700   60.35 | 4.267    3.94 |  5.83    1.31
               1.167    1.31 | 2.733   60.35 | 4.300    2.62 |  5.87    1.31
               1.200    1.31 | 2.767   38.71 | 4.333    2.62 |  5.90    1.31
               1.233    1.31 | 2.800   17.06 | 4.367    2.62 |  5.93    1.31
               1.267    4.59 | 2.833   17.06 | 4.400    2.62 |  5.97    1.31
               1.300    7.87 | 2.867   17.06 | 4.433    2.62 |  6.00    1.31
               1.333    7.87 | 2.900   17.06 | 4.467    2.62 |  6.03    1.31
               1.367    7.87 | 2.933   17.06 | 4.500    2.62 |  6.07    1.31
               1.400    7.87 | 2.967   17.06 | 4.533    2.62 |  6.10    1.31
               1.433    7.87 | 3.000   17.06 | 4.567    2.62 |  6.13    1.31
               1.467    7.87 | 3.033   17.06 | 4.600    2.62 |  6.17    1.31
               1.500    7.87 | 3.067   17.06 | 4.633    2.62 |  6.20    1.31
               1.533    7.87 | 3.100   17.06 | 4.667    2.62 |  6.23    1.31
               1.567    7.87 | 3.133   17.06 | 4.700    2.62 |  6.27    0.66

     Max.Eff.Inten.(mm/hr)=      60.35        31.31
                over (min)        6.00        10.00
     Storage Coeff.  (min)=       6.44 (ii)    8.40 (ii)
     Unit Hyd. Tpeak (min)=       6.00        10.00
     Unit Hyd. peak  (cms)=       0.18         0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.70         0.03        2.733 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.80         2.73
     RUNOFF VOLUME    (mm)=      64.59        26.07        63.67
     TOTAL RAINFALL   (mm)=      65.59        65.59        65.59
     RUNOFF COEFFICIENT   =       0.98         0.40         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     16.700     2.733      2.73      63.67
   OUTFLOW: ID= 1 (  0003)     16.700     0.171      4.40      56.20
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.26
                    TIME SHIFT OF PEAK FLOW         (min)=100.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.8929

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  -------------------------
  | Junction Command(0054) |
  -------------------------

                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0003)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)    0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        8.20         0.01
     Dep. Storage     (mm)=        1.00         5.00
     Average Slope     (%)=        1.00         2.00
     Length            (m)=      233.95        40.00
     Mannings n           =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    7.87 | 3.167   17.06 |  4.73    2.62
               0.067    0.00 | 1.633    7.87 | 3.200   17.06 |  4.77    1.97
               0.100    0.00 | 1.667    7.87 | 3.233   17.06 |  4.80    1.31
               0.133    0.00 | 1.700    7.87 | 3.267   13.12 |  4.83    1.31
               0.167    0.00 | 1.733    7.87 | 3.300    9.18 |  4.87    1.31
               0.200    0.00 | 1.767   15.08 | 3.333    9.18 |  4.90    1.31
               0.233    0.00 | 1.800   22.30 | 3.367    9.18 |  4.93    1.31
               0.267    0.66 | 1.833   22.30 | 3.400    9.18 |  4.97    1.31
               0.300    1.31 | 1.867   22.30 | 3.433    9.18 |  5.00    1.31
               0.333    1.31 | 1.900   22.30 | 3.467    9.18 |  5.03    1.31
               0.367    1.31 | 1.933   22.30 | 3.500    9.18 |  5.07    1.31
               0.400    1.31 | 1.967   22.30 | 3.533    9.18 |  5.10    1.31
               0.433    1.31 | 2.000   22.30 | 3.567    9.18 |  5.13    1.31
               0.467    1.31 | 2.033   22.30 | 3.600    9.18 |  5.17    1.31
               0.500    1.31 | 2.067   22.30 | 3.633    9.18 |  5.20    1.31
               0.533    1.31 | 2.100   22.30 | 3.667    9.18 |  5.23    1.31
               0.567    1.31 | 2.133   22.30 | 3.700    9.18 |  5.27    1.31
               0.600    1.31 | 2.167   22.30 | 3.733    9.18 |  5.30    1.31
               0.633    1.31 | 2.200   22.30 | 3.767    7.22 |  5.33    1.31
               0.667    1.31 | 2.233   22.30 | 3.800    5.25 |  5.37    1.31
               0.700    1.31 | 2.267   41.32 | 3.833    5.25 |  5.40    1.31
               0.733    1.31 | 2.300   60.35 | 3.867    5.25 |  5.43    1.31
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0.767	1.31	2.333	60.35	3.900	5.25	5.47	1.31
0.800	1.31	2.367	60.35	3.933	5.25	5.50	1.31
0.833	1.31	2.400	60.35	3.967	5.25	5.53	1.31
0.867	1.31	2.433	60.35	4.000	5.25	5.57	1.31
0.900	1.31	2.467	60.35	4.033	5.25	5.60	1.31
0.933	1.31	2.500	60.35	4.067	5.25	5.63	1.31
0.967	1.31	2.533	60.35	4.100	5.25	5.67	1.31
1.000	1.31	2.567	60.35	4.133	5.25	5.70	1.31
1.033	1.31	2.600	60.35	4.167	5.25	5.73	1.31
1.067	1.31	2.633	60.35	4.200	5.25	5.77	1.31
1.100	1.31	2.667	60.35	4.233	5.25	5.80	1.31
1.133	1.31	2.700	60.35	4.267	3.94	5.83	1.31
1.167	1.31	2.733	60.35	4.300	2.62	5.87	1.31
1.200	1.31	2.767	38.71	4.333	2.62	5.90	1.31
1.233	1.31	2.800	17.06	4.367	2.62	5.93	1.31
1.267	4.59	2.833	17.06	4.400	2.62	5.97	1.31
1.300	7.87	2.867	17.06	4.433	2.62	6.00	1.31
1.333	7.87	2.900	17.06	4.467	2.62	6.03	1.31
1.367	7.87	2.933	17.06	4.500	2.62	6.07	1.31
1.400	7.87	2.967	17.06	4.533	2.62	6.10	1.31
1.433	7.87	3.000	17.06	4.567	2.62	6.13	1.31
1.467	7.87	3.033	17.06	4.600	2.62	6.17	1.31
1.500	7.87	3.067	17.06	4.633	2.62	6.20	1.31
1.533	7.87	3.100	17.06	4.667	2.62	6.23	1.31
1.567	7.87	3.133	17.06	4.700	2.62	6.27	0.66

```
Max.Eff.Inten.(mm/hr)=      60.35        44.18
            over (min)       6.00         6.00
Storage Coeff.  (min)=       5.21 (ii)    5.75 (ii)
Unit Hyd. Tpeak (min)=       6.00         6.00
Unit Hyd. peak  (cms)=       0.21         0.19
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.37         0.00        1.370 (iii)
TIME TO PEAK    (hrs)=       2.73         2.73         2.73
RUNOFF VOLUME    (mm)=      64.59        37.25        64.56
TOTAL RAINFALL   (mm)=      65.59        65.59        65.59
RUNOFF COEFFICIENT   =       0.98         0.57         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	1.370	2.73	64.56
OUTFLOW:ID= 1	8.21	0.095	4.32	52.22
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=      19.12
Time to reach Max storage              (Hr)=       4.32
Volume of water for drawdown in LID (cu.m.)=    3710.27
Volume of maximum water storage     (cu.m.)=    4287.17
Calculated Drawdown Time               (Hr)=      35.07

--------------------------
| Junction Command(0056) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.09	4.32	52.22
OUTFLOW: ID= 2(0056)	8.21	0.09	4.32	52.22

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| Junction Command(0057) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

```
--------------------------------------------------------------------------------
************************************
** SIMULATION:Run 06 50yr 6hr AES **
************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

```
     NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	8.76	3.167	18.98	4.73	2.92
0.067	0.00	1.633	8.76	3.200	18.98	4.77	2.19
0.100	0.00	1.667	8.76	3.233	18.98	4.80	1.46

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0.133	0.00	1.700	8.76	3.267	14.60	4.83	1.46
0.167	0.00	1.733	8.76	3.300	10.22	4.87	1.46
0.200	0.00	1.767	16.79	3.333	10.22	4.90	1.46
0.233	0.00	1.800	24.82	3.367	10.22	4.93	1.46
0.267	0.73	1.833	24.82	3.400	10.22	4.97	1.46
0.300	1.46	1.867	24.82	3.433	10.22	5.00	1.46
0.333	1.46	1.900	24.82	3.467	10.22	5.03	1.46
0.367	1.46	1.933	24.82	3.500	10.22	5.07	1.46
0.400	1.46	1.967	24.82	3.533	10.22	5.10	1.46
0.433	1.46	2.000	24.82	3.567	10.22	5.13	1.46
0.467	1.46	2.033	24.82	3.600	10.22	5.17	1.46
0.500	1.46	2.067	24.82	3.633	10.22	5.20	1.46
0.533	1.46	2.100	24.82	3.667	10.22	5.23	1.46
0.567	1.46	2.133	24.82	3.700	10.22	5.27	1.46
0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

Max.Eff.Inten.(mm/hr)=		67.16	37.25
over (min)		6.00	8.00
Storage Coeff.	(min)=	5.90 (ii)	7.78 (ii)
Unit Hyd. Tpeak	(min)=	6.00	8.00
Unit Hyd. peak	(cms)=	0.19	0.14
			TOTALS
PEAK FLOW	(cms)=	2.60	0.03	2.627 (iii)
TIME TO PEAK	(hrs)=	2.73	2.77	2.73
RUNOFF VOLUME	(mm)=	72.00	31.20	71.02
TOTAL RAINFALL	(mm)=	73.00	73.00	73.00
RUNOFF COEFFICIENT	=	0.99	0.43	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0004) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS ON			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2654	0.8399
	0.0111	0.0722	0.2796	0.9338
	0.0509	0.1444	0.2932	1.0277
	0.0712	0.2166	0.3061	1.1216
	0.0868	0.2888	0.3185	1.2155
	0.1000	0.3706	0.3304	1.3093
	0.1117	0.4644	0.3420	1.4032
	0.1222	0.5583	0.3531	1.4971
	0.1319	0.6522	0.3639	1.5910
	0.2504	0.7461	0.3745	1.6846

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0120)	14.360	2.627	2.73	71.02
OUTFLOW: ID= 1 (0004)	14.360	0.260	3.97	70.37
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.91
TIME SHIFT OF PEAK FLOW (min)= 74.00
MAXIMUM STORAGE USED (ha.m.)= 0.8076

Junction Command(0055)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0004)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0055)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0100) ID= 1 DT= 2.0 min	Area (ha)= 12.09 Total Imp(%)= 97.30 Dir. Conn.(%)= 97.30		
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	8.76	3.167	18.98	4.73	2.92
0.067	0.00	1.633	8.76	3.200	18.98	4.77	2.19
0.100	0.00	1.667	8.76	3.233	18.98	4.80	1.46
0.133	0.00	1.700	8.76	3.267	14.60	4.83	1.46
0.167	0.00	1.733	8.76	3.300	10.22	4.87	1.46
0.200	0.00	1.767	16.79	3.333	10.22	4.90	1.46
0.233	0.00	1.800	24.82	3.367	10.22	4.93	1.46
0.267	0.73	1.833	24.82	3.400	10.22	4.97	1.46
0.300	1.46	1.867	24.82	3.433	10.22	5.00	1.46
0.333	1.46	1.900	24.82	3.467	10.22	5.03	1.46
0.367	1.46	1.933	24.82	3.500	10.22	5.07	1.46
0.400	1.46	1.967	24.82	3.533	10.22	5.10	1.46
0.433	1.46	2.000	24.82	3.567	10.22	5.13	1.46
0.467	1.46	2.033	24.82	3.600	10.22	5.17	1.46
0.500	1.46	2.067	24.82	3.633	10.22	5.20	1.46
0.533	1.46	2.100	24.82	3.667	10.22	5.23	1.46
0.567	1.46	2.133	24.82	3.700	10.22	5.27	1.46
0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46

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1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

```
Max.Eff.Inten.(mm/hr)=      67.16        37.25
           over (min)        5.00         8.00
Storage Coeff.  (min)=       5.60 (ii)    7.58 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.20         0.15
                                                    *TOTALS*
PEAK FLOW       (cms)=       2.18         0.03        2.212 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      72.00        31.20        70.90
TOTAL RAINFALL   (mm)=      73.00        73.00        73.00
RUNOFF COEFFICIENT   =       0.99         0.43         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=        8.18          0.01
Dep. Storage     (mm)=        1.00          5.00
Average Slope     (%)=        1.00          2.00
Length            (m)=      233.67         40.00
Mannings n           =       0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	8.76	3.167	18.98	4.73	2.92
0.067	0.00	1.633	8.76	3.200	18.98	4.77	2.19
0.100	0.00	1.667	8.76	3.233	18.98	4.80	1.46
0.133	0.00	1.700	8.76	3.267	14.60	4.83	1.46
0.167	0.00	1.733	8.76	3.300	10.22	4.87	1.46
0.200	0.00	1.767	16.79	3.333	10.22	4.90	1.46
0.233	0.00	1.800	24.82	3.367	10.22	4.93	1.46
0.267	0.73	1.833	24.82	3.400	10.22	4.97	1.46
0.300	1.46	1.867	24.82	3.433	10.22	5.00	1.46
0.333	1.46	1.900	24.82	3.467	10.22	5.03	1.46
0.367	1.46	1.933	24.82	3.500	10.22	5.07	1.46
0.400	1.46	1.967	24.82	3.533	10.22	5.10	1.46
0.433	1.46	2.000	24.82	3.567	10.22	5.13	1.46
0.467	1.46	2.033	24.82	3.600	10.22	5.17	1.46
0.500	1.46	2.067	24.82	3.633	10.22	5.20	1.46
0.533	1.46	2.100	24.82	3.667	10.22	5.23	1.46
0.567	1.46	2.133	24.82	3.700	10.22	5.27	1.46
0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

```
Max.Eff.Inten.(mm/hr)=      67.16        37.25
           over (min)        5.00         6.00
Storage Coeff.  (min)=       4.98 (ii)    5.51 (ii)
Unit Hyd. Tpeak (min)=       4.00         6.00
Unit Hyd. peak  (cms)=       0.24         0.20
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.52         0.00        1.523 (iii)
TIME TO PEAK    (hrs)=       2.73         2.77         2.73
RUNOFF VOLUME    (mm)=      72.00        31.20        71.96
TOTAL RAINFALL   (mm)=      73.00        73.00        73.00
RUNOFF COEFFICIENT   =       0.99         0.43         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
  INFLOW : ID= 2 (  0099)      8.190     1.523      2.73      71.96
  OUTFLOW: ID= 1 (  0001)      8.190     0.060      4.80      66.71
  OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                  TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                  CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                  PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.91
                  TIME SHIFT OF PEAK FLOW         (min)=124.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5229

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

--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.060     4.80    66.71
      + ID2= 2 (  0100):    12.09   2.212     2.73    70.90
        ==================================================
        ID = 3 (  0051):    20.28   2.251     2.73    69.21

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                              AREA     QPEAK   TPEAK     R.V.
                              (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)      0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)      0.00      0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28   2.251     2.73    69.21
        ==================================================
        ID = 3 (  0052):    20.28   2.251     2.73    69.21
```

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |
--------------------
```

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1780	0.4721
0.0000	0.0444	0.1888	0.5284
0.0000	0.0887	0.1991	0.5880
0.0622	0.1331	0.2088	0.6499
0.0885	0.1775	0.2181	0.7118
0.1087	0.2218	0.2271	0.7737
0.1256	0.2662	0.6000	0.8403
0.1406	0.3105	0.6881	0.9081
0.1541	0.3596	0.7636	0.9760
0.1665	0.4159	0.8309	1.0439

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0052)	20.280	2.251	2.73	69.21
OUTFLOW: ID= 1 (0002)	20.280	0.216	4.33	64.65
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

```
TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.61
TIME SHIFT OF PEAK FLOW         (min)= 96.00
MAXIMUM  STORAGE   USED       (ha.m.)=  0.6997
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| Junction Command(0053) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0002)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0053)	0.00	0.00	0.00	0.00

```
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	16.30	0.40
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	333.67	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	8.76	3.167	18.98	4.73	2.92
0.067	0.00	1.633	8.76	3.200	18.98	4.77	2.19
0.100	0.00	1.667	8.76	3.233	18.98	4.80	1.46
0.133	0.00	1.700	8.76	3.267	14.60	4.83	1.46
0.167	0.00	1.733	8.76	3.300	10.22	4.87	1.46
0.200	0.00	1.767	16.79	3.333	10.22	4.90	1.46
0.233	0.00	1.800	24.82	3.367	10.22	4.93	1.46
0.267	0.73	1.833	24.82	3.400	10.22	4.97	1.46
0.300	1.46	1.867	24.82	3.433	10.22	5.00	1.46
0.333	1.46	1.900	24.82	3.467	10.22	5.03	1.46
0.367	1.46	1.933	24.82	3.500	10.22	5.07	1.46
0.400	1.46	1.967	24.82	3.533	10.22	5.10	1.46
0.433	1.46	2.000	24.82	3.567	10.22	5.13	1.46
0.467	1.46	2.033	24.82	3.600	10.22	5.17	1.46
0.500	1.46	2.067	24.82	3.633	10.22	5.20	1.46
0.533	1.46	2.100	24.82	3.667	10.22	5.23	1.46
0.567	1.46	2.133	24.82	3.700	10.22	5.27	1.46
0.600	1.46	2.167	24.82	3.733	10.22	5.30	1.46
0.633	1.46	2.200	24.82	3.767	8.03	5.33	1.46
0.667	1.46	2.233	24.82	3.800	5.84	5.37	1.46
0.700	1.46	2.267	45.99	3.833	5.84	5.40	1.46
0.733	1.46	2.300	67.16	3.867	5.84	5.43	1.46
0.767	1.46	2.333	67.16	3.900	5.84	5.47	1.46
0.800	1.46	2.367	67.16	3.933	5.84	5.50	1.46
0.833	1.46	2.400	67.16	3.967	5.84	5.53	1.46
0.867	1.46	2.433	67.16	4.000	5.84	5.57	1.46
0.900	1.46	2.467	67.16	4.033	5.84	5.60	1.46
0.933	1.46	2.500	67.16	4.067	5.84	5.63	1.46
0.967	1.46	2.533	67.16	4.100	5.84	5.67	1.46
1.000	1.46	2.567	67.16	4.133	5.84	5.70	1.46
1.033	1.46	2.600	67.16	4.167	5.84	5.73	1.46
1.067	1.46	2.633	67.16	4.200	5.84	5.77	1.46
1.100	1.46	2.667	67.16	4.233	5.84	5.80	1.46
1.133	1.46	2.700	67.16	4.267	4.38	5.83	1.46
1.167	1.46	2.733	67.16	4.300	2.92	5.87	1.46
1.200	1.46	2.767	43.07	4.333	2.92	5.90	1.46
1.233	1.46	2.800	18.98	4.367	2.92	5.93	1.46
1.267	5.11	2.833	18.98	4.400	2.92	5.97	1.46
1.300	8.76	2.867	18.98	4.433	2.92	6.00	1.46
1.333	8.76	2.900	18.98	4.467	2.92	6.03	1.46
1.367	8.76	2.933	18.98	4.500	2.92	6.07	1.46
1.400	8.76	2.967	18.98	4.533	2.92	6.10	1.46
1.433	8.76	3.000	18.98	4.567	2.92	6.13	1.46
1.467	8.76	3.033	18.98	4.600	2.92	6.17	1.46
1.500	8.76	3.067	18.98	4.633	2.92	6.20	1.46
1.533	8.76	3.100	18.98	4.667	2.92	6.23	1.46
1.567	8.76	3.133	18.98	4.700	2.92	6.27	0.73

Max.Eff.Inten.(mm/hr)=	67.16	37.25	
over (min)	6.00	10.00	
Storage Coeff. (min)=	6.17 (ii)	8.05 (ii)	
Unit Hyd. Tpeak (min)=	6.00	10.00	
Unit Hyd. peak (cms)=	0.18	0.13	
			TOTALS
PEAK FLOW (cms)=	3.01	0.04	3.049 (iii)
TIME TO PEAK (hrs)=	2.73	2.77	2.73
RUNOFF VOLUME (mm)=	72.00	31.20	71.02
TOTAL RAINFALL (mm)=	73.00	73.00	73.00
RUNOFF COEFFICIENT =	0.99	0.43	0.97

```
(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
     CN*  =  76.0    Ia = Dep. Storage  (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
     THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
```

```
--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |
--------------------
```

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4765	1.3727
0.0000	0.1242	0.5033	1.5204
0.0621	0.2484	0.5288	1.6681
0.0961	0.3725	0.5531	1.8158
0.1208	0.5019	0.5764	1.9635
0.1413	0.6343	0.5988	2.1112
0.1592	0.7820	0.6204	2.2589
0.1752	0.9297	0.6413	2.4066
0.4176	1.0774	0.6615	2.5543
0.4480	1.2251	0.6811	2.7020

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	16.700	3.049	2.73	71.02
OUTFLOW: ID= 1 (0003)	16.700	0.259	4.27	63.55
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

```
TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.50
TIME SHIFT OF PEAK FLOW         (min)= 92.00
MAXIMUM  STORAGE   USED       (ha.m.)=  0.9810
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| Junction Command(0054) |
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AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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  INFLOW : ID= 3(  0003)    0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)    0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    8.76 | 3.167   18.98 |  4.73    2.92
                0.067    0.00 | 1.633    8.76 | 3.200   18.98 |  4.77    2.19
                0.100    0.00 | 1.667    8.76 | 3.233   18.98 |  4.80    1.46
                0.133    0.00 | 1.700    8.76 | 3.267   14.60 |  4.83    1.46
                0.167    0.00 | 1.733    8.76 | 3.300   10.22 |  4.87    1.46
                0.200    0.00 | 1.767   16.79 | 3.333   10.22 |  4.90    1.46
                0.233    0.00 | 1.800   24.82 | 3.367   10.22 |  4.93    1.46
                0.267    0.73 | 1.833   24.82 | 3.400   10.22 |  4.97    1.46
                0.300    1.46 | 1.867   24.82 | 3.433   10.22 |  5.00    1.46
                0.333    1.46 | 1.900   24.82 | 3.467   10.22 |  5.03    1.46
                0.367    1.46 | 1.933   24.82 | 3.500   10.22 |  5.07    1.46
                0.400    1.46 | 1.967   24.82 | 3.533   10.22 |  5.10    1.46
                0.433    1.46 | 2.000   24.82 | 3.567   10.22 |  5.13    1.46
                0.467    1.46 | 2.033   24.82 | 3.600   10.22 |  5.17    1.46
                0.500    1.46 | 2.067   24.82 | 3.633   10.22 |  5.20    1.46
                0.533    1.46 | 2.100   24.82 | 3.667   10.22 |  5.23    1.46
                0.567    1.46 | 2.133   24.82 | 3.700   10.22 |  5.27    1.46
                0.600    1.46 | 2.167   24.82 | 3.733   10.22 |  5.30    1.46
                0.633    1.46 | 2.200   24.82 | 3.767    8.03 |  5.33    1.46
                0.667    1.46 | 2.233   24.82 | 3.800    5.84 |  5.37    1.46
                0.700    1.46 | 2.267   45.99 | 3.833    5.84 |  5.40    1.46
                0.733    1.46 | 2.300   67.16 | 3.867    5.84 |  5.43    1.46
                0.767    1.46 | 2.333   67.16 | 3.900    5.84 |  5.47    1.46
                0.800    1.46 | 2.367   67.16 | 3.933    5.84 |  5.50    1.46
                0.833    1.46 | 2.400   67.16 | 3.967    5.84 |  5.53    1.46
                0.867    1.46 | 2.433   67.16 | 4.000    5.84 |  5.57    1.46
                0.900    1.46 | 2.467   67.16 | 4.033    5.84 |  5.60    1.46
                0.933    1.46 | 2.500   67.16 | 4.067    5.84 |  5.63    1.46
                0.967    1.46 | 2.533   67.16 | 4.100    5.84 |  5.67    1.46
                1.000    1.46 | 2.567   67.16 | 4.133    5.84 |  5.70    1.46
                1.033    1.46 | 2.600   67.16 | 4.167    5.84 |  5.73    1.46
                1.067    1.46 | 2.633   67.16 | 4.200    5.84 |  5.77    1.46
                1.100    1.46 | 2.667   67.16 | 4.233    5.84 |  5.80    1.46
                1.133    1.46 | 2.700   67.16 | 4.267    4.38 |  5.83    1.46
                1.167    1.46 | 2.733   67.16 | 4.300    2.92 |  5.87    1.46
                1.200    1.46 | 2.767   43.07 | 4.333    2.92 |  5.90    1.46
                1.233    1.46 | 2.800   18.98 | 4.367    2.92 |  5.93    1.46
                1.267    5.11 | 2.833   18.98 | 4.400    2.92 |  5.97    1.46
                1.300    8.76 | 2.867   18.98 | 4.433    2.92 |  6.00    1.46
                1.333    8.76 | 2.900   18.98 | 4.467    2.92 |  6.03    1.46
                1.367    8.76 | 2.933   18.98 | 4.500    2.92 |  6.07    1.46
                1.400    8.76 | 2.967   18.98 | 4.533    2.92 |  6.10    1.46
                1.433    8.76 | 3.000   18.98 | 4.567    2.92 |  6.13    1.46
                1.467    8.76 | 3.033   18.98 | 4.600    2.92 |  6.17    1.46
                1.500    8.76 | 3.067   18.98 | 4.633    2.92 |  6.20    1.46
                1.533    8.76 | 3.100   18.98 | 4.667    2.92 |  6.23    1.46
                1.567    8.76 | 3.133   18.98 | 4.700    2.92 |  6.27    0.73

     Max.Eff.Inten.(mm/hr)=      67.16        51.20
                over (min)        5.00         6.00
     Storage Coeff.  (min)=       4.99 (ii)    5.51 (ii)
     Unit Hyd. Tpeak (min)=       4.00         6.00
     Unit Hyd. peak  (cms)=       0.24         0.20
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.53         0.00         1.527 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.73          2.73
     RUNOFF VOLUME    (mm)=      72.00        43.64         71.97
     TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
     RUNOFF COEFFICIENT   =       0.99         0.60          0.99

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
                       DEPTH       STORAGE          |   DEPTH      STORAGE
                       (mm)        (cu.m.)          |   (mm)       (cu.m.)
                        0.00           0.00          |  1041.00      3759.30
                       25.00          49.47          |  1067.00      3854.08
                       51.00          98.94          |  1092.00      3948.08
                       76.00         148.40          |  1118.00      4041.25
                      102.00         197.87          |  1143.00      4133.57
                      127.00         247.34          |  1168.00      4225.00
                      152.00         296.81          |  1194.00      4315.50
                      178.00         346.27          |  1219.00      4405.03
                      203.00         395.74          |  1245.00      4493.56
                      229.00         445.21          |  1270.00      4581.02
                      254.00         554.10          |  1295.00      4667.39
                      279.00         662.70          |  1321.00      4752.59
                      305.00         771.11          |  1346.00      4836.57
                      330.00         879.30          |  1372.00      4919.26
                      356.00         987.27          |  1397.00      5000.60
                      381.00        1095.00          |  1422.00      5080.50
                      406.00        1202.48          |  1448.00      5158.85
                      432.00        1309.70          |  1473.00      5235.54
                      457.00        1416.63          |  1499.00      5310.45
                      483.00        1523.27          |  1524.00      5383.37
                      508.00        1629.60          |  1549.00      5454.08
                      533.00        1735.60          |  1575.00      5522.23
                      559.00        1841.25          |  1600.00      5587.25
                      584.00        1946.55          |  1626.00      5647.31
                      610.00        2051.46          |  1651.00      5703.06
                      635.00        2155.99          |  1676.00      5757.41
                      660.00        2260.10          |  1702.00      5810.73
                      686.00        2363.78          |  1727.00      5862.91
                      711.00        2467.02          |  1753.00      5913.33
                      737.00        2569.79          |  1778.00      5962.80
                      762.00        2672.07          |  1803.00      6012.26
                      787.00        2773.85          |  1829.00      6061.73
                      813.00        2875.11          |  1854.00      6111.20
                      838.00        2975.83          |  1880.00      6160.67
                      864.00        3075.97          |  1905.00      6210.14
                      889.00        3175.53          |  1930.00      6259.60
                      914.00        3274.49          |  1956.00      6309.07
                      940.00        3372.81          |  1981.00      6358.54
                      965.00        3470.48          |  2007.00      6408.01
                      991.00        3567.46          |  2032.00      6457.47
                     1016.00        3663.75          |  2057.00      6506.94

                      DEPTH       DISCHARGE        |   DEPTH      DISCHARGE
                       (m)          (cms)          |    (m)         (cms)
                     0.000         0.000           |  0.460         0.066
                     0.010         0.011           |  0.510         0.069
                     0.060         0.024           |  0.560         0.072
                     0.110         0.032           |  0.610         0.075
                     0.160         0.039           |  0.660         0.079
                     0.210         0.045           |  0.710         0.081
                     0.260         0.049           |  0.760         0.084
                     0.310         0.054           |  0.810         0.087
                     0.360         0.058           |  0.860         0.090
                     0.410         0.062           |  0.910         0.092

                    NATIVE SOIL LAYER:
                    Infiltration (m/hr) = 0.0051

                       AREA         QPEAK            TPEAK         R.V.
                       (ha)         (cms)            (hrs)         (mm)
      INFLOW:ID= 2     8.21         1.527             2.73        71.97
     OUTFLOW:ID= 1     8.21         0.103             4.30        59.18
    OVERFLOW:ID= 3     0.00         0.000             0.00         0.00

              Volume Reduction Rate[(RVin-RVout)/RVin](%)=       17.77
              Time to reach Max storage              (Hr)=        4.30
              Volume of water for drawdown in LID (cu.m.)=     4200.69
              Volume of maximum water storage     (cu.m.)=     4807.36
              Calculated Drawdown Time               (Hr)=       36.48

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| Junction Command(0056) |
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                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
INFLOW : ID= 1(  0060)    8.21      0.10    4.30    59.18
OUTFLOW: ID= 2(  0056)    8.21      0.10    4.30    59.18

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| Junction Command(0057) |
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                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
INFLOW : ID= 3(  0060)    0.00      0.00    0.00     0.00
OUTFLOW: ID= 2(  0057)    0.00      0.00    0.00     0.00

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*************************************
** SIMULATION:Run 07 100yr 6hr AES **
*************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     309.41        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 1.600    9.64 | 3.167   20.88 |  4.73    3.21
               0.067    0.00 | 1.633    9.64 | 3.200   20.88 |  4.77    2.41
               0.100    0.00 | 1.667    9.64 | 3.233   20.88 |  4.80    1.61
               0.133    0.00 | 1.700    9.64 | 3.267   16.06 |  4.83    1.61
               0.167    0.00 | 1.733    9.64 | 3.300   11.24 |  4.87    1.61
               0.200    0.00 | 1.767   18.47 | 3.333   11.24 |  4.90    1.61
               0.233    0.00 | 1.800   27.30 | 3.367   11.24 |  4.93    1.61
               0.267    0.81 | 1.833   27.30 | 3.400   11.24 |  4.97    1.61
               0.300    1.61 | 1.867   27.30 | 3.433   11.24 |  5.00    1.61
               0.333    1.61 | 1.900   27.30 | 3.467   11.24 |  5.03    1.61
               0.367    1.61 | 1.933   27.30 | 3.500   11.24 |  5.07    1.61
               0.400    1.61 | 1.967   27.30 | 3.533   11.24 |  5.10    1.61
               0.433    1.61 | 2.000   27.30 | 3.567   11.24 |  5.13    1.61
               0.467    1.61 | 2.033   27.30 | 3.600   11.24 |  5.17    1.61
               0.500    1.61 | 2.067   27.30 | 3.633   11.24 |  5.20    1.61
               0.533    1.61 | 2.100   27.30 | 3.667   11.24 |  5.23    1.61
               0.567    1.61 | 2.133   27.30 | 3.700   11.24 |  5.27    1.61
               0.600    1.61 | 2.167   27.30 | 3.733   11.24 |  5.30    1.61
               0.633    1.61 | 2.200   27.30 | 3.767    8.83 |  5.33    1.61
               0.667    1.61 | 2.233   27.30 | 3.800    6.42 |  5.37    1.61
               0.700    1.61 | 2.267   50.59 | 3.833    6.42 |  5.40    1.61
               0.733    1.61 | 2.300   73.88 | 3.867    6.42 |  5.43    1.61
               0.767    1.61 | 2.333   73.88 | 3.900    6.42 |  5.47    1.61
               0.800    1.61 | 2.367   73.88 | 3.933    6.42 |  5.50    1.61
               0.833    1.61 | 2.400   73.88 | 3.967    6.42 |  5.53    1.61
               0.867    1.61 | 2.433   73.88 | 4.000    6.42 |  5.57    1.61
               0.900    1.61 | 2.467   73.88 | 4.033    6.42 |  5.60    1.61
               0.933    1.61 | 2.500   73.88 | 4.067    6.42 |  5.63    1.61
               0.967    1.61 | 2.533   73.88 | 4.100    6.42 |  5.67    1.61
               1.000    1.61 | 2.567   73.88 | 4.133    6.42 |  5.70    1.61
               1.033    1.61 | 2.600   73.88 | 4.167    6.42 |  5.73    1.61
               1.067    1.61 | 2.633   73.88 | 4.200    6.42 |  5.77    1.61
               1.100    1.61 | 2.667   73.88 | 4.233    6.42 |  5.80    1.61
               1.133    1.61 | 2.700   73.88 | 4.267    4.82 |  5.83    1.61
               1.167    1.61 | 2.733   73.88 | 4.300    3.21 |  5.87    1.61
               1.200    1.61 | 2.767   47.38 | 4.333    3.21 |  5.90    1.61
               1.233    1.61 | 2.800   20.88 | 4.367    3.21 |  5.93    1.61
               1.267    5.63 | 2.833   20.88 | 4.400    3.21 |  5.97    1.61
               1.300    9.64 | 2.867   20.88 | 4.433    3.21 |  6.00    1.61
               1.333    9.64 | 2.900   20.88 | 4.467    3.21 |  6.03    1.61
               1.367    9.64 | 2.933   20.88 | 4.500    3.21 |  6.07    1.61
               1.400    9.64 | 2.967   20.88 | 4.533    3.21 |  6.10    1.61
               1.433    9.64 | 3.000   20.88 | 4.567    3.21 |  6.13    1.61
               1.467    9.64 | 3.033   20.88 | 4.600    3.21 |  6.17    1.61
               1.500    9.64 | 3.067   20.88 | 4.633    3.21 |  6.20    1.61
               1.533    9.64 | 3.100   20.88 | 4.667    3.21 |  6.23    1.61
               1.567    9.64 | 3.133   20.88 | 4.700    3.21 |  6.27    0.81

     Max.Eff.Inten.(mm/hr)=      73.88        43.31
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.68 (ii)    7.49 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.19         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       2.86         0.04        2.896 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77         2.73
     RUNOFF VOLUME    (mm)=      79.31        36.47        78.28
     TOTAL RAINFALL   (mm)=      80.31        80.31        80.31
     RUNOFF COEFFICIENT   =       0.99         0.45         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654      0.8399
                          0.0111     0.0722   |   0.2796      0.9338
                          0.0509     0.1444   |   0.2932      1.0277
                          0.0712     0.2166   |   0.3061      1.1216
                          0.0868     0.2888   |   0.3185      1.2155
                          0.1000     0.3706   |   0.3304      1.3093
                          0.1117     0.4644   |   0.3420      1.4032
                          0.1222     0.5583   |   0.3531      1.4971
                          0.1319     0.6522   |   0.3639      1.5910
                          0.2504     0.7461   |   0.3745      1.6846

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360     2.896      2.73      78.28
   OUTFLOW: ID= 1 (  0004)     14.360     0.273      4.03      77.60
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.43
                    TIME SHIFT OF PEAK FLOW         (min)= 78.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.8901

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  | Junction Command(0055) |
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                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)     0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76         0.33
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     283.90        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
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hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	2.41
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.133	0.00	1.700	9.64	3.267	16.06	4.83	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.200	0.00	1.767	18.47	3.333	11.24	4.90	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.267	0.81	1.833	27.30	3.400	11.24	4.97	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.633	1.61	2.200	27.30	3.767	8.83	5.33	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.700	1.61	2.267	50.59	3.833	6.42	5.40	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.133	1.61	2.700	73.88	4.267	4.82	5.83	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.200	1.61	2.767	47.38	4.333	3.21	5.90	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.267	5.63	2.833	20.88	4.400	3.21	5.97	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.567	9.64	3.133	20.88	4.700	3.21	6.27	0.81

Max.Eff.Inten.(mm/hr)=	73.88	43.31	
over (min)	6.00	8.00	
Storage Coeff. (min)=	5.39 (ii)	7.29 (ii)	
Unit Hyd. Tpeak (min)=	6.00	8.00	
Unit Hyd. peak (cms)=	0.20	0.15	
			TOTALS
PEAK FLOW (cms)=	2.40	0.04	2.438 (iii)
TIME TO PEAK (hrs)=	2.73	2.77	2.73
RUNOFF VOLUME (mm)=	79.31	36.47	78.15
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.99	0.45	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. 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 (0099)	Area (ha)=	8.19	
ID= 1 DT= 2.0 min	Total Imp(%)=	99.90	Dir. Conn.(%)= 99.90

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	8.18	0.01
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	233.67	40.00
Mannings n =	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	1.600	9.64	3.167	20.88	4.73	3.21
0.067	0.00	1.633	9.64	3.200	20.88	4.77	2.41
0.100	0.00	1.667	9.64	3.233	20.88	4.80	1.61
0.133	0.00	1.700	9.64	3.267	16.06	4.83	1.61
0.167	0.00	1.733	9.64	3.300	11.24	4.87	1.61
0.200	0.00	1.767	18.47	3.333	11.24	4.90	1.61
0.233	0.00	1.800	27.30	3.367	11.24	4.93	1.61
0.267	0.81	1.833	27.30	3.400	11.24	4.97	1.61
0.300	1.61	1.867	27.30	3.433	11.24	5.00	1.61
0.333	1.61	1.900	27.30	3.467	11.24	5.03	1.61
0.367	1.61	1.933	27.30	3.500	11.24	5.07	1.61
0.400	1.61	1.967	27.30	3.533	11.24	5.10	1.61
0.433	1.61	2.000	27.30	3.567	11.24	5.13	1.61
0.467	1.61	2.033	27.30	3.600	11.24	5.17	1.61
0.500	1.61	2.067	27.30	3.633	11.24	5.20	1.61
0.533	1.61	2.100	27.30	3.667	11.24	5.23	1.61
0.567	1.61	2.133	27.30	3.700	11.24	5.27	1.61
0.600	1.61	2.167	27.30	3.733	11.24	5.30	1.61
0.633	1.61	2.200	27.30	3.767	8.83	5.33	1.61
0.667	1.61	2.233	27.30	3.800	6.42	5.37	1.61
0.700	1.61	2.267	50.59	3.833	6.42	5.40	1.61
0.733	1.61	2.300	73.88	3.867	6.42	5.43	1.61
0.767	1.61	2.333	73.88	3.900	6.42	5.47	1.61
0.800	1.61	2.367	73.88	3.933	6.42	5.50	1.61
0.833	1.61	2.400	73.88	3.967	6.42	5.53	1.61
0.867	1.61	2.433	73.88	4.000	6.42	5.57	1.61
0.900	1.61	2.467	73.88	4.033	6.42	5.60	1.61
0.933	1.61	2.500	73.88	4.067	6.42	5.63	1.61
0.967	1.61	2.533	73.88	4.100	6.42	5.67	1.61
1.000	1.61	2.567	73.88	4.133	6.42	5.70	1.61
1.033	1.61	2.600	73.88	4.167	6.42	5.73	1.61
1.067	1.61	2.633	73.88	4.200	6.42	5.77	1.61
1.100	1.61	2.667	73.88	4.233	6.42	5.80	1.61
1.133	1.61	2.700	73.88	4.267	4.82	5.83	1.61
1.167	1.61	2.733	73.88	4.300	3.21	5.87	1.61
1.200	1.61	2.767	47.38	4.333	3.21	5.90	1.61
1.233	1.61	2.800	20.88	4.367	3.21	5.93	1.61
1.267	5.63	2.833	20.88	4.400	3.21	5.97	1.61
1.300	9.64	2.867	20.88	4.433	3.21	6.00	1.61
1.333	9.64	2.900	20.88	4.467	3.21	6.03	1.61
1.367	9.64	2.933	20.88	4.500	3.21	6.07	1.61
1.400	9.64	2.967	20.88	4.533	3.21	6.10	1.61
1.433	9.64	3.000	20.88	4.567	3.21	6.13	1.61
1.467	9.64	3.033	20.88	4.600	3.21	6.17	1.61
1.500	9.64	3.067	20.88	4.633	3.21	6.20	1.61
1.533	9.64	3.100	20.88	4.667	3.21	6.23	1.61
1.567	9.64	3.133	20.88	4.700	3.21	6.27	0.81

Max.Eff.Inten.(mm/hr)=	73.88	43.31	
over (min)	5.00	6.00	
Storage Coeff. (min)=	4.80 (ii)	5.30 (ii)	
Unit Hyd. Tpeak (min)=	4.00	6.00	
Unit Hyd. peak (cms)=	0.25	0.20	
			TOTALS
PEAK FLOW (cms)=	1.68	0.00	1.677 (iii)
TIME TO PEAK (hrs)=	2.73	2.73	2.73
RUNOFF VOLUME (mm)=	79.31	36.47	79.27
TOTAL RAINFALL (mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT =	0.99	0.45	0.99

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0001)	OVERFLOW IS ON			
IN= 2---> OUT= 1				
DT= 4.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0700	0.6145

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0099)	8.190	1.677	2.73	79.27
OUTFLOW: ID= 1 (0001)	8.190	0.066	4.80	73.49
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

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                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.91
                    TIME SHIFT OF PEAK FLOW         (min)=124.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.5759

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.066     4.80    73.49
      + ID2= 2 (  0100):    12.09   2.438     2.73    78.15
        ===================================================
        ID = 3 (  0051):    20.28   2.481     2.73    76.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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  --------------------------
  | Junction Command(0050) |
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                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 3(  0001)    0.00     0.00    0.00     0.00
  OUTLOW: ID= 2(  0050)    0.00     0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28   2.481     2.73    76.27
        ===================================================
        ID = 3 (  0052):    20.28   2.481     2.73    76.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.1780     0.4721
                         0.0000     0.0444    |   0.1888     0.5284
                         0.0000     0.0887    |   0.1991     0.5880
                         0.0622     0.1331    |   0.2088     0.6499
                         0.0885     0.1775    |   0.2181     0.7118
                         0.1087     0.2218    |   0.2271     0.7737
                         0.1256     0.2662    |   0.6000     0.8403
                         0.1406     0.3105    |   0.6881     0.9081
                         0.1541     0.3596    |   0.7636     0.9760
                         0.1665     0.4159    |   0.8309     1.0439

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)    20.280     2.481      2.73      76.27
   OUTFLOW: ID= 1 (  0002)    20.280     0.244      4.33      71.69
   OVERFLOW:ID= 3 (  0003)     0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  9.83
                    TIME SHIFT OF PEAK FLOW         (min)= 96.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.7767

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  | Junction Command(0053) |
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                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)    (hrs)    (mm)
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  INFLOW : ID= 3(  0002)    0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)    0.00     0.00    0.00     0.00

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--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       16.30          0.40
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      333.67         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    9.64 | 3.167   20.88 |  4.73    3.21
                0.067    0.00 | 1.633    9.64 | 3.200   20.88 |  4.77    2.41
                0.100    0.00 | 1.667    9.64 | 3.233   20.88 |  4.80    1.61
                0.133    0.00 | 1.700    9.64 | 3.267   16.06 |  4.83    1.61
                0.167    0.00 | 1.733    9.64 | 3.300   11.24 |  4.87    1.61
                0.200    0.00 | 1.767   18.47 | 3.333   11.24 |  4.90    1.61
                0.233    0.00 | 1.800   27.30 | 3.367   11.24 |  4.93    1.61
                0.267    0.81 | 1.833   27.30 | 3.400   11.24 |  4.97    1.61
                0.300    1.61 | 1.867   27.30 | 3.433   11.24 |  5.00    1.61
                0.333    1.61 | 1.900   27.30 | 3.467   11.24 |  5.03    1.61
                0.367    1.61 | 1.933   27.30 | 3.500   11.24 |  5.07    1.61
                0.400    1.61 | 1.967   27.30 | 3.533   11.24 |  5.10    1.61
                0.433    1.61 | 2.000   27.30 | 3.567   11.24 |  5.13    1.61
                0.467    1.61 | 2.033   27.30 | 3.600   11.24 |  5.17    1.61
                0.500    1.61 | 2.067   27.30 | 3.633   11.24 |  5.20    1.61
                0.533    1.61 | 2.100   27.30 | 3.667   11.24 |  5.23    1.61
                0.567    1.61 | 2.133   27.30 | 3.700   11.24 |  5.27    1.61
                0.600    1.61 | 2.167   27.30 | 3.733   11.24 |  5.30    1.61
                0.633    1.61 | 2.200   27.30 | 3.767    8.83 |  5.33    1.61
                0.667    1.61 | 2.233   27.30 | 3.800    6.42 |  5.37    1.61
                0.700    1.61 | 2.267   50.59 | 3.833    6.42 |  5.40    1.61
                0.733    1.61 | 2.300   73.88 | 3.867    6.42 |  5.43    1.61
                0.767    1.61 | 2.333   73.88 | 3.900    6.42 |  5.47    1.61
                0.800    1.61 | 2.367   73.88 | 3.933    6.42 |  5.50    1.61
                0.833    1.61 | 2.400   73.88 | 3.967    6.42 |  5.53    1.61
                0.867    1.61 | 2.433   73.88 | 4.000    6.42 |  5.57    1.61
                0.900    1.61 | 2.467   73.88 | 4.033    6.42 |  5.60    1.61
                0.933    1.61 | 2.500   73.88 | 4.067    6.42 |  5.63    1.61
                0.967    1.61 | 2.533   73.88 | 4.100    6.42 |  5.67    1.61
                1.000    1.61 | 2.567   73.88 | 4.133    6.42 |  5.70    1.61
                1.033    1.61 | 2.600   73.88 | 4.167    6.42 |  5.73    1.61
                1.067    1.61 | 2.633   73.88 | 4.200    6.42 |  5.77    1.61
                1.100    1.61 | 2.667   73.88 | 4.233    6.42 |  5.80    1.61
                1.133    1.61 | 2.700   73.88 | 4.267    4.82 |  5.83    1.61
                1.167    1.61 | 2.733   73.88 | 4.300    3.21 |  5.87    1.61
                1.200    1.61 | 2.767   47.38 | 4.333    3.21 |  5.90    1.61
                1.233    1.61 | 2.800   20.88 | 4.367    3.21 |  5.93    1.61
                1.267    5.63 | 2.833   20.88 | 4.400    3.21 |  5.97    1.61
                1.300    9.64 | 2.867   20.88 | 4.433    3.21 |  6.00    1.61
                1.333    9.64 | 2.900   20.88 | 4.467    3.21 |  6.03    1.61
                1.367    9.64 | 2.933   20.88 | 4.500    3.21 |  6.07    1.61
                1.400    9.64 | 2.967   20.88 | 4.533    3.21 |  6.10    1.61
                1.433    9.64 | 3.000   20.88 | 4.567    3.21 |  6.13    1.61
                1.467    9.64 | 3.033   20.88 | 4.600    3.21 |  6.17    1.61
                1.500    9.64 | 3.067   20.88 | 4.633    3.21 |  6.20    1.61
                1.533    9.64 | 3.100   20.88 | 4.667    3.21 |  6.23    1.61
                1.567    9.64 | 3.133   20.88 | 4.700    3.21 |  6.27    0.81

     Max.Eff.Inten.(mm/hr)=      73.88        43.31
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       5.94 (ii)    7.75 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.19         0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       3.32         0.04        3.363 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.77         2.73
     RUNOFF VOLUME    (mm)=      79.31        36.47        78.28
     TOTAL RAINFALL   (mm)=      80.31        80.31        80.31
     RUNOFF COEFFICIENT   =       0.99         0.45         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
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          CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765     1.3727
                          0.0000     0.1242   |   0.5033     1.5204
                          0.0621     0.2484   |   0.5288     1.6681
                          0.0961     0.3725   |   0.5531     1.8158
                          0.1208     0.5019   |   0.5764     1.9635
                          0.1413     0.6343   |   0.5988     2.1112
                          0.1592     0.7820   |   0.6204     2.2589
                          0.1752     0.9297   |   0.6413     2.4066
                          0.4176     1.0774   |   0.6615     2.5543
                          0.4480     1.2251   |   0.6811     2.7020

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)    16.700     3.363      2.73      78.28
   OUTFLOW: ID= 1 (  0003)    16.700     0.371      3.90      70.81
   OVERFLOW:ID= 3 (  0003)     0.000     0.000      0.00       0.00

                  TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                  CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                  PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.05
                  TIME SHIFT OF PEAK FLOW         (min)= 70.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0493

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  | Junction Command(0054) |
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                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0003)     0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)     0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n          =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 1.600    9.64 | 3.167   20.88 |  4.73    3.21
                0.067    0.00 | 1.633    9.64 | 3.200   20.88 |  4.77    2.41
                0.100    0.00 | 1.667    9.64 | 3.233   20.88 |  4.80    1.61
                0.133    0.00 | 1.700    9.64 | 3.267   16.06 |  4.83    1.61
                0.167    0.00 | 1.733    9.64 | 3.300   11.24 |  4.87    1.61
                0.200    0.00 | 1.767   18.47 | 3.333   11.24 |  4.90    1.61
                0.233    0.00 | 1.800   27.30 | 3.367   11.24 |  4.93    1.61
                0.267    0.81 | 1.833   27.30 | 3.400   11.24 |  4.97    1.61
                0.300    1.61 | 1.867   27.30 | 3.433   11.24 |  5.00    1.61
                0.333    1.61 | 1.900   27.30 | 3.467   11.24 |  5.03    1.61
                0.367    1.61 | 1.933   27.30 | 3.500   11.24 |  5.07    1.61
                0.400    1.61 | 1.967   27.30 | 3.533   11.24 |  5.10    1.61
                0.433    1.61 | 2.000   27.30 | 3.567   11.24 |  5.13    1.61
                0.467    1.61 | 2.033   27.30 | 3.600   11.24 |  5.17    1.61
                0.500    1.61 | 2.067   27.30 | 3.633   11.24 |  5.20    1.61
                0.533    1.61 | 2.100   27.30 | 3.667   11.24 |  5.23    1.61
                0.567    1.61 | 2.133   27.30 | 3.700   11.24 |  5.27    1.61
                0.600    1.61 | 2.167   27.30 | 3.733   11.24 |  5.30    1.61
                0.633    1.61 | 2.200   27.30 | 3.767    8.83 |  5.33    1.61
                0.667    1.61 | 2.233   27.30 | 3.800    6.42 |  5.37    1.61
                0.700    1.61 | 2.267   50.59 | 3.833    6.42 |  5.40    1.61
                0.733    1.61 | 2.300   73.88 | 3.867    6.42 |  5.43    1.61
                0.767    1.61 | 2.333   73.88 | 3.900    6.42 |  5.47    1.61
                0.800    1.61 | 2.367   73.88 | 3.933    6.42 |  5.50    1.61
                0.833    1.61 | 2.400   73.88 | 3.967    6.42 |  5.53    1.61
                0.867    1.61 | 2.433   73.88 | 4.000    6.42 |  5.57    1.61
                0.900    1.61 | 2.467   73.88 | 4.033    6.42 |  5.60    1.61
                0.933    1.61 | 2.500   73.88 | 4.067    6.42 |  5.63    1.61
                0.967    1.61 | 2.533   73.88 | 4.100    6.42 |  5.67    1.61
                1.000    1.61 | 2.567   73.88 | 4.133    6.42 |  5.70    1.61
                1.033    1.61 | 2.600   73.88 | 4.167    6.42 |  5.73    1.61
                1.067    1.61 | 2.633   73.88 | 4.200    6.42 |  5.77    1.61
                1.100    1.61 | 2.667   73.88 | 4.233    6.42 |  5.80    1.61
                1.133    1.61 | 2.700   73.88 | 4.267    4.82 |  5.83    1.61
                1.167    1.61 | 2.733   73.88 | 4.300    3.21 |  5.87    1.61
                1.200    1.61 | 2.767   47.38 | 4.333    3.21 |  5.90    1.61
                1.233    1.61 | 2.800   20.88 | 4.367    3.21 |  5.93    1.61
                1.267    5.63 | 2.833   20.88 | 4.400    3.21 |  5.97    1.61
                1.300    9.64 | 2.867   20.88 | 4.433    3.21 |  6.00    1.61
                1.333    9.64 | 2.900   20.88 | 4.467    3.21 |  6.03    1.61
                1.367    9.64 | 2.933   20.88 | 4.500    3.21 |  6.07    1.61
                1.400    9.64 | 2.967   20.88 | 4.533    3.21 |  6.10    1.61
                1.433    9.64 | 3.000   20.88 | 4.567    3.21 |  6.13    1.61
                1.467    9.64 | 3.033   20.88 | 4.600    3.21 |  6.17    1.61
                1.500    9.64 | 3.067   20.88 | 4.633    3.21 |  6.20    1.61
                1.533    9.64 | 3.100   20.88 | 4.667    3.21 |  6.23    1.61
                1.567    9.64 | 3.133   20.88 | 4.700    3.21 |  6.27    0.81

     Max.Eff.Inten.(mm/hr)=      73.88        58.19
                over (min)        5.00         6.00
     Storage Coeff.  (min)=       4.80 (ii)    5.30 (ii)
     Unit Hyd. Tpeak (min)=       4.00         6.00
     Unit Hyd. peak  (cms)=       0.25         0.20
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.68         0.00        1.681 (iii)
     TIME TO PEAK    (hrs)=       2.73         2.73         2.73
     RUNOFF VOLUME    (mm)=      79.31        50.07        79.28
     TOTAL RAINFALL   (mm)=      80.31        80.31        80.31
     RUNOFF COEFFICIENT   =       0.99         0.62         0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------

                       DEPTH       STORAGE          |   DEPTH      STORAGE
                       (mm)        (cu.m.)          |   (mm)       (cu.m.)
                        0.00          0.00          |   1041.00     3759.30
                       25.00         49.47          |   1067.00     3854.08
                       51.00         98.94          |   1092.00     3948.08
                       76.00        148.40          |   1118.00     4041.25
                      102.00        197.87          |   1143.00     4133.57
                      127.00        247.34          |   1168.00     4225.00
                      152.00        296.81          |   1194.00     4315.50
                      178.00        346.27          |   1219.00     4405.03
                      203.00        395.74          |   1245.00     4493.56
                      229.00        445.21          |   1270.00     4581.02
                      254.00        554.10          |   1295.00     4667.39
                      279.00        662.70          |   1321.00     4752.59
                      305.00        771.11          |   1346.00     4836.57
                      330.00        879.30          |   1372.00     4919.26
                      356.00        987.27          |   1397.00     5000.60
                      381.00       1095.00          |   1422.00     5080.50
                      406.00       1202.48          |   1448.00     5158.85
                      432.00       1309.70          |   1473.00     5235.54
                      457.00       1416.63          |   1499.00     5310.45
                      483.00       1523.27          |   1524.00     5383.37
                      508.00       1629.60          |   1549.00     5454.08
                      533.00       1735.60          |   1575.00     5522.23
                      559.00       1841.25          |   1600.00     5587.25
                      584.00       1946.55          |   1626.00     5647.31
                      610.00       2051.46          |   1651.00     5703.06
                      635.00       2155.99          |   1676.00     5757.41
                      660.00       2260.10          |   1702.00     5810.73
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                686.00       2363.78        |   1727.00      5862.91
                711.00       2467.02        |   1753.00      5913.33
                737.00       2569.79        |   1778.00      5962.80
                762.00       2672.07        |   1803.00      6012.26
                787.00       2773.85        |   1829.00      6061.73
                813.00       2875.11        |   1854.00      6111.20
                838.00       2975.83        |   1880.00      6160.67
                864.00       3075.97        |   1905.00      6210.14
                889.00       3175.53        |   1930.00      6259.60
                914.00       3274.49        |   1956.00      6309.07
                940.00       3372.81        |   1981.00      6358.54
                965.00       3470.48        |   2007.00      6408.01
                991.00       3567.46        |   2032.00      6457.47
               1016.00       3663.75        |   2057.00      6506.94

              DEPTH       DISCHARGE        |   DEPTH      DISCHARGE
                (m)          (cms)          |    (m)        (cms)
              0.000         0.000           |  0.460        0.066
              0.010         0.011           |  0.510        0.069
              0.060         0.024           |  0.560        0.072
              0.110         0.032           |  0.610        0.075
              0.160         0.039           |  0.660        0.079
              0.210         0.045           |  0.710        0.081
              0.260         0.049           |  0.760        0.084
              0.310         0.054           |  0.810        0.087
              0.360         0.058           |  0.860        0.090
              0.410         0.062           |  0.910        0.092

             NATIVE SOIL LAYER:
             Infiltration (m/hr) = 0.0051

                AREA         QPEAK            TPEAK         R.V.
                (ha)         (cms)            (hrs)         (mm)
     INFLOW:ID= 2     8.21         1.681             2.73        79.28
    OUTFLOW:ID= 1     8.21         0.111             4.30        66.09
   OVERFLOW:ID= 3     0.00         0.000             0.00         0.00

          Volume Reduction Rate[(RVin-RVout)/RVin](%)=       16.64
          Time to reach Max storage              (Hr)=        4.30
          Volume of water for drawdown in LID (cu.m.)=     4673.31
          Volume of maximum water storage     (cu.m.)=     5318.08
          Calculated Drawdown Time               (Hr)=       37.75

  --------------------------
  | Junction Command(0056) |
  --------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 1(  0060)    8.21     0.11    4.30    66.09
  OUTFLOW: ID= 2(  0056)    8.21     0.11    4.30    66.09

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

  --------------------------
  | Junction Command(0057) |
  --------------------------

                         AREA     QPEAK   TPEAK     R.V.
                         (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0060)    0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0057)    0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
*************************************
** SIMULATION:Run 08 2yr 12hr AES **
*************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       14.02          0.34
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      309.41         40.00
     Mannings n           =       0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


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

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42

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2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

```
     Max.Eff.Inten.(mm/hr)=      19.32         7.62
                over (min)       10.00        14.00
     Storage Coeff.  (min)=       9.71 (ii)   12.81 (ii)
     Unit Hyd. Tpeak (min)=      10.00        14.00
     Unit Hyd. peak  (cms)=       0.12         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.75         0.01          0.756 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.30           5.23
     RUNOFF VOLUME    (mm)=      41.00        11.68          40.30
     TOTAL RAINFALL   (mm)=      42.00        42.00          42.00
     RUNOFF COEFFICIENT   =       0.98         0.28           0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654      0.8399
                          0.0111     0.0722   |   0.2796      0.9338
                          0.0509     0.1444   |   0.2932      1.0277
                          0.0712     0.2166   |   0.3061      1.1216
                          0.0868     0.2888   |   0.3185      1.2155
                          0.1000     0.3706   |   0.3304      1.3093
                          0.1117     0.4644   |   0.3420      1.4032
                          0.1222     0.5583   |   0.3531      1.4971
                          0.1319     0.6522   |   0.3639      1.5910
                          0.2504     0.7461   |   0.3745      1.6846

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360     0.756      5.23      40.30
   OUTFLOW: ID= 1 (  0004)     14.360     0.105      7.37      39.76
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.94
                    TIME SHIFT OF PEAK FLOW         (min)=128.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.4142

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  --------------------------
  | Junction Command(0055) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)     0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)     0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76         0.33
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     283.90        40.00
     Mannings n           =      0.013        0.250
```

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42

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2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

```
Max.Eff.Inten.(mm/hr)=      19.32         7.62
            over (min)      10.00        14.00
Storage Coeff.  (min)=       9.22 (ii)   12.47 (ii)
Unit Hyd. Tpeak (min)=      10.00        14.00
Unit Hyd. peak  (cms)=       0.12         0.09
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.63         0.01        0.636 (iii)
TIME TO PEAK    (hrs)=       5.23         5.30         5.23
RUNOFF VOLUME    (mm)=      41.00        11.68        40.21
TOTAL RAINFALL   (mm)=      42.00        42.00        42.00
RUNOFF COEFFICIENT   =       0.98         0.28         0.96


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=       8.18          0.01
Dep. Storage     (mm)=       1.00          5.00
Average Slope     (%)=       1.00          2.00
Length            (m)=     233.67         40.00
Mannings n           =      0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42
1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

```
Max.Eff.Inten.(mm/hr)=      19.32         7.62
            over (min)       8.00        10.00
Storage Coeff.  (min)=       8.21 (ii)    9.07 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.14         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.44         0.00        0.439 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      41.00        11.68        40.97
TOTAL RAINFALL   (mm)=      42.00        42.00        42.00
RUNOFF COEFFICIENT   =       0.98         0.28         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
        CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0001)|     OVERFLOW IS ON
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| IN= 2---> OUT= 1 |
| DT=  4.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.0700     0.6145

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190      0.439      5.23      40.97
   OUTFLOW: ID= 1 (  0001)      8.190      0.032      8.37      37.65
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.19
                    TIME SHIFT OF PEAK FLOW         (min)=188.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.2772

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.032     8.37    37.65
      + ID2= 2 (  0100):    12.09   0.636     5.23    40.21
        ===================================================
        ID = 3 (  0051):    20.28   0.658     5.23    39.17

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)   0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)   0.00      0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28   0.658     5.23    39.17
        ===================================================
        ID = 3 (  0052):    20.28   0.658     5.23    39.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |      OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000     0.0000   |   0.1780     0.4721
                           0.0000     0.0444   |   0.1888     0.5284
                           0.0000     0.0887   |   0.1991     0.5880
                           0.0622     0.1331   |   0.2088     0.6499
                           0.0885     0.1775   |   0.2181     0.7118
                           0.1087     0.2218   |   0.2271     0.7737
                           0.1256     0.2662   |   0.6000     0.8403
                           0.1406     0.3105   |   0.6881     0.9081
                           0.1541     0.3596   |   0.7636     0.9760
                           0.1665     0.4159   |   0.8309     1.0439

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280      0.658      5.23      39.17
   OUTFLOW: ID= 1 (  0002)     20.280      0.147      6.57      34.68
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 22.29

                    TIME SHIFT OF PEAK FLOW         (min)= 80.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.3328

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  | Junction Command(0053) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)   0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)   0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      16.30          0.40
    Dep. Storage     (mm)=       1.00          5.00
    Average Slope     (%)=       1.00          2.00
    Length            (m)=     333.67         40.00
    Mannings n           =      0.013         0.250

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    2.52 | 6.167    5.46 |  9.23    0.84
               0.067    0.00 | 3.133    2.52 | 6.200    5.46 |  9.27    0.63
               0.100    0.00 | 3.167    2.52 | 6.233    5.46 |  9.30    0.42
               0.133    0.00 | 3.200    2.52 | 6.267    4.20 |  9.33    0.42
               0.167    0.00 | 3.233    2.52 | 6.300    2.94 |  9.37    0.42
               0.200    0.00 | 3.267    4.83 | 6.333    2.94 |  9.40    0.42
               0.233    0.00 | 3.300    7.14 | 6.367    2.94 |  9.43    0.42
               0.267    0.21 | 3.333    7.14 | 6.400    2.94 |  9.47    0.42
               0.300    0.42 | 3.367    7.14 | 6.433    2.94 |  9.50    0.42
               0.333    0.42 | 3.400    7.14 | 6.467    2.94 |  9.53    0.42
               0.367    0.42 | 3.433    7.14 | 6.500    2.94 |  9.57    0.42
               0.400    0.42 | 3.467    7.14 | 6.533    2.94 |  9.60    0.42
               0.433    0.42 | 3.500    7.14 | 6.567    2.94 |  9.63    0.42
               0.467    0.42 | 3.533    7.14 | 6.600    2.94 |  9.67    0.42
               0.500    0.42 | 3.567    7.14 | 6.633    2.94 |  9.70    0.42
               0.533    0.42 | 3.600    7.14 | 6.667    2.94 |  9.73    0.42
               0.567    0.42 | 3.633    7.14 | 6.700    2.94 |  9.77    0.42
               0.600    0.42 | 3.667    7.14 | 6.733    2.94 |  9.80    0.42
               0.633    0.42 | 3.700    7.14 | 6.767    2.94 |  9.83    0.42
               0.667    0.42 | 3.733    7.14 | 6.800    2.94 |  9.87    0.42
               0.700    0.42 | 3.767    7.14 | 6.833    2.94 |  9.90    0.42
               0.733    0.42 | 3.800    7.14 | 6.867    2.94 |  9.93    0.42
               0.767    0.42 | 3.833    7.14 | 6.900    2.94 |  9.97    0.42
               0.800    0.42 | 3.867    7.14 | 6.933    2.94 | 10.00    0.42
               0.833    0.42 | 3.900    7.14 | 6.967    2.94 | 10.03    0.42
               0.867    0.42 | 3.933    7.14 | 7.000    2.94 | 10.07    0.42
               0.900    0.42 | 3.967    7.14 | 7.033    2.94 | 10.10    0.42
               0.933    0.42 | 4.000    7.14 | 7.067    2.94 | 10.13    0.42
               0.967    0.42 | 4.033    7.14 | 7.100    2.94 | 10.17    0.42
               1.000    0.42 | 4.067    7.14 | 7.133    2.94 | 10.20    0.42
               1.033    0.42 | 4.100    7.14 | 7.167    2.94 | 10.23    0.42
               1.067    0.42 | 4.133    7.14 | 7.200    2.94 | 10.27    0.42
               1.100    0.42 | 4.167    7.14 | 7.233    2.94 | 10.30    0.42
               1.133    0.42 | 4.200    7.14 | 7.267    2.31 | 10.33    0.42
               1.167    0.42 | 4.233    7.14 | 7.300    1.68 | 10.37    0.42
               1.200    0.42 | 4.267   13.23 | 7.333    1.68 | 10.40    0.42
               1.233    0.42 | 4.300   19.32 | 7.367    1.68 | 10.43    0.42
               1.267    0.42 | 4.333   19.32 | 7.400    1.68 | 10.47    0.42
               1.300    0.42 | 4.367   19.32 | 7.433    1.68 | 10.50    0.42
               1.333    0.42 | 4.400   19.32 | 7.467    1.68 | 10.53    0.42
               1.367    0.42 | 4.433   19.32 | 7.500    1.68 | 10.57    0.42
               1.400    0.42 | 4.467   19.32 | 7.533    1.68 | 10.60    0.42
               1.433    0.42 | 4.500   19.32 | 7.567    1.68 | 10.63    0.42
               1.467    0.42 | 4.533   19.32 | 7.600    1.68 | 10.67    0.42
               1.500    0.42 | 4.567   19.32 | 7.633    1.68 | 10.70    0.42
               1.533    0.42 | 4.600   19.32 | 7.667    1.68 | 10.73    0.42
               1.567    0.42 | 4.633   19.32 | 7.700    1.68 | 10.77    0.42
               1.600    0.42 | 4.667   19.32 | 7.733    1.68 | 10.80    0.42
               1.633    0.42 | 4.700   19.32 | 7.767    1.68 | 10.83    0.42
               1.667    0.42 | 4.733   19.32 | 7.800    1.68 | 10.87    0.42
               1.700    0.42 | 4.767   19.32 | 7.833    1.68 | 10.90    0.42
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TOWN OF CALEDON
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1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

Max.Eff.Inten.(mm/hr)=	19.32	7.62	
over (min)	10.00	14.00	
Storage Coeff. (min)=	10.16 (ii)	13.26 (ii)	
Unit Hyd. Tpeak (min)=	10.00	14.00	
Unit Hyd. peak (cms)=	0.11	0.08	
			TOTALS
PEAK FLOW (cms)=	0.87	0.01	0.879 (iii)
TIME TO PEAK (hrs)=	5.23	5.30	5.23
RUNOFF VOLUME (mm)=	41.00	11.68	40.30
TOTAL RAINFALL (mm)=	42.00	42.00	42.00
RUNOFF COEFFICIENT =	0.98	0.28	0.96

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0003)|
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |
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OVERFLOW IS ON

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.4765	1.3727
0.0000	0.1242	0.5033	1.5204
0.0621	0.2484	0.5288	1.6681
0.0961	0.3725	0.5531	1.8158
0.1208	0.5019	0.5764	1.9635
0.1413	0.6343	0.5988	2.1112
0.1592	0.7820	0.6204	2.2589
0.1752	0.9297	0.6413	2.4066
0.4176	1.0774	0.6615	2.5543
0.4480	1.2251	0.6811	2.7020

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	16.700	0.879	5.23	40.30
OUTFLOW: ID= 1 (0003)	16.700	0.120	7.37	32.83
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.66
TIME SHIFT OF PEAK FLOW (min)=128.00
MAXIMUM STORAGE USED (ha.m.)= 0.4982

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| Junction Command(0054) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0003)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0054)	0.00	0.00	0.00	0.00

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| CALIB            |
| STANDHYD (  0130)|
|ID= 1 DT= 2.0 min |
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Area (ha)= 8.21
Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.20	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.95	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	2.52	6.167	5.46	9.23	0.84
0.067	0.00	3.133	2.52	6.200	5.46	9.27	0.63
0.100	0.00	3.167	2.52	6.233	5.46	9.30	0.42
0.133	0.00	3.200	2.52	6.267	4.20	9.33	0.42
0.167	0.00	3.233	2.52	6.300	2.94	9.37	0.42
0.200	0.00	3.267	4.83	6.333	2.94	9.40	0.42
0.233	0.00	3.300	7.14	6.367	2.94	9.43	0.42
0.267	0.21	3.333	7.14	6.400	2.94	9.47	0.42
0.300	0.42	3.367	7.14	6.433	2.94	9.50	0.42
0.333	0.42	3.400	7.14	6.467	2.94	9.53	0.42
0.367	0.42	3.433	7.14	6.500	2.94	9.57	0.42
0.400	0.42	3.467	7.14	6.533	2.94	9.60	0.42
0.433	0.42	3.500	7.14	6.567	2.94	9.63	0.42
0.467	0.42	3.533	7.14	6.600	2.94	9.67	0.42
0.500	0.42	3.567	7.14	6.633	2.94	9.70	0.42
0.533	0.42	3.600	7.14	6.667	2.94	9.73	0.42
0.567	0.42	3.633	7.14	6.700	2.94	9.77	0.42
0.600	0.42	3.667	7.14	6.733	2.94	9.80	0.42
0.633	0.42	3.700	7.14	6.767	2.94	9.83	0.42
0.667	0.42	3.733	7.14	6.800	2.94	9.87	0.42
0.700	0.42	3.767	7.14	6.833	2.94	9.90	0.42
0.733	0.42	3.800	7.14	6.867	2.94	9.93	0.42
0.767	0.42	3.833	7.14	6.900	2.94	9.97	0.42
0.800	0.42	3.867	7.14	6.933	2.94	10.00	0.42
0.833	0.42	3.900	7.14	6.967	2.94	10.03	0.42
0.867	0.42	3.933	7.14	7.000	2.94	10.07	0.42
0.900	0.42	3.967	7.14	7.033	2.94	10.10	0.42
0.933	0.42	4.000	7.14	7.067	2.94	10.13	0.42
0.967	0.42	4.033	7.14	7.100	2.94	10.17	0.42
1.000	0.42	4.067	7.14	7.133	2.94	10.20	0.42
1.033	0.42	4.100	7.14	7.167	2.94	10.23	0.42
1.067	0.42	4.133	7.14	7.200	2.94	10.27	0.42
1.100	0.42	4.167	7.14	7.233	2.94	10.30	0.42
1.133	0.42	4.200	7.14	7.267	2.31	10.33	0.42
1.167	0.42	4.233	7.14	7.300	1.68	10.37	0.42
1.200	0.42	4.267	13.23	7.333	1.68	10.40	0.42
1.233	0.42	4.300	19.32	7.367	1.68	10.43	0.42
1.267	0.42	4.333	19.32	7.400	1.68	10.47	0.42
1.300	0.42	4.367	19.32	7.433	1.68	10.50	0.42
1.333	0.42	4.400	19.32	7.467	1.68	10.53	0.42
1.367	0.42	4.433	19.32	7.500	1.68	10.57	0.42
1.400	0.42	4.467	19.32	7.533	1.68	10.60	0.42
1.433	0.42	4.500	19.32	7.567	1.68	10.63	0.42
1.467	0.42	4.533	19.32	7.600	1.68	10.67	0.42
1.500	0.42	4.567	19.32	7.633	1.68	10.70	0.42
1.533	0.42	4.600	19.32	7.667	1.68	10.73	0.42

TOWN OF CALEDON
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1.567	0.42	4.633	19.32	7.700	1.68	10.77	0.42
1.600	0.42	4.667	19.32	7.733	1.68	10.80	0.42
1.633	0.42	4.700	19.32	7.767	1.68	10.83	0.42
1.667	0.42	4.733	19.32	7.800	1.68	10.87	0.42
1.700	0.42	4.767	19.32	7.833	1.68	10.90	0.42
1.733	0.42	4.800	19.32	7.867	1.68	10.93	0.42
1.767	0.42	4.833	19.32	7.900	1.68	10.97	0.42
1.800	0.42	4.867	19.32	7.933	1.68	11.00	0.42
1.833	0.42	4.900	19.32	7.967	1.68	11.03	0.42
1.867	0.42	4.933	19.32	8.000	1.68	11.07	0.42
1.900	0.42	4.967	19.32	8.033	1.68	11.10	0.42
1.933	0.42	5.000	19.32	8.067	1.68	11.13	0.42
1.967	0.42	5.033	19.32	8.100	1.68	11.17	0.42
2.000	0.42	5.067	19.32	8.133	1.68	11.20	0.42
2.033	0.42	5.100	19.32	8.167	1.68	11.23	0.42
2.067	0.42	5.133	19.32	8.200	1.68	11.27	0.42
2.100	0.42	5.167	19.32	8.233	1.68	11.30	0.42
2.133	0.42	5.200	19.32	8.267	1.26	11.33	0.42
2.167	0.42	5.233	19.32	8.300	0.84	11.37	0.42
2.200	0.42	5.267	12.39	8.333	0.84	11.40	0.42
2.233	0.42	5.300	5.46	8.367	0.84	11.43	0.42
2.267	1.47	5.333	5.46	8.400	0.84	11.47	0.42
2.300	2.52	5.367	5.46	8.433	0.84	11.50	0.42
2.333	2.52	5.400	5.46	8.467	0.84	11.53	0.42
2.367	2.52	5.433	5.46	8.500	0.84	11.57	0.42
2.400	2.52	5.467	5.46	8.533	0.84	11.60	0.42
2.433	2.52	5.500	5.46	8.567	0.84	11.63	0.42
2.467	2.52	5.533	5.46	8.600	0.84	11.67	0.42
2.500	2.52	5.567	5.46	8.633	0.84	11.70	0.42
2.533	2.52	5.600	5.46	8.667	0.84	11.73	0.42
2.567	2.52	5.633	5.46	8.700	0.84	11.77	0.42
2.600	2.52	5.667	5.46	8.733	0.84	11.80	0.42
2.633	2.52	5.700	5.46	8.767	0.84	11.83	0.42
2.667	2.52	5.733	5.46	8.800	0.84	11.87	0.42
2.700	2.52	5.767	5.46	8.833	0.84	11.90	0.42
2.733	2.52	5.800	5.46	8.867	0.84	11.93	0.42
2.767	2.52	5.833	5.46	8.900	0.84	11.97	0.42
2.800	2.52	5.867	5.46	8.933	0.84	12.00	0.42
2.833	2.52	5.900	5.46	8.967	0.84	12.03	0.42
2.867	2.52	5.933	5.46	9.000	0.84	12.07	0.42
2.900	2.52	5.967	5.46	9.033	0.84	12.10	0.42
2.933	2.52	6.000	5.46	9.067	0.84	12.13	0.42
2.967	2.52	6.033	5.46	9.100	0.84	12.17	0.42
3.000	2.52	6.067	5.46	9.133	0.84	12.20	0.42
3.033	2.52	6.100	5.46	9.167	0.84	12.23	0.42
3.067	2.52	6.133	5.46	9.200	0.84	12.27	0.21

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Max.Eff.Inten.(mm/hr)=      19.32        11.80
            over (min)       8.00        10.00
Storage Coeff.  (min)=       8.21 (ii)    9.07 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.14         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.44         0.00        0.440 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      41.00        18.26        40.98
TOTAL RAINFALL   (mm)=      42.00        42.00        42.00
RUNOFF COEFFICIENT   =       0.98         0.43         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
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DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.440	5.23	40.98
OUTFLOW:ID= 1	8.21	0.064	6.67	29.90
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=      27.04
Time to reach Max storage              (Hr)=       6.67
Volume of water for drawdown in LID (cu.m.)=    1356.02
Volume of maximum water storage     (cu.m.)=    2289.55
Calculated Drawdown Time               (Hr)=      26.02

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| Junction Command(0056) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.06	6.67	29.90
OUTFLOW: ID= 2(0056)	8.21	0.06	6.67	29.90

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| Junction Command(0057) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

```
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************************************
** SIMULATION:Run 09 5yr 12hr AES **
************************************
```

TOWN OF CALEDON
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 --------------------
 | CALIB              |
 | STANDHYD (  0120)|   Area    (ha)=  14.36
 |ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
 --------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      14.02         0.34
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=     309.41        40.00
      Mannings n          =      0.013        0.250

          NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.26	6.167	7.07	9.23	1.09
0.067	0.00	3.133	3.26	6.200	7.07	9.27	0.81
0.100	0.00	3.167	3.26	6.233	7.07	9.30	0.54
0.133	0.00	3.200	3.26	6.267	5.44	9.33	0.54
0.167	0.00	3.233	3.26	6.300	3.81	9.37	0.54
0.200	0.00	3.267	6.25	6.333	3.81	9.40	0.54
0.233	0.00	3.300	9.25	6.367	3.81	9.43	0.54
0.267	0.27	3.333	9.25	6.400	3.81	9.47	0.54
0.300	0.54	3.367	9.25	6.433	3.81	9.50	0.54
0.333	0.54	3.400	9.25	6.467	3.81	9.53	0.54
0.367	0.54	3.433	9.25	6.500	3.81	9.57	0.54
0.400	0.54	3.467	9.25	6.533	3.81	9.60	0.54
0.433	0.54	3.500	9.25	6.567	3.81	9.63	0.54
0.467	0.54	3.533	9.25	6.600	3.81	9.67	0.54
0.500	0.54	3.567	9.25	6.633	3.81	9.70	0.54
0.533	0.54	3.600	9.25	6.667	3.81	9.73	0.54
0.567	0.54	3.633	9.25	6.700	3.81	9.77	0.54
0.600	0.54	3.667	9.25	6.733	3.81	9.80	0.54
0.633	0.54	3.700	9.25	6.767	3.81	9.83	0.54
0.667	0.54	3.733	9.25	6.800	3.81	9.87	0.54
0.700	0.54	3.767	9.25	6.833	3.81	9.90	0.54
0.733	0.54	3.800	9.25	6.867	3.81	9.93	0.54
0.767	0.54	3.833	9.25	6.900	3.81	9.97	0.54
0.800	0.54	3.867	9.25	6.933	3.81	10.00	0.54
0.833	0.54	3.900	9.25	6.967	3.81	10.03	0.54
0.867	0.54	3.933	9.25	7.000	3.81	10.07	0.54
0.900	0.54	3.967	9.25	7.033	3.81	10.10	0.54
0.933	0.54	4.000	9.25	7.067	3.81	10.13	0.54
0.967	0.54	4.033	9.25	7.100	3.81	10.17	0.54
1.000	0.54	4.067	9.25	7.133	3.81	10.20	0.54
1.033	0.54	4.100	9.25	7.167	3.81	10.23	0.54
1.067	0.54	4.133	9.25	7.200	3.81	10.27	0.54
1.100	0.54	4.167	9.25	7.233	3.81	10.30	0.54
1.133	0.54	4.200	9.25	7.267	3.00	10.33	0.54
1.167	0.54	4.233	9.25	7.300	2.18	10.37	0.54
1.200	0.54	4.267	17.13	7.333	2.18	10.40	0.54
1.233	0.54	4.300	25.02	7.367	2.18	10.43	0.54
1.267	0.54	4.333	25.02	7.400	2.18	10.47	0.54
1.300	0.54	4.367	25.02	7.433	2.18	10.50	0.54
1.333	0.54	4.400	25.02	7.467	2.18	10.53	0.54
1.367	0.54	4.433	25.02	7.500	2.18	10.57	0.54
1.400	0.54	4.467	25.02	7.533	2.18	10.60	0.54
1.433	0.54	4.500	25.02	7.567	2.18	10.63	0.54
1.467	0.54	4.533	25.02	7.600	2.18	10.67	0.54
1.500	0.54	4.567	25.02	7.633	2.18	10.70	0.54
1.533	0.54	4.600	25.02	7.667	2.18	10.73	0.54
1.567	0.54	4.633	25.02	7.700	2.18	10.77	0.54
1.600	0.54	4.667	25.02	7.733	2.18	10.80	0.54
1.633	0.54	4.700	25.02	7.767	2.18	10.83	0.54
1.667	0.54	4.733	25.02	7.800	2.18	10.87	0.54
1.700	0.54	4.767	25.02	7.833	2.18	10.90	0.54
1.733	0.54	4.800	25.02	7.867	2.18	10.93	0.54
1.767	0.54	4.833	25.02	7.900	2.18	10.97	0.54
1.800	0.54	4.867	25.02	7.933	2.18	11.00	0.54
1.833	0.54	4.900	25.02	7.967	2.18	11.03	0.54
1.867	0.54	4.933	25.02	8.000	2.18	11.07	0.54
1.900	0.54	4.967	25.02	8.033	2.18	11.10	0.54
1.933	0.54	5.000	25.02	8.067	2.18	11.13	0.54
1.967	0.54	5.033	25.02	8.100	2.18	11.17	0.54
2.000	0.54	5.067	25.02	8.133	2.18	11.20	0.54
2.033	0.54	5.100	25.02	8.167	2.18	11.23	0.54
2.067	0.54	5.133	25.02	8.200	2.18	11.27	0.54
2.100	0.54	5.167	25.02	8.233	2.18	11.30	0.54
2.133	0.54	5.200	25.02	8.267	1.64	11.33	0.54
2.167	0.54	5.233	25.02	8.300	1.09	11.37	0.54
2.200	0.54	5.267	16.05	8.333	1.09	11.40	0.54
2.233	0.54	5.300	7.07	8.367	1.09	11.43	0.54
2.267	1.90	5.333	7.07	8.400	1.09	11.47	0.54
2.300	3.26	5.367	7.07	8.433	1.09	11.50	0.54
2.333	3.26	5.400	7.07	8.467	1.09	11.53	0.54
2.367	3.26	5.433	7.07	8.500	1.09	11.57	0.54
2.400	3.26	5.467	7.07	8.533	1.09	11.60	0.54
2.433	3.26	5.500	7.07	8.567	1.09	11.63	0.54
2.467	3.26	5.533	7.07	8.600	1.09	11.67	0.54
2.500	3.26	5.567	7.07	8.633	1.09	11.70	0.54
2.533	3.26	5.600	7.07	8.667	1.09	11.73	0.54
2.567	3.26	5.633	7.07	8.700	1.09	11.77	0.54
2.600	3.26	5.667	7.07	8.733	1.09	11.80	0.54
2.633	3.26	5.700	7.07	8.767	1.09	11.83	0.54
2.667	3.26	5.733	7.07	8.800	1.09	11.87	0.54
2.700	3.26	5.767	7.07	8.833	1.09	11.90	0.54
2.733	3.26	5.800	7.07	8.867	1.09	11.93	0.54
2.767	3.26	5.833	7.07	8.900	1.09	11.97	0.54
2.800	3.26	5.867	7.07	8.933	1.09	12.00	0.54
2.833	3.26	5.900	7.07	8.967	1.09	12.03	0.54
2.867	3.26	5.933	7.07	9.000	1.09	12.07	0.54
2.900	3.26	5.967	7.07	9.033	1.09	12.10	0.54
2.933	3.26	6.000	7.07	9.067	1.09	12.13	0.54
2.967	3.26	6.033	7.07	9.100	1.09	12.17	0.54
3.000	3.26	6.067	7.07	9.133	1.09	12.20	0.54
3.033	3.26	6.100	7.07	9.167	1.09	12.23	0.54
3.067	3.26	6.133	7.07	9.200	1.09	12.27	0.27

```
     Max.Eff.Inten.(mm/hr)=      25.02        12.03
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       8.76 (ii)   11.55 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.13         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.97         0.01         0.983 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27          5.23
     RUNOFF VOLUME    (mm)=      53.38        18.82         52.55
     TOTAL RAINFALL   (mm)=      54.38        54.38         54.38
     RUNOFF COEFFICIENT   =       0.98         0.35          0.97

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 --------------------
 | RESERVOIR(  0004)|     OVERFLOW IS ON
 | IN= 2---> OUT= 1 |
 | DT=  2.0 min     |     OUTFLOW    STORAGE   |   OUTFLOW    STORAGE
 --------------------      (cms)     (ha.m.)   |    (cms)     (ha.m.)
                           0.0000     0.0000   |   0.2654      0.8399
                           0.0111     0.0722   |   0.2796      0.9338
                           0.0509     0.1444   |   0.2932      1.0277
                           0.0712     0.2166   |   0.3061      1.1216
                           0.0868     0.2888   |   0.3185      1.2155
                           0.1000     0.3706   |   0.3304      1.3093
                           0.1117     0.4644   |   0.3420      1.4032
                           0.1222     0.5583   |   0.3531      1.4971
                           0.1319     0.6522   |   0.3639      1.5910
                           0.2504     0.7461   |   0.3745      1.6846

                                    AREA     QPEAK      TPEAK       R.V.
                                    (ha)     (cms)      (hrs)       (mm)
   INFLOW : ID= 2 (  0120)       14.360     0.983       5.23       52.55
   OUTFLOW: ID= 1 (  0004)       14.360     0.122       7.40       51.90
   OVERFLOW:ID= 3 (  0003)        0.000     0.000       0.00        0.00

                 TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                 CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                 PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)= 12.37
                 TIME SHIFT OF PEAK FLOW         (min)=130.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.5529

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   | Junction Command(0055) |
   -------------------------

                              AREA     QPEAK    TPEAK     R.V.
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TOWN OF CALEDON
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                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 3(  0004)    0.00     0.00     0.00     0.00
  OUTFLOW: ID= 2(  0055)    0.00     0.00     0.00     0.00

  ------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
-------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76         0.33
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     283.90        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.26 | 6.167    7.07 |  9.23    1.09
               0.067    0.00 | 3.133    3.26 | 6.200    7.07 |  9.27    0.81
               0.100    0.00 | 3.167    3.26 | 6.233    7.07 |  9.30    0.54
               0.133    0.00 | 3.200    3.26 | 6.267    5.44 |  9.33    0.54
               0.167    0.00 | 3.233    3.26 | 6.300    3.81 |  9.37    0.54
               0.200    0.00 | 3.267    6.25 | 6.333    3.81 |  9.40    0.54
               0.233    0.00 | 3.300    9.25 | 6.367    3.81 |  9.43    0.54
               0.267    0.27 | 3.333    9.25 | 6.400    3.81 |  9.47    0.54
               0.300    0.54 | 3.367    9.25 | 6.433    3.81 |  9.50    0.54
               0.333    0.54 | 3.400    9.25 | 6.467    3.81 |  9.53    0.54
               0.367    0.54 | 3.433    9.25 | 6.500    3.81 |  9.57    0.54
               0.400    0.54 | 3.467    9.25 | 6.533    3.81 |  9.60    0.54
               0.433    0.54 | 3.500    9.25 | 6.567    3.81 |  9.63    0.54
               0.467    0.54 | 3.533    9.25 | 6.600    3.81 |  9.67    0.54
               0.500    0.54 | 3.567    9.25 | 6.633    3.81 |  9.70    0.54
               0.533    0.54 | 3.600    9.25 | 6.667    3.81 |  9.73    0.54
               0.567    0.54 | 3.633    9.25 | 6.700    3.81 |  9.77    0.54
               0.600    0.54 | 3.667    9.25 | 6.733    3.81 |  9.80    0.54
               0.633    0.54 | 3.700    9.25 | 6.767    3.81 |  9.83    0.54
               0.667    0.54 | 3.733    9.25 | 6.800    3.81 |  9.87    0.54
               0.700    0.54 | 3.767    9.25 | 6.833    3.81 |  9.90    0.54
               0.733    0.54 | 3.800    9.25 | 6.867    3.81 |  9.93    0.54
               0.767    0.54 | 3.833    9.25 | 6.900    3.81 |  9.97    0.54
               0.800    0.54 | 3.867    9.25 | 6.933    3.81 | 10.00    0.54
               0.833    0.54 | 3.900    9.25 | 6.967    3.81 | 10.03    0.54
               0.867    0.54 | 3.933    9.25 | 7.000    3.81 | 10.07    0.54
               0.900    0.54 | 3.967    9.25 | 7.033    3.81 | 10.10    0.54
               0.933    0.54 | 4.000    9.25 | 7.067    3.81 | 10.13    0.54
               0.967    0.54 | 4.033    9.25 | 7.100    3.81 | 10.17    0.54
               1.000    0.54 | 4.067    9.25 | 7.133    3.81 | 10.20    0.54
               1.033    0.54 | 4.100    9.25 | 7.167    3.81 | 10.23    0.54
               1.067    0.54 | 4.133    9.25 | 7.200    3.81 | 10.27    0.54
               1.100    0.54 | 4.167    9.25 | 7.233    3.81 | 10.30    0.54
               1.133    0.54 | 4.200    9.25 | 7.267    3.00 | 10.33    0.54
               1.167    0.54 | 4.233    9.25 | 7.300    2.18 | 10.37    0.54
               1.200    0.54 | 4.267   17.13 | 7.333    2.18 | 10.40    0.54
               1.233    0.54 | 4.300   25.02 | 7.367    2.18 | 10.43    0.54
               1.267    0.54 | 4.333   25.02 | 7.400    2.18 | 10.47    0.54
               1.300    0.54 | 4.367   25.02 | 7.433    2.18 | 10.50    0.54
               1.333    0.54 | 4.400   25.02 | 7.467    2.18 | 10.53    0.54
               1.367    0.54 | 4.433   25.02 | 7.500    2.18 | 10.57    0.54
               1.400    0.54 | 4.467   25.02 | 7.533    2.18 | 10.60    0.54
               1.433    0.54 | 4.500   25.02 | 7.567    2.18 | 10.63    0.54
               1.467    0.54 | 4.533   25.02 | 7.600    2.18 | 10.67    0.54
               1.500    0.54 | 4.567   25.02 | 7.633    2.18 | 10.70    0.54
               1.533    0.54 | 4.600   25.02 | 7.667    2.18 | 10.73    0.54
               1.567    0.54 | 4.633   25.02 | 7.700    2.18 | 10.77    0.54
               1.600    0.54 | 4.667   25.02 | 7.733    2.18 | 10.80    0.54
               1.633    0.54 | 4.700   25.02 | 7.767    2.18 | 10.83    0.54
               1.667    0.54 | 4.733   25.02 | 7.800    2.18 | 10.87    0.54
               1.700    0.54 | 4.767   25.02 | 7.833    2.18 | 10.90    0.54
               1.733    0.54 | 4.800   25.02 | 7.867    2.18 | 10.93    0.54
               1.767    0.54 | 4.833   25.02 | 7.900    2.18 | 10.97    0.54
               1.800    0.54 | 4.867   25.02 | 7.933    2.18 | 11.00    0.54
               1.833    0.54 | 4.900   25.02 | 7.967    2.18 | 11.03    0.54
               1.867    0.54 | 4.933   25.02 | 8.000    2.18 | 11.07    0.54
               1.900    0.54 | 4.967   25.02 | 8.033    2.18 | 11.10    0.54
               1.933    0.54 | 5.000   25.02 | 8.067    2.18 | 11.13    0.54
               1.967    0.54 | 5.033   25.02 | 8.100    2.18 | 11.17    0.54
               2.000    0.54 | 5.067   25.02 | 8.133    2.18 | 11.20    0.54
               2.033    0.54 | 5.100   25.02 | 8.167    2.18 | 11.23    0.54
               2.067    0.54 | 5.133   25.02 | 8.200    2.18 | 11.27    0.54
               2.100    0.54 | 5.167   25.02 | 8.233    2.18 | 11.30    0.54
               2.133    0.54 | 5.200   25.02 | 8.267    1.64 | 11.33    0.54
               2.167    0.54 | 5.233   25.02 | 8.300    1.09 | 11.37    0.54
               2.200    0.54 | 5.267   16.05 | 8.333    1.09 | 11.40    0.54
               2.233    0.54 | 5.300    7.07 | 8.367    1.09 | 11.43    0.54
               2.267    1.90 | 5.333    7.07 | 8.400    1.09 | 11.47    0.54
               2.300    3.26 | 5.367    7.07 | 8.433    1.09 | 11.50    0.54
               2.333    3.26 | 5.400    7.07 | 8.467    1.09 | 11.53    0.54
               2.367    3.26 | 5.433    7.07 | 8.500    1.09 | 11.57    0.54
               2.400    3.26 | 5.467    7.07 | 8.533    1.09 | 11.60    0.54
               2.433    3.26 | 5.500    7.07 | 8.567    1.09 | 11.63    0.54
               2.467    3.26 | 5.533    7.07 | 8.600    1.09 | 11.67    0.54
               2.500    3.26 | 5.567    7.07 | 8.633    1.09 | 11.70    0.54
               2.533    3.26 | 5.600    7.07 | 8.667    1.09 | 11.73    0.54
               2.567    3.26 | 5.633    7.07 | 8.700    1.09 | 11.77    0.54
               2.600    3.26 | 5.667    7.07 | 8.733    1.09 | 11.80    0.54
               2.633    3.26 | 5.700    7.07 | 8.767    1.09 | 11.83    0.54
               2.667    3.26 | 5.733    7.07 | 8.800    1.09 | 11.87    0.54
               2.700    3.26 | 5.767    7.07 | 8.833    1.09 | 11.90    0.54
               2.733    3.26 | 5.800    7.07 | 8.867    1.09 | 11.93    0.54
               2.767    3.26 | 5.833    7.07 | 8.900    1.09 | 11.97    0.54
               2.800    3.26 | 5.867    7.07 | 8.933    1.09 | 12.00    0.54
               2.833    3.26 | 5.900    7.07 | 8.967    1.09 | 12.03    0.54
               2.867    3.26 | 5.933    7.07 | 9.000    1.09 | 12.07    0.54
               2.900    3.26 | 5.967    7.07 | 9.033    1.09 | 12.10    0.54
               2.933    3.26 | 6.000    7.07 | 9.067    1.09 | 12.13    0.54
               2.967    3.26 | 6.033    7.07 | 9.100    1.09 | 12.17    0.54
               3.000    3.26 | 6.067    7.07 | 9.133    1.09 | 12.20    0.54
               3.033    3.26 | 6.100    7.07 | 9.167    1.09 | 12.23    0.54
               3.067    3.26 | 6.133    7.07 | 9.200    1.09 | 12.27    0.27

     Max.Eff.Inten.(mm/hr)=      25.02        12.03
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       8.32 (ii)   11.24 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.14         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.82         0.01        0.827 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27         5.23
     RUNOFF VOLUME    (mm)=      53.38        18.82        52.45
     TOTAL RAINFALL   (mm)=      54.38        54.38        54.38
     RUNOFF COEFFICIENT   =       0.98         0.35         0.96


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. 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 (  0099)|   Area    (ha)=   8.19
  |ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
  -------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.67        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.26 | 6.167    7.07 |  9.23    1.09
               0.067    0.00 | 3.133    3.26 | 6.200    7.07 |  9.27    0.81
               0.100    0.00 | 3.167    3.26 | 6.233    7.07 |  9.30    0.54
               0.133    0.00 | 3.200    3.26 | 6.267    5.44 |  9.33    0.54
               0.167    0.00 | 3.233    3.26 | 6.300    3.81 |  9.37    0.54
               0.200    0.00 | 3.267    6.25 | 6.333    3.81 |  9.40    0.54
               0.233    0.00 | 3.300    9.25 | 6.367    3.81 |  9.43    0.54
               0.267    0.27 | 3.333    9.25 | 6.400    3.81 |  9.47    0.54
               0.300    0.54 | 3.367    9.25 | 6.433    3.81 |  9.50    0.54
               0.333    0.54 | 3.400    9.25 | 6.467    3.81 |  9.53    0.54
               0.367    0.54 | 3.433    9.25 | 6.500    3.81 |  9.57    0.54
               0.400    0.54 | 3.467    9.25 | 6.533    3.81 |  9.60    0.54
               0.433    0.54 | 3.500    9.25 | 6.567    3.81 |  9.63    0.54
               0.467    0.54 | 3.533    9.25 | 6.600    3.81 |  9.67    0.54
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0.500	0.54	3.567	9.25	6.633	3.81	9.70	0.54
0.533	0.54	3.600	9.25	6.667	3.81	9.73	0.54
0.567	0.54	3.633	9.25	6.700	3.81	9.77	0.54
0.600	0.54	3.667	9.25	6.733	3.81	9.80	0.54
0.633	0.54	3.700	9.25	6.767	3.81	9.83	0.54
0.667	0.54	3.733	9.25	6.800	3.81	9.87	0.54
0.700	0.54	3.767	9.25	6.833	3.81	9.90	0.54
0.733	0.54	3.800	9.25	6.867	3.81	9.93	0.54
0.767	0.54	3.833	9.25	6.900	3.81	9.97	0.54
0.800	0.54	3.867	9.25	6.933	3.81	10.00	0.54
0.833	0.54	3.900	9.25	6.967	3.81	10.03	0.54
0.867	0.54	3.933	9.25	7.000	3.81	10.07	0.54
0.900	0.54	3.967	9.25	7.033	3.81	10.10	0.54
0.933	0.54	4.000	9.25	7.067	3.81	10.13	0.54
0.967	0.54	4.033	9.25	7.100	3.81	10.17	0.54
1.000	0.54	4.067	9.25	7.133	3.81	10.20	0.54
1.033	0.54	4.100	9.25	7.167	3.81	10.23	0.54
1.067	0.54	4.133	9.25	7.200	3.81	10.27	0.54
1.100	0.54	4.167	9.25	7.233	3.81	10.30	0.54
1.133	0.54	4.200	9.25	7.267	3.00	10.33	0.54
1.167	0.54	4.233	9.25	7.300	2.18	10.37	0.54
1.200	0.54	4.267	17.13	7.333	2.18	10.40	0.54
1.233	0.54	4.300	25.02	7.367	2.18	10.43	0.54
1.267	0.54	4.333	25.02	7.400	2.18	10.47	0.54
1.300	0.54	4.367	25.02	7.433	2.18	10.50	0.54
1.333	0.54	4.400	25.02	7.467	2.18	10.53	0.54
1.367	0.54	4.433	25.02	7.500	2.18	10.57	0.54
1.400	0.54	4.467	25.02	7.533	2.18	10.60	0.54
1.433	0.54	4.500	25.02	7.567	2.18	10.63	0.54
1.467	0.54	4.533	25.02	7.600	2.18	10.67	0.54
1.500	0.54	4.567	25.02	7.633	2.18	10.70	0.54
1.533	0.54	4.600	25.02	7.667	2.18	10.73	0.54
1.567	0.54	4.633	25.02	7.700	2.18	10.77	0.54
1.600	0.54	4.667	25.02	7.733	2.18	10.80	0.54
1.633	0.54	4.700	25.02	7.767	2.18	10.83	0.54
1.667	0.54	4.733	25.02	7.800	2.18	10.87	0.54
1.700	0.54	4.767	25.02	7.833	2.18	10.90	0.54
1.733	0.54	4.800	25.02	7.867	2.18	10.93	0.54
1.767	0.54	4.833	25.02	7.900	2.18	10.97	0.54
1.800	0.54	4.867	25.02	7.933	2.18	11.00	0.54
1.833	0.54	4.900	25.02	7.967	2.18	11.03	0.54
1.867	0.54	4.933	25.02	8.000	2.18	11.07	0.54
1.900	0.54	4.967	25.02	8.033	2.18	11.10	0.54
1.933	0.54	5.000	25.02	8.067	2.18	11.13	0.54
1.967	0.54	5.033	25.02	8.100	2.18	11.17	0.54
2.000	0.54	5.067	25.02	8.133	2.18	11.20	0.54
2.033	0.54	5.100	25.02	8.167	2.18	11.23	0.54
2.067	0.54	5.133	25.02	8.200	2.18	11.27	0.54
2.100	0.54	5.167	25.02	8.233	2.18	11.30	0.54
2.133	0.54	5.200	25.02	8.267	1.64	11.33	0.54
2.167	0.54	5.233	25.02	8.300	1.09	11.37	0.54
2.200	0.54	5.267	16.05	8.333	1.09	11.40	0.54
2.233	0.54	5.300	7.07	8.367	1.09	11.43	0.54
2.267	1.90	5.333	7.07	8.400	1.09	11.47	0.54
2.300	3.26	5.367	7.07	8.433	1.09	11.50	0.54
2.333	3.26	5.400	7.07	8.467	1.09	11.53	0.54
2.367	3.26	5.433	7.07	8.500	1.09	11.57	0.54
2.400	3.26	5.467	7.07	8.533	1.09	11.60	0.54
2.433	3.26	5.500	7.07	8.567	1.09	11.63	0.54
2.467	3.26	5.533	7.07	8.600	1.09	11.67	0.54
2.500	3.26	5.567	7.07	8.633	1.09	11.70	0.54
2.533	3.26	5.600	7.07	8.667	1.09	11.73	0.54
2.567	3.26	5.633	7.07	8.700	1.09	11.77	0.54
2.600	3.26	5.667	7.07	8.733	1.09	11.80	0.54
2.633	3.26	5.700	7.07	8.767	1.09	11.83	0.54
2.667	3.26	5.733	7.07	8.800	1.09	11.87	0.54
2.700	3.26	5.767	7.07	8.833	1.09	11.90	0.54
2.733	3.26	5.800	7.07	8.867	1.09	11.93	0.54
2.767	3.26	5.833	7.07	8.900	1.09	11.97	0.54
2.800	3.26	5.867	7.07	8.933	1.09	12.00	0.54
2.833	3.26	5.900	7.07	8.967	1.09	12.03	0.54
2.867	3.26	5.933	7.07	9.000	1.09	12.07	0.54
2.900	3.26	5.967	7.07	9.033	1.09	12.10	0.54
2.933	3.26	6.000	7.07	9.067	1.09	12.13	0.54
2.967	3.26	6.033	7.07	9.100	1.09	12.17	0.54
3.000	3.26	6.067	7.07	9.133	1.09	12.20	0.54
3.033	3.26	6.100	7.07	9.167	1.09	12.23	0.54
3.067	3.26	6.133	7.07	9.200	1.09	12.27	0.27

```
Max.Eff.Inten.(mm/hr)=      25.02        12.03
            over (min)       8.00        10.00
Storage Coeff.  (min)=       7.40 (ii)    8.17 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.15         0.13
```

```
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.57         0.00          0.569 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27           5.23
     RUNOFF VOLUME    (mm)=      53.38        18.82          53.34
     TOTAL RAINFALL   (mm)=      54.38        54.38          54.38
     RUNOFF COEFFICIENT   =       0.98         0.35           0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190      0.569      5.23      53.34
   OUTFLOW: ID= 1 (  0001)      8.190      0.041      8.37      49.03
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.23
                    TIME SHIFT OF PEAK FLOW         (min)=188.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.3609

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

--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19   0.041     8.37    49.03
      + ID2= 2 (  0100):    12.09   0.827     5.23    52.45
        ==================================================
        ID = 3 (  0051):    20.28   0.856     5.23    51.07

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00      0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28   0.856     5.23    51.07
        ==================================================
        ID = 3 (  0052):    20.28   0.856     5.23    51.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
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0.1087	0.2218	0.2271	0.7737
0.1256	0.2662	0.6000	0.8403
0.1406	0.3105	0.6881	0.9081
0.1541	0.3596	0.7636	0.9760
0.1665	0.4159	0.8309	1.0439

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0052)	20.280	0.856	5.23	51.07
OUTFLOW: ID= 1 (0002)	20.280	0.171	6.73	46.54
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.03
TIME SHIFT OF PEAK FLOW (min)= 90.00
MAXIMUM STORAGE USED (ha.m.)= 0.4402

Junction Command(0053)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0002)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0053)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0110) ID= 1 DT= 2.0 min	Area (ha)= 16.70 Total Imp(%)= 97.60 Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	16.30	0.40
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	333.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.26	6.167	7.07	9.23	1.09
0.067	0.00	3.133	3.26	6.200	7.07	9.27	0.81
0.100	0.00	3.167	3.26	6.233	7.07	9.30	0.54
0.133	0.00	3.200	3.26	6.267	5.44	9.33	0.54
0.167	0.00	3.233	3.26	6.300	3.81	9.37	0.54
0.200	0.00	3.267	6.25	6.333	3.81	9.40	0.54
0.233	0.00	3.300	9.25	6.367	3.81	9.43	0.54
0.267	0.27	3.333	9.25	6.400	3.81	9.47	0.54
0.300	0.54	3.367	9.25	6.433	3.81	9.50	0.54
0.333	0.54	3.400	9.25	6.467	3.81	9.53	0.54
0.367	0.54	3.433	9.25	6.500	3.81	9.57	0.54
0.400	0.54	3.467	9.25	6.533	3.81	9.60	0.54
0.433	0.54	3.500	9.25	6.567	3.81	9.63	0.54
0.467	0.54	3.533	9.25	6.600	3.81	9.67	0.54
0.500	0.54	3.567	9.25	6.633	3.81	9.70	0.54
0.533	0.54	3.600	9.25	6.667	3.81	9.73	0.54
0.567	0.54	3.633	9.25	6.700	3.81	9.77	0.54
0.600	0.54	3.667	9.25	6.733	3.81	9.80	0.54
0.633	0.54	3.700	9.25	6.767	3.81	9.83	0.54
0.667	0.54	3.733	9.25	6.800	3.81	9.87	0.54
0.700	0.54	3.767	9.25	6.833	3.81	9.90	0.54
0.733	0.54	3.800	9.25	6.867	3.81	9.93	0.54
0.767	0.54	3.833	9.25	6.900	3.81	9.97	0.54
0.800	0.54	3.867	9.25	6.933	3.81	10.00	0.54
0.833	0.54	3.900	9.25	6.967	3.81	10.03	0.54
0.867	0.54	3.933	9.25	7.000	3.81	10.07	0.54
0.900	0.54	3.967	9.25	7.033	3.81	10.10	0.54
0.933	0.54	4.000	9.25	7.067	3.81	10.13	0.54
0.967	0.54	4.033	9.25	7.100	3.81	10.17	0.54
1.000	0.54	4.067	9.25	7.133	3.81	10.20	0.54
1.033	0.54	4.100	9.25	7.167	3.81	10.23	0.54
1.067	0.54	4.133	9.25	7.200	3.81	10.27	0.54
1.100	0.54	4.167	9.25	7.233	3.81	10.30	0.54
1.133	0.54	4.200	9.25	7.267	3.00	10.33	0.54
1.167	0.54	4.233	9.25	7.300	2.18	10.37	0.54
1.200	0.54	4.267	17.13	7.333	2.18	10.40	0.54
1.233	0.54	4.300	25.02	7.367	2.18	10.43	0.54
1.267	0.54	4.333	25.02	7.400	2.18	10.47	0.54
1.300	0.54	4.367	25.02	7.433	2.18	10.50	0.54
1.333	0.54	4.400	25.02	7.467	2.18	10.53	0.54
1.367	0.54	4.433	25.02	7.500	2.18	10.57	0.54
1.400	0.54	4.467	25.02	7.533	2.18	10.60	0.54
1.433	0.54	4.500	25.02	7.567	2.18	10.63	0.54
1.467	0.54	4.533	25.02	7.600	2.18	10.67	0.54
1.500	0.54	4.567	25.02	7.633	2.18	10.70	0.54
1.533	0.54	4.600	25.02	7.667	2.18	10.73	0.54
1.567	0.54	4.633	25.02	7.700	2.18	10.77	0.54
1.600	0.54	4.667	25.02	7.733	2.18	10.80	0.54
1.633	0.54	4.700	25.02	7.767	2.18	10.83	0.54
1.667	0.54	4.733	25.02	7.800	2.18	10.87	0.54
1.700	0.54	4.767	25.02	7.833	2.18	10.90	0.54
1.733	0.54	4.800	25.02	7.867	2.18	10.93	0.54
1.767	0.54	4.833	25.02	7.900	2.18	10.97	0.54
1.800	0.54	4.867	25.02	7.933	2.18	11.00	0.54
1.833	0.54	4.900	25.02	7.967	2.18	11.03	0.54
1.867	0.54	4.933	25.02	8.000	2.18	11.07	0.54
1.900	0.54	4.967	25.02	8.033	2.18	11.10	0.54
1.933	0.54	5.000	25.02	8.067	2.18	11.13	0.54
1.967	0.54	5.033	25.02	8.100	2.18	11.17	0.54
2.000	0.54	5.067	25.02	8.133	2.18	11.20	0.54
2.033	0.54	5.100	25.02	8.167	2.18	11.23	0.54
2.067	0.54	5.133	25.02	8.200	2.18	11.27	0.54
2.100	0.54	5.167	25.02	8.233	2.18	11.30	0.54
2.133	0.54	5.200	25.02	8.267	1.64	11.33	0.54
2.167	0.54	5.233	25.02	8.300	1.09	11.37	0.54
2.200	0.54	5.267	16.05	8.333	1.09	11.40	0.54
2.233	0.54	5.300	7.07	8.367	1.09	11.43	0.54
2.267	1.90	5.333	7.07	8.400	1.09	11.47	0.54
2.300	3.26	5.367	7.07	8.433	1.09	11.50	0.54
2.333	3.26	5.400	7.07	8.467	1.09	11.53	0.54
2.367	3.26	5.433	7.07	8.500	1.09	11.57	0.54
2.400	3.26	5.467	7.07	8.533	1.09	11.60	0.54
2.433	3.26	5.500	7.07	8.567	1.09	11.63	0.54
2.467	3.26	5.533	7.07	8.600	1.09	11.67	0.54
2.500	3.26	5.567	7.07	8.633	1.09	11.70	0.54
2.533	3.26	5.600	7.07	8.667	1.09	11.73	0.54
2.567	3.26	5.633	7.07	8.700	1.09	11.77	0.54
2.600	3.26	5.667	7.07	8.733	1.09	11.80	0.54
2.633	3.26	5.700	7.07	8.767	1.09	11.83	0.54
2.667	3.26	5.733	7.07	8.800	1.09	11.87	0.54
2.700	3.26	5.767	7.07	8.833	1.09	11.90	0.54
2.733	3.26	5.800	7.07	8.867	1.09	11.93	0.54
2.767	3.26	5.833	7.07	8.900	1.09	11.97	0.54
2.800	3.26	5.867	7.07	8.933	1.09	12.00	0.54
2.833	3.26	5.900	7.07	8.967	1.09	12.03	0.54
2.867	3.26	5.933	7.07	9.000	1.09	12.07	0.54
2.900	3.26	5.967	7.07	9.033	1.09	12.10	0.54
2.933	3.26	6.000	7.07	9.067	1.09	12.13	0.54
2.967	3.26	6.033	7.07	9.100	1.09	12.17	0.54
3.000	3.26	6.067	7.07	9.133	1.09	12.20	0.54
3.033	3.26	6.100	7.07	9.167	1.09	12.23	0.54
3.067	3.26	6.133	7.07	9.200	1.09	12.27	0.27

Max.Eff.Inten.(mm/hr)=		25.02	12.03	
over (min)		10.00	12.00	
Storage Coeff.	(min)=	9.16 (ii)	11.95 (ii)	
Unit Hyd. Tpeak	(min)=	10.00	12.00	
Unit Hyd. peak	(cms)=	0.12	0.09	
				TOTALS
PEAK FLOW	(cms)=	1.13	0.01	1.143 (iii)
TIME TO PEAK	(hrs)=	5.23	5.27	5.23
RUNOFF VOLUME	(mm)=	53.38	18.82	52.55
TOTAL RAINFALL	(mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT	=	0.98	0.35	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS ON			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)

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0.0000	0.0000	0.4765	1.3727
0.0000	0.1242	0.5033	1.5204
0.0621	0.2484	0.5288	1.6681
0.0961	0.3725	0.5531	1.8158
0.1208	0.5019	0.5764	1.9635
0.1413	0.6343	0.5988	2.1112
0.1592	0.7820	0.6204	2.2589
0.1752	0.9297	0.6413	2.4066
0.4176	1.0774	0.6615	2.5543
0.4480	1.2251	0.6811	2.7020

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	16.700	1.143	5.23	52.55
OUTFLOW: ID= 1 (0003)	16.700	0.144	7.43	45.08
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 12.59
TIME SHIFT OF PEAK FLOW (min)=132.00
MAXIMUM STORAGE USED (ha.m.)= 0.6555

Junction Command(0054)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0003)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0054)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0130) ID= 1 DT= 2.0 min	Area (ha)= 8.21 Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.20	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.95	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.26	6.167	7.07	9.23	1.09
0.067	0.00	3.133	3.26	6.200	7.07	9.27	0.81
0.100	0.00	3.167	3.26	6.233	7.07	9.30	0.54
0.133	0.00	3.200	3.26	6.267	5.44	9.33	0.54
0.167	0.00	3.233	3.26	6.300	3.81	9.37	0.54
0.200	0.00	3.267	6.25	6.333	3.81	9.40	0.54
0.233	0.00	3.300	9.25	6.367	3.81	9.43	0.54
0.267	0.27	3.333	9.25	6.400	3.81	9.47	0.54
0.300	0.54	3.367	9.25	6.433	3.81	9.50	0.54
0.333	0.54	3.400	9.25	6.467	3.81	9.53	0.54
0.367	0.54	3.433	9.25	6.500	3.81	9.57	0.54
0.400	0.54	3.467	9.25	6.533	3.81	9.60	0.54
0.433	0.54	3.500	9.25	6.567	3.81	9.63	0.54
0.467	0.54	3.533	9.25	6.600	3.81	9.67	0.54
0.500	0.54	3.567	9.25	6.633	3.81	9.70	0.54
0.533	0.54	3.600	9.25	6.667	3.81	9.73	0.54
0.567	0.54	3.633	9.25	6.700	3.81	9.77	0.54
0.600	0.54	3.667	9.25	6.733	3.81	9.80	0.54
0.633	0.54	3.700	9.25	6.767	3.81	9.83	0.54
0.667	0.54	3.733	9.25	6.800	3.81	9.87	0.54
0.700	0.54	3.767	9.25	6.833	3.81	9.90	0.54
0.733	0.54	3.800	9.25	6.867	3.81	9.93	0.54
0.767	0.54	3.833	9.25	6.900	3.81	9.97	0.54
0.800	0.54	3.867	9.25	6.933	3.81	10.00	0.54
0.833	0.54	3.900	9.25	6.967	3.81	10.03	0.54
0.867	0.54	3.933	9.25	7.000	3.81	10.07	0.54
0.900	0.54	3.967	9.25	7.033	3.81	10.10	0.54
0.933	0.54	4.000	9.25	7.067	3.81	10.13	0.54
0.967	0.54	4.033	9.25	7.100	3.81	10.17	0.54
1.000	0.54	4.067	9.25	7.133	3.81	10.20	0.54
1.033	0.54	4.100	9.25	7.167	3.81	10.23	0.54
1.067	0.54	4.133	9.25	7.200	3.81	10.27	0.54
1.100	0.54	4.167	9.25	7.233	3.81	10.30	0.54
1.133	0.54	4.200	9.25	7.267	3.00	10.33	0.54
1.167	0.54	4.233	9.25	7.300	2.18	10.37	0.54
1.200	0.54	4.267	17.13	7.333	2.18	10.40	0.54
1.233	0.54	4.300	25.02	7.367	2.18	10.43	0.54
1.267	0.54	4.333	25.02	7.400	2.18	10.47	0.54
1.300	0.54	4.367	25.02	7.433	2.18	10.50	0.54
1.333	0.54	4.400	25.02	7.467	2.18	10.53	0.54
1.367	0.54	4.433	25.02	7.500	2.18	10.57	0.54
1.400	0.54	4.467	25.02	7.533	2.18	10.60	0.54
1.433	0.54	4.500	25.02	7.567	2.18	10.63	0.54
1.467	0.54	4.533	25.02	7.600	2.18	10.67	0.54
1.500	0.54	4.567	25.02	7.633	2.18	10.70	0.54
1.533	0.54	4.600	25.02	7.667	2.18	10.73	0.54
1.567	0.54	4.633	25.02	7.700	2.18	10.77	0.54
1.600	0.54	4.667	25.02	7.733	2.18	10.80	0.54
1.633	0.54	4.700	25.02	7.767	2.18	10.83	0.54
1.667	0.54	4.733	25.02	7.800	2.18	10.87	0.54
1.700	0.54	4.767	25.02	7.833	2.18	10.90	0.54
1.733	0.54	4.800	25.02	7.867	2.18	10.93	0.54
1.767	0.54	4.833	25.02	7.900	2.18	10.97	0.54
1.800	0.54	4.867	25.02	7.933	2.18	11.00	0.54
1.833	0.54	4.900	25.02	7.967	2.18	11.03	0.54
1.867	0.54	4.933	25.02	8.000	2.18	11.07	0.54
1.900	0.54	4.967	25.02	8.033	2.18	11.10	0.54
1.933	0.54	5.000	25.02	8.067	2.18	11.13	0.54
1.967	0.54	5.033	25.02	8.100	2.18	11.17	0.54
2.000	0.54	5.067	25.02	8.133	2.18	11.20	0.54
2.033	0.54	5.100	25.02	8.167	2.18	11.23	0.54
2.067	0.54	5.133	25.02	8.200	2.18	11.27	0.54
2.100	0.54	5.167	25.02	8.233	2.18	11.30	0.54
2.133	0.54	5.200	25.02	8.267	1.64	11.33	0.54
2.167	0.54	5.233	25.02	8.300	1.09	11.37	0.54
2.200	0.54	5.267	16.05	8.333	1.09	11.40	0.54
2.233	0.54	5.300	7.07	8.367	1.09	11.43	0.54
2.267	1.90	5.333	7.07	8.400	1.09	11.47	0.54
2.300	3.26	5.367	7.07	8.433	1.09	11.50	0.54
2.333	3.26	5.400	7.07	8.467	1.09	11.53	0.54
2.367	3.26	5.433	7.07	8.500	1.09	11.57	0.54
2.400	3.26	5.467	7.07	8.533	1.09	11.60	0.54
2.433	3.26	5.500	7.07	8.567	1.09	11.63	0.54
2.467	3.26	5.533	7.07	8.600	1.09	11.67	0.54
2.500	3.26	5.567	7.07	8.633	1.09	11.70	0.54
2.533	3.26	5.600	7.07	8.667	1.09	11.73	0.54
2.567	3.26	5.633	7.07	8.700	1.09	11.77	0.54
2.600	3.26	5.667	7.07	8.733	1.09	11.80	0.54
2.633	3.26	5.700	7.07	8.767	1.09	11.83	0.54
2.667	3.26	5.733	7.07	8.800	1.09	11.87	0.54
2.700	3.26	5.767	7.07	8.833	1.09	11.90	0.54
2.733	3.26	5.800	7.07	8.867	1.09	11.93	0.54
2.767	3.26	5.833	7.07	8.900	1.09	11.97	0.54
2.800	3.26	5.867	7.07	8.933	1.09	12.00	0.54
2.833	3.26	5.900	7.07	8.967	1.09	12.03	0.54
2.867	3.26	5.933	7.07	9.000	1.09	12.07	0.54
2.900	3.26	5.967	7.07	9.033	1.09	12.10	0.54
2.933	3.26	6.000	7.07	9.067	1.09	12.13	0.54
2.967	3.26	6.033	7.07	9.100	1.09	12.17	0.54
3.000	3.26	6.067	7.07	9.133	1.09	12.20	0.54
3.033	3.26	6.100	7.07	9.167	1.09	12.23	0.54
3.067	3.26	6.133	7.07	9.200	1.09	12.27	0.27

			TOTALS
Max.Eff.Inten.(mm/hr)=	25.02	17.46	
over (min)	8.00	10.00	
Storage Coeff. (min)=	7.40 (ii)	8.18 (ii)	
Unit Hyd. Tpeak (min)=	8.00	10.00	
Unit Hyd. peak (cms)=	0.15	0.13	
PEAK FLOW (cms)=	0.57	0.00	0.570 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23
RUNOFF VOLUME (mm)=	53.38	27.92	53.35
TOTAL RAINFALL (mm)=	54.38	54.38	54.38
RUNOFF COEFFICIENT =	0.98	0.51	0.98

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 87.0 Ia = Dep. 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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| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
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DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.570	5.23	53.35
OUTFLOW:ID= 1	8.21	0.077	7.30	41.36
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=       22.48
Time to reach Max storage                (Hr)=       7.30
Volume of water for drawdown in LID (cu.m.)=     1963.92
Volume of maximum water storage     (cu.m.)=     3049.32
Calculated Drawdown Time                 (Hr)=       28.92

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| Junction Command(0056) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.08	7.30	41.36
OUTFLOW: ID= 2(0056)	8.21	0.08	7.30	41.36

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| Junction Command(0057) |
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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

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*************************************
** SIMULATION:Run 10 10yr 12hr AES **
*************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

```
NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.76	6.167	8.15	9.23	1.25
0.067	0.00	3.133	3.76	6.200	8.15	9.27	0.94
0.100	0.00	3.167	3.76	6.233	8.15	9.30	0.63
0.133	0.00	3.200	3.76	6.267	6.27	9.33	0.63
0.167	0.00	3.233	3.76	6.300	4.39	9.37	0.63
0.200	0.00	3.267	7.21	6.333	4.39	9.40	0.63
0.233	0.00	3.300	10.66	6.367	4.39	9.43	0.63
0.267	0.32	3.333	10.66	6.400	4.39	9.47	0.63
0.300	0.63	3.367	10.66	6.433	4.39	9.50	0.63
0.333	0.63	3.400	10.66	6.467	4.39	9.53	0.63
0.367	0.63	3.433	10.66	6.500	4.39	9.57	0.63
0.400	0.63	3.467	10.66	6.533	4.39	9.60	0.63
0.433	0.63	3.500	10.66	6.567	4.39	9.63	0.63
0.467	0.63	3.533	10.66	6.600	4.39	9.67	0.63
0.500	0.63	3.567	10.66	6.633	4.39	9.70	0.63
0.533	0.63	3.600	10.66	6.667	4.39	9.73	0.63
0.567	0.63	3.633	10.66	6.700	4.39	9.77	0.63
0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63

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1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

```
Max.Eff.Inten.(mm/hr)=      28.84        15.24
           over (min)        8.00        12.00
Storage Coeff.  (min)=       8.27 (ii)   10.91 (ii)
Unit Hyd. Tpeak (min)=       8.00        12.00
Unit Hyd. peak  (cms)=       0.14         0.10
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.12         0.01        1.135 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      61.71        24.15        60.81
TOTAL RAINFALL   (mm)=      62.71        62.71        62.71
RUNOFF COEFFICIENT   =       0.98         0.39         0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654      0.8399
                          0.0111     0.0722   |   0.2796      0.9338
                          0.0509     0.1444   |   0.2932      1.0277
                          0.0712     0.2166   |   0.3061      1.1216
                          0.0868     0.2888   |   0.3185      1.2155
                          0.1000     0.3706   |   0.3304      1.3093
                          0.1117     0.4644   |   0.3420      1.4032
                          0.1222     0.5583   |   0.3531      1.4971
                          0.1319     0.6522   |   0.3639      1.5910
                          0.2504     0.7461   |   0.3745      1.6846

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360     1.135      5.23      60.81
   OUTFLOW: ID= 1 (  0004)     14.360     0.131      7.43      60.08

    OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.58
                    TIME SHIFT OF PEAK FLOW         (min)=132.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.6477

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  -------------------------
  | Junction Command(0055) |
  -------------------------

                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)     0.00      0.00    0.00     0.00

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      11.76          0.33
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     283.90         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                  0.033    0.00 | 3.100    3.76 | 6.167    8.15 |  9.23    1.25
                  0.067    0.00 | 3.133    3.76 | 6.200    8.15 |  9.27    0.94
                  0.100    0.00 | 3.167    3.76 | 6.233    8.15 |  9.30    0.63
                  0.133    0.00 | 3.200    3.76 | 6.267    6.27 |  9.33    0.63
                  0.167    0.00 | 3.233    3.76 | 6.300    4.39 |  9.37    0.63
                  0.200    0.00 | 3.267    7.21 | 6.333    4.39 |  9.40    0.63
                  0.233    0.00 | 3.300   10.66 | 6.367    4.39 |  9.43    0.63
                  0.267    0.32 | 3.333   10.66 | 6.400    4.39 |  9.47    0.63
                  0.300    0.63 | 3.367   10.66 | 6.433    4.39 |  9.50    0.63
                  0.333    0.63 | 3.400   10.66 | 6.467    4.39 |  9.53    0.63
                  0.367    0.63 | 3.433   10.66 | 6.500    4.39 |  9.57    0.63
                  0.400    0.63 | 3.467   10.66 | 6.533    4.39 |  9.60    0.63
                  0.433    0.63 | 3.500   10.66 | 6.567    4.39 |  9.63    0.63
                  0.467    0.63 | 3.533   10.66 | 6.600    4.39 |  9.67    0.63
                  0.500    0.63 | 3.567   10.66 | 6.633    4.39 |  9.70    0.63
                  0.533    0.63 | 3.600   10.66 | 6.667    4.39 |  9.73    0.63
                  0.567    0.63 | 3.633   10.66 | 6.700    4.39 |  9.77    0.63
                  0.600    0.63 | 3.667   10.66 | 6.733    4.39 |  9.80    0.63
                  0.633    0.63 | 3.700   10.66 | 6.767    4.39 |  9.83    0.63
                  0.667    0.63 | 3.733   10.66 | 6.800    4.39 |  9.87    0.63
                  0.700    0.63 | 3.767   10.66 | 6.833    4.39 |  9.90    0.63
                  0.733    0.63 | 3.800   10.66 | 6.867    4.39 |  9.93    0.63
                  0.767    0.63 | 3.833   10.66 | 6.900    4.39 |  9.97    0.63
                  0.800    0.63 | 3.867   10.66 | 6.933    4.39 | 10.00    0.63
                  0.833    0.63 | 3.900   10.66 | 6.967    4.39 | 10.03    0.63
                  0.867    0.63 | 3.933   10.66 | 7.000    4.39 | 10.07    0.63
                  0.900    0.63 | 3.967   10.66 | 7.033    4.39 | 10.10    0.63
                  0.933    0.63 | 4.000   10.66 | 7.067    4.39 | 10.13    0.63
                  0.967    0.63 | 4.033   10.66 | 7.100    4.39 | 10.17    0.63
                  1.000    0.63 | 4.067   10.66 | 7.133    4.39 | 10.20    0.63
                  1.033    0.63 | 4.100   10.66 | 7.167    4.39 | 10.23    0.63
                  1.067    0.63 | 4.133   10.66 | 7.200    4.39 | 10.27    0.63
                  1.100    0.63 | 4.167   10.66 | 7.233    4.39 | 10.30    0.63
                  1.133    0.63 | 4.200   10.66 | 7.267    3.45 | 10.33    0.63
                  1.167    0.63 | 4.233   10.66 | 7.300    2.51 | 10.37    0.63
                  1.200    0.63 | 4.267   19.75 | 7.333    2.51 | 10.40    0.63
                  1.233    0.63 | 4.300   28.84 | 7.367    2.51 | 10.43    0.63
                  1.267    0.63 | 4.333   28.84 | 7.400    2.51 | 10.47    0.63
                  1.300    0.63 | 4.367   28.84 | 7.433    2.51 | 10.50    0.63
                  1.333    0.63 | 4.400   28.84 | 7.467    2.51 | 10.53    0.63
                  1.367    0.63 | 4.433   28.84 | 7.500    2.51 | 10.57    0.63
                  1.400    0.63 | 4.467   28.84 | 7.533    2.51 | 10.60    0.63
                  1.433    0.63 | 4.500   28.84 | 7.567    2.51 | 10.63    0.63
                  1.467    0.63 | 4.533   28.84 | 7.600    2.51 | 10.67    0.63
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1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

Max.Eff.Inten.(mm/hr)=	28.84	15.24	
over (min)	8.00	12.00	
Storage Coeff. (min)=	7.86 (ii)	10.62 (ii)	
Unit Hyd. Tpeak (min)=	8.00	12.00	
Unit Hyd. peak (cms)=	0.14	0.10	
			TOTALS
PEAK FLOW (cms)=	0.94	0.01	0.954 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23
RUNOFF VOLUME (mm)=	61.71	24.15	60.70
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.39	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD ( 0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.18	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.67	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.76	6.167	8.15	9.23	1.25
0.067	0.00	3.133	3.76	6.200	8.15	9.27	0.94
0.100	0.00	3.167	3.76	6.233	8.15	9.30	0.63
0.133	0.00	3.200	3.76	6.267	6.27	9.33	0.63
0.167	0.00	3.233	3.76	6.300	4.39	9.37	0.63
0.200	0.00	3.267	7.21	6.333	4.39	9.40	0.63
0.233	0.00	3.300	10.66	6.367	4.39	9.43	0.63
0.267	0.32	3.333	10.66	6.400	4.39	9.47	0.63
0.300	0.63	3.367	10.66	6.433	4.39	9.50	0.63
0.333	0.63	3.400	10.66	6.467	4.39	9.53	0.63
0.367	0.63	3.433	10.66	6.500	4.39	9.57	0.63
0.400	0.63	3.467	10.66	6.533	4.39	9.60	0.63
0.433	0.63	3.500	10.66	6.567	4.39	9.63	0.63
0.467	0.63	3.533	10.66	6.600	4.39	9.67	0.63
0.500	0.63	3.567	10.66	6.633	4.39	9.70	0.63
0.533	0.63	3.600	10.66	6.667	4.39	9.73	0.63
0.567	0.63	3.633	10.66	6.700	4.39	9.77	0.63
0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63

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                2.733    3.76 | 5.800    8.15 | 8.867    1.25 | 11.93    0.63
                2.767    3.76 | 5.833    8.15 | 8.900    1.25 | 11.97    0.63
                2.800    3.76 | 5.867    8.15 | 8.933    1.25 | 12.00    0.63
                2.833    3.76 | 5.900    8.15 | 8.967    1.25 | 12.03    0.63
                2.867    3.76 | 5.933    8.15 | 9.000    1.25 | 12.07    0.63
                2.900    3.76 | 5.967    8.15 | 9.033    1.25 | 12.10    0.63
                2.933    3.76 | 6.000    8.15 | 9.067    1.25 | 12.13    0.63
                2.967    3.76 | 6.033    8.15 | 9.100    1.25 | 12.17    0.63
                3.000    3.76 | 6.067    8.15 | 9.133    1.25 | 12.20    0.63
                3.033    3.76 | 6.100    8.15 | 9.167    1.25 | 12.23    0.63
                3.067    3.76 | 6.133    8.15 | 9.200    1.25 | 12.27    0.31

     Max.Eff.Inten.(mm/hr)=      28.84        15.24
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       6.99 (ii)    7.72 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.17         0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.66         0.00          0.656 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.23           5.23
     RUNOFF VOLUME    (mm)=      61.71        24.15          61.67
     TOTAL RAINFALL   (mm)=      62.71        62.71          62.71
     RUNOFF COEFFICIENT   =       0.98         0.39           0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190     0.656      5.23      61.67
   OUTFLOW: ID= 1 (  0001)      8.190     0.048      8.33      56.69
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.25
                   TIME SHIFT OF PEAK FLOW         (min)=186.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.4171

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

--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.048     8.33    56.69
      + ID2= 2 (  0100):     12.09    0.954     5.23    60.70
        ==================================================
        ID = 3 (  0051):     20.28    0.989     5.23    59.08

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                           AREA     QPEAK    TPEAK     R.V.
                           (ha)     (cms)    (hrs)     (mm)
  INFLOW : ID= 3(  0001)    0.00      0.00     0.00     0.00
  OUTFLOW: ID= 2(  0050)    0.00      0.00     0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):      0.00    0.000     0.00     0.00
      + ID2= 2 (  0051):     20.28    0.989     5.23    59.08
        ==================================================
        ID = 3 (  0052):     20.28    0.989     5.23    59.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780     0.4721
                          0.0000     0.0444   |   0.1888     0.5284
                          0.0000     0.0887   |   0.1991     0.5880
                          0.0622     0.1331   |   0.2088     0.6499
                          0.0885     0.1775   |   0.2181     0.7118
                          0.1087     0.2218   |   0.2271     0.7737
                          0.1256     0.2662   |   0.6000     0.8403
                          0.1406     0.3105   |   0.6881     0.9081
                          0.1541     0.3596   |   0.7636     0.9760
                          0.1665     0.4159   |   0.8309     1.0439

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280     0.989      5.23      59.08
   OUTFLOW: ID= 1 (  0002)     20.280     0.187      7.30      54.52
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.86
                   TIME SHIFT OF PEAK FLOW         (min)=124.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.5166

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  --------------------------
  | Junction Command(0053) |
  --------------------------

                           AREA     QPEAK    TPEAK     R.V.
                           (ha)     (cms)    (hrs)     (mm)
  INFLOW : ID= 3(  0002)    0.00      0.00     0.00     0.00
  OUTFLOW: ID= 2(  0053)    0.00      0.00     0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n          =       0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    3.76 | 6.167    8.15 |  9.23    1.25
               0.067    0.00 | 3.133    3.76 | 6.200    8.15 |  9.27    0.94
               0.100    0.00 | 3.167    3.76 | 6.233    8.15 |  9.30    0.63
               0.133    0.00 | 3.200    3.76 | 6.267    6.27 |  9.33    0.63
               0.167    0.00 | 3.233    3.76 | 6.300    4.39 |  9.37    0.63
               0.200    0.00 | 3.267    7.21 | 6.333    4.39 |  9.40    0.63
               0.233    0.00 | 3.300   10.66 | 6.367    4.39 |  9.43    0.63
               0.267    0.32 | 3.333   10.66 | 6.400    4.39 |  9.47    0.63
               0.300    0.63 | 3.367   10.66 | 6.433    4.39 |  9.50    0.63
               0.333    0.63 | 3.400   10.66 | 6.467    4.39 |  9.53    0.63
               0.367    0.63 | 3.433   10.66 | 6.500    4.39 |  9.57    0.63
               0.400    0.63 | 3.467   10.66 | 6.533    4.39 |  9.60    0.63
               0.433    0.63 | 3.500   10.66 | 6.567    4.39 |  9.63    0.63
               0.467    0.63 | 3.533   10.66 | 6.600    4.39 |  9.67    0.63
               0.500    0.63 | 3.567   10.66 | 6.633    4.39 |  9.70    0.63
               0.533    0.63 | 3.600   10.66 | 6.667    4.39 |  9.73    0.63
               0.567    0.63 | 3.633   10.66 | 6.700    4.39 |  9.77    0.63
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0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

Max.Eff.Inten.(mm/hr)=	28.84	15.24	
over (min)	8.00	12.00	
Storage Coeff. (min)=	8.66 (ii)	11.29 (ii)	
Unit Hyd. Tpeak (min)=	8.00	12.00	
Unit Hyd. peak (cms)=	0.13	0.10	
			TOTALS
PEAK FLOW (cms)=	1.30	0.02	1.320 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23

RUNOFF VOLUME (mm)=	61.71	24.15	60.81
TOTAL RAINFALL (mm)=	62.71	62.71	62.71
RUNOFF COEFFICIENT =	0.98	0.39	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003) IN= 2---> OUT= 1 DT= 2.0 min	OVERFLOW IS ON			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.4765	1.3727
	0.0000	0.1242	0.5033	1.5204
	0.0621	0.2484	0.5288	1.6681
	0.0961	0.3725	0.5531	1.8158
	0.1208	0.5019	0.5764	1.9635
	0.1413	0.6343	0.5988	2.1112
	0.1592	0.7820	0.6204	2.2589
	0.1752	0.9297	0.6413	2.4066
	0.4176	1.0774	0.6615	2.5543
	0.4480	1.2251	0.6811	2.7020

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	16.700	1.320	5.23	60.81
OUTFLOW: ID= 1 (0003)	16.700	0.157	7.43	53.34
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.90
TIME SHIFT OF PEAK FLOW (min)=132.00
MAXIMUM STORAGE USED (ha.m.)= 0.7640

Junction Command(0054)				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0003)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0054)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0130) ID= 1 DT= 2.0 min	Area (ha)= 8.21 Total Imp(%)= 99.90 Dir. Conn.(%)= 99.90		
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.20	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	233.95	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	3.76	6.167	8.15	9.23	1.25
0.067	0.00	3.133	3.76	6.200	8.15	9.27	0.94
0.100	0.00	3.167	3.76	6.233	8.15	9.30	0.63
0.133	0.00	3.200	3.76	6.267	6.27	9.33	0.63
0.167	0.00	3.233	3.76	6.300	4.39	9.37	0.63
0.200	0.00	3.267	7.21	6.333	4.39	9.40	0.63
0.233	0.00	3.300	10.66	6.367	4.39	9.43	0.63
0.267	0.32	3.333	10.66	6.400	4.39	9.47	0.63
0.300	0.63	3.367	10.66	6.433	4.39	9.50	0.63
0.333	0.63	3.400	10.66	6.467	4.39	9.53	0.63
0.367	0.63	3.433	10.66	6.500	4.39	9.57	0.63
0.400	0.63	3.467	10.66	6.533	4.39	9.60	0.63

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0.433	0.63	3.500	10.66	6.567	4.39	9.63	0.63
0.467	0.63	3.533	10.66	6.600	4.39	9.67	0.63
0.500	0.63	3.567	10.66	6.633	4.39	9.70	0.63
0.533	0.63	3.600	10.66	6.667	4.39	9.73	0.63
0.567	0.63	3.633	10.66	6.700	4.39	9.77	0.63
0.600	0.63	3.667	10.66	6.733	4.39	9.80	0.63
0.633	0.63	3.700	10.66	6.767	4.39	9.83	0.63
0.667	0.63	3.733	10.66	6.800	4.39	9.87	0.63
0.700	0.63	3.767	10.66	6.833	4.39	9.90	0.63
0.733	0.63	3.800	10.66	6.867	4.39	9.93	0.63
0.767	0.63	3.833	10.66	6.900	4.39	9.97	0.63
0.800	0.63	3.867	10.66	6.933	4.39	10.00	0.63
0.833	0.63	3.900	10.66	6.967	4.39	10.03	0.63
0.867	0.63	3.933	10.66	7.000	4.39	10.07	0.63
0.900	0.63	3.967	10.66	7.033	4.39	10.10	0.63
0.933	0.63	4.000	10.66	7.067	4.39	10.13	0.63
0.967	0.63	4.033	10.66	7.100	4.39	10.17	0.63
1.000	0.63	4.067	10.66	7.133	4.39	10.20	0.63
1.033	0.63	4.100	10.66	7.167	4.39	10.23	0.63
1.067	0.63	4.133	10.66	7.200	4.39	10.27	0.63
1.100	0.63	4.167	10.66	7.233	4.39	10.30	0.63
1.133	0.63	4.200	10.66	7.267	3.45	10.33	0.63
1.167	0.63	4.233	10.66	7.300	2.51	10.37	0.63
1.200	0.63	4.267	19.75	7.333	2.51	10.40	0.63
1.233	0.63	4.300	28.84	7.367	2.51	10.43	0.63
1.267	0.63	4.333	28.84	7.400	2.51	10.47	0.63
1.300	0.63	4.367	28.84	7.433	2.51	10.50	0.63
1.333	0.63	4.400	28.84	7.467	2.51	10.53	0.63
1.367	0.63	4.433	28.84	7.500	2.51	10.57	0.63
1.400	0.63	4.467	28.84	7.533	2.51	10.60	0.63
1.433	0.63	4.500	28.84	7.567	2.51	10.63	0.63
1.467	0.63	4.533	28.84	7.600	2.51	10.67	0.63
1.500	0.63	4.567	28.84	7.633	2.51	10.70	0.63
1.533	0.63	4.600	28.84	7.667	2.51	10.73	0.63
1.567	0.63	4.633	28.84	7.700	2.51	10.77	0.63
1.600	0.63	4.667	28.84	7.733	2.51	10.80	0.63
1.633	0.63	4.700	28.84	7.767	2.51	10.83	0.63
1.667	0.63	4.733	28.84	7.800	2.51	10.87	0.63
1.700	0.63	4.767	28.84	7.833	2.51	10.90	0.63
1.733	0.63	4.800	28.84	7.867	2.51	10.93	0.63
1.767	0.63	4.833	28.84	7.900	2.51	10.97	0.63
1.800	0.63	4.867	28.84	7.933	2.51	11.00	0.63
1.833	0.63	4.900	28.84	7.967	2.51	11.03	0.63
1.867	0.63	4.933	28.84	8.000	2.51	11.07	0.63
1.900	0.63	4.967	28.84	8.033	2.51	11.10	0.63
1.933	0.63	5.000	28.84	8.067	2.51	11.13	0.63
1.967	0.63	5.033	28.84	8.100	2.51	11.17	0.63
2.000	0.63	5.067	28.84	8.133	2.51	11.20	0.63
2.033	0.63	5.100	28.84	8.167	2.51	11.23	0.63
2.067	0.63	5.133	28.84	8.200	2.51	11.27	0.63
2.100	0.63	5.167	28.84	8.233	2.51	11.30	0.63
2.133	0.63	5.200	28.84	8.267	1.88	11.33	0.63
2.167	0.63	5.233	28.84	8.300	1.25	11.37	0.63
2.200	0.63	5.267	18.50	8.333	1.25	11.40	0.63
2.233	0.63	5.300	8.15	8.367	1.25	11.43	0.63
2.267	2.19	5.333	8.15	8.400	1.25	11.47	0.63
2.300	3.76	5.367	8.15	8.433	1.25	11.50	0.63
2.333	3.76	5.400	8.15	8.467	1.25	11.53	0.63
2.367	3.76	5.433	8.15	8.500	1.25	11.57	0.63
2.400	3.76	5.467	8.15	8.533	1.25	11.60	0.63
2.433	3.76	5.500	8.15	8.567	1.25	11.63	0.63
2.467	3.76	5.533	8.15	8.600	1.25	11.67	0.63
2.500	3.76	5.567	8.15	8.633	1.25	11.70	0.63
2.533	3.76	5.600	8.15	8.667	1.25	11.73	0.63
2.567	3.76	5.633	8.15	8.700	1.25	11.77	0.63
2.600	3.76	5.667	8.15	8.733	1.25	11.80	0.63
2.633	3.76	5.700	8.15	8.767	1.25	11.83	0.63
2.667	3.76	5.733	8.15	8.800	1.25	11.87	0.63
2.700	3.76	5.767	8.15	8.833	1.25	11.90	0.63
2.733	3.76	5.800	8.15	8.867	1.25	11.93	0.63
2.767	3.76	5.833	8.15	8.900	1.25	11.97	0.63
2.800	3.76	5.867	8.15	8.933	1.25	12.00	0.63
2.833	3.76	5.900	8.15	8.967	1.25	12.03	0.63
2.867	3.76	5.933	8.15	9.000	1.25	12.07	0.63
2.900	3.76	5.967	8.15	9.033	1.25	12.10	0.63
2.933	3.76	6.000	8.15	9.067	1.25	12.13	0.63
2.967	3.76	6.033	8.15	9.100	1.25	12.17	0.63
3.000	3.76	6.067	8.15	9.133	1.25	12.20	0.63
3.033	3.76	6.100	8.15	9.167	1.25	12.23	0.63
3.067	3.76	6.133	8.15	9.200	1.25	12.27	0.31

```
Max.Eff.Inten.(mm/hr)=      28.84         21.37
            over (min)       6.00          8.00
Storage Coeff.  (min)=       7.00 (ii)     7.73 (ii)
```

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     Unit Hyd. Tpeak (min)=       6.00          8.00
     Unit Hyd. peak  (cms)=       0.17          0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.66          0.00        0.657 (iii)
     TIME TO PEAK    (hrs)=       5.23          5.23         5.23
     RUNOFF VOLUME    (mm)=      61.71         34.81        61.68
     TOTAL RAINFALL   (mm)=      62.71         62.71        62.71
     RUNOFF COEFFICIENT   =       0.98          0.56         0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0     Ia = Dep. 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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| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
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```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

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

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     INFLOW:ID= 2     8.21         0.657             5.23        61.68
    OUTFLOW:ID= 1     8.21         0.084             7.30        49.09
   OVERFLOW:ID= 3     0.00         0.000             0.00         0.00

              Volume Reduction Rate[(RVin-RVout)/RVin](%)=       20.42
              Time to reach Max storage              (Hr)=        7.30
              Volume of water for drawdown in LID (cu.m.)=     2395.40
              Volume of maximum water storage     (cu.m.)=     3570.57
              Calculated Drawdown Time               (Hr)=       30.67

  --------------------------
  | Junction Command(0056) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 1(  0060)   8.21     0.08    7.30    49.09
  OUTFLOW: ID= 2(  0056)   8.21     0.08    7.30    49.09

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

  --------------------------
  | Junction Command(0057) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0060)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0057)   0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
*************************************
** SIMULATION:Run 11 25yr 12hr AES **
*************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      14.02         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     309.41        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                         ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    4.39 | 6.167    9.50 |  9.23    1.46
               0.067    0.00 | 3.133    4.39 | 6.200    9.50 |  9.27    1.09
               0.100    0.00 | 3.167    4.39 | 6.233    9.50 |  9.30    0.73
               0.133    0.00 | 3.200    4.39 | 6.267    7.31 |  9.33    0.73
               0.167    0.00 | 3.233    4.39 | 6.300    5.12 |  9.37    0.73
               0.200    0.00 | 3.267    8.41 | 6.333    5.12 |  9.40    0.73
               0.233    0.00 | 3.300   12.43 | 6.367    5.12 |  9.43    0.73
               0.267    0.37 | 3.333   12.43 | 6.400    5.12 |  9.47    0.73
               0.300    0.73 | 3.367   12.43 | 6.433    5.12 |  9.50    0.73
               0.333    0.73 | 3.400   12.43 | 6.467    5.12 |  9.53    0.73
               0.367    0.73 | 3.433   12.43 | 6.500    5.12 |  9.57    0.73
               0.400    0.73 | 3.467   12.43 | 6.533    5.12 |  9.60    0.73
               0.433    0.73 | 3.500   12.43 | 6.567    5.12 |  9.63    0.73
               0.467    0.73 | 3.533   12.43 | 6.600    5.12 |  9.67    0.73
               0.500    0.73 | 3.567   12.43 | 6.633    5.12 |  9.70    0.73
               0.533    0.73 | 3.600   12.43 | 6.667    5.12 |  9.73    0.73
               0.567    0.73 | 3.633   12.43 | 6.700    5.12 |  9.77    0.73
               0.600    0.73 | 3.667   12.43 | 6.733    5.12 |  9.80    0.73
               0.633    0.73 | 3.700   12.43 | 6.767    5.12 |  9.83    0.73
               0.667    0.73 | 3.733   12.43 | 6.800    5.12 |  9.87    0.73
               0.700    0.73 | 3.767   12.43 | 6.833    5.12 |  9.90    0.73
               0.733    0.73 | 3.800   12.43 | 6.867    5.12 |  9.93    0.73
               0.767    0.73 | 3.833   12.43 | 6.900    5.12 |  9.97    0.73
               0.800    0.73 | 3.867   12.43 | 6.933    5.12 | 10.00    0.73
               0.833    0.73 | 3.900   12.43 | 6.967    5.12 | 10.03    0.73
               0.867    0.73 | 3.933   12.43 | 7.000    5.12 | 10.07    0.73
               0.900    0.73 | 3.967   12.43 | 7.033    5.12 | 10.10    0.73
               0.933    0.73 | 4.000   12.43 | 7.067    5.12 | 10.13    0.73
               0.967    0.73 | 4.033   12.43 | 7.100    5.12 | 10.17    0.73
               1.000    0.73 | 4.067   12.43 | 7.133    5.12 | 10.20    0.73
               1.033    0.73 | 4.100   12.43 | 7.167    5.12 | 10.23    0.73
               1.067    0.73 | 4.133   12.43 | 7.200    5.12 | 10.27    0.73
               1.100    0.73 | 4.167   12.43 | 7.233    5.12 | 10.30    0.73
               1.133    0.73 | 4.200   12.43 | 7.267    4.02 | 10.33    0.73
               1.167    0.73 | 4.233   12.43 | 7.300    2.92 | 10.37    0.73
               1.200    0.73 | 4.267   23.03 | 7.333    2.92 | 10.40    0.73
               1.233    0.73 | 4.300   33.63 | 7.367    2.92 | 10.43    0.73
               1.267    0.73 | 4.333   33.63 | 7.400    2.92 | 10.47    0.73
               1.300    0.73 | 4.367   33.63 | 7.433    2.92 | 10.50    0.73
               1.333    0.73 | 4.400   33.63 | 7.467    2.92 | 10.53    0.73
               1.367    0.73 | 4.433   33.63 | 7.500    2.92 | 10.57    0.73
               1.400    0.73 | 4.467   33.63 | 7.533    2.92 | 10.60    0.73
               1.433    0.73 | 4.500   33.63 | 7.567    2.92 | 10.63    0.73
               1.467    0.73 | 4.533   33.63 | 7.600    2.92 | 10.67    0.73
               1.500    0.73 | 4.567   33.63 | 7.633    2.92 | 10.70    0.73
               1.533    0.73 | 4.600   33.63 | 7.667    2.92 | 10.73    0.73
               1.567    0.73 | 4.633   33.63 | 7.700    2.92 | 10.77    0.73
               1.600    0.73 | 4.667   33.63 | 7.733    2.92 | 10.80    0.73
               1.633    0.73 | 4.700   33.63 | 7.767    2.92 | 10.83    0.73
               1.667    0.73 | 4.733   33.63 | 7.800    2.92 | 10.87    0.73
               1.700    0.73 | 4.767   33.63 | 7.833    2.92 | 10.90    0.73
               1.733    0.73 | 4.800   33.63 | 7.867    2.92 | 10.93    0.73
               1.767    0.73 | 4.833   33.63 | 7.900    2.92 | 10.97    0.73
               1.800    0.73 | 4.867   33.63 | 7.933    2.92 | 11.00    0.73
               1.833    0.73 | 4.900   33.63 | 7.967    2.92 | 11.03    0.73
               1.867    0.73 | 4.933   33.63 | 8.000    2.92 | 11.07    0.73
               1.900    0.73 | 4.967   33.63 | 8.033    2.92 | 11.10    0.73
               1.933    0.73 | 5.000   33.63 | 8.067    2.92 | 11.13    0.73
               1.967    0.73 | 5.033   33.63 | 8.100    2.92 | 11.17    0.73
               2.000    0.73 | 5.067   33.63 | 8.133    2.92 | 11.20    0.73
               2.033    0.73 | 5.100   33.63 | 8.167    2.92 | 11.23    0.73
               2.067    0.73 | 5.133   33.63 | 8.200    2.92 | 11.27    0.73
               2.100    0.73 | 5.167   33.63 | 8.233    2.92 | 11.30    0.73
               2.133    0.73 | 5.200   33.63 | 8.267    2.19 | 11.33    0.73
               2.167    0.73 | 5.233   33.63 | 8.300    1.46 | 11.37    0.73
               2.200    0.73 | 5.267   21.57 | 8.333    1.46 | 11.40    0.73
               2.233    0.73 | 5.300    9.50 | 8.367    1.46 | 11.43    0.73
               2.267    2.56 | 5.333    9.50 | 8.400    1.46 | 11.47    0.73
               2.300    4.39 | 5.367    9.50 | 8.433    1.46 | 11.50    0.73
               2.333    4.39 | 5.400    9.50 | 8.467    1.46 | 11.53    0.73
               2.367    4.39 | 5.433    9.50 | 8.500    1.46 | 11.57    0.73
               2.400    4.39 | 5.467    9.50 | 8.533    1.46 | 11.60    0.73
               2.433    4.39 | 5.500    9.50 | 8.567    1.46 | 11.63    0.73
               2.467    4.39 | 5.533    9.50 | 8.600    1.46 | 11.67    0.73
               2.500    4.39 | 5.567    9.50 | 8.633    1.46 | 11.70    0.73
               2.533    4.39 | 5.600    9.50 | 8.667    1.46 | 11.73    0.73
               2.567    4.39 | 5.633    9.50 | 8.700    1.46 | 11.77    0.73
               2.600    4.39 | 5.667    9.50 | 8.733    1.46 | 11.80    0.73
               2.633    4.39 | 5.700    9.50 | 8.767    1.46 | 11.83    0.73
               2.667    4.39 | 5.733    9.50 | 8.800    1.46 | 11.87    0.73
               2.700    4.39 | 5.767    9.50 | 8.833    1.46 | 11.90    0.73
               2.733    4.39 | 5.800    9.50 | 8.867    1.46 | 11.93    0.73
               2.767    4.39 | 5.833    9.50 | 8.900    1.46 | 11.97    0.73
               2.800    4.39 | 5.867    9.50 | 8.933    1.46 | 12.00    0.73
               2.833    4.39 | 5.900    9.50 | 8.967    1.46 | 12.03    0.73
               2.867    4.39 | 5.933    9.50 | 9.000    1.46 | 12.07    0.73
               2.900    4.39 | 5.967    9.50 | 9.033    1.46 | 12.10    0.73
               2.933    4.39 | 6.000    9.50 | 9.067    1.46 | 12.13    0.73
               2.967    4.39 | 6.033    9.50 | 9.100    1.46 | 12.17    0.73
               3.000    4.39 | 6.067    9.50 | 9.133    1.46 | 12.20    0.73
               3.033    4.39 | 6.100    9.50 | 9.167    1.46 | 12.23    0.73
               3.067    4.39 | 6.133    9.50 | 9.200    1.46 | 12.27    0.36

     Max.Eff.Inten.(mm/hr)=      33.63        19.50
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       7.78 (ii)   10.26 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.14         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.31         0.02        1.326 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27         5.23
     RUNOFF VOLUME    (mm)=      72.10        31.27        71.12
     TOTAL RAINFALL   (mm)=      73.10        73.10        73.10
     RUNOFF COEFFICIENT   =       0.99         0.43         0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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 | RESERVOIR(  0004)|     OVERFLOW IS ON
 | IN= 2---> OUT= 1 |
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DT= 2.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2654	0.8399
	0.0111	0.0722	0.2796	0.9338
	0.0509	0.1444	0.2932	1.0277
	0.0712	0.2166	0.3061	1.1216
	0.0868	0.2888	0.3185	1.2155
	0.1000	0.3706	0.3304	1.3093
	0.1117	0.4644	0.3420	1.4032
	0.1222	0.5583	0.3531	1.4971
	0.1319	0.6522	0.3639	1.5910
	0.2504	0.7461	0.3745	1.6846

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0120)	14.360	1.326	5.23	71.12
OUTFLOW: ID= 1 (0004)	14.360	0.226	6.57	70.34
OVERFLOW:ID= 3 (0003)	0.000	0.000	0.00	0.00

TOTAL NUMBER OF SIMULATION OVERFLOW = 0
CUMULATIVE TIME OF OVERFLOW (HOURS) = 0.00
PERCENTAGE OF TIME OVERFLOWING (%) = 0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 17.08
TIME SHIFT OF PEAK FLOW (min)= 80.00
MAXIMUM STORAGE USED (ha.m.)= 0.7271

Junction Command(0055)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0004)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0055)	0.00	0.00	0.00	0.00

CALIB STANDHYD (0100) ID= 1 DT= 2.0 min	Area (ha)= 12.09 Total Imp(%)= 97.30 Dir. Conn.(%)= 97.30

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	11.76	0.33
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	283.90	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.39	6.167	9.50	9.23	1.46
0.067	0.00	3.133	4.39	6.200	9.50	9.27	1.09
0.100	0.00	3.167	4.39	6.233	9.50	9.30	0.73
0.133	0.00	3.200	4.39	6.267	7.31	9.33	0.73
0.167	0.00	3.233	4.39	6.300	5.12	9.37	0.73
0.200	0.00	3.267	8.41	6.333	5.12	9.40	0.73
0.233	0.00	3.300	12.43	6.367	5.12	9.43	0.73
0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73
1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

			TOTALS
Max.Eff.Inten.(mm/hr)=	33.63	19.50	
over (min)	8.00	10.00	
Storage Coeff. (min)=	7.39 (ii)	9.99 (ii)	
Unit Hyd. Tpeak (min)=	8.00	10.00	
Unit Hyd. peak (cms)=	0.15	0.11	
PEAK FLOW (cms)=	1.10	0.02	1.115 (iii)
TIME TO PEAK (hrs)=	5.23	5.27	5.23
RUNOFF VOLUME (mm)=	72.10	31.27	71.00
TOTAL RAINFALL (mm)=	73.10	73.10	73.10
RUNOFF COEFFICIENT =	0.99	0.43	0.97

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 76.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

TOWN OF CALEDON
PLANNING
RECEIVED

Feb 26, 2021

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| CALIB            |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.18          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.67         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    4.39 | 6.167    9.50 |  9.23    1.46
               0.067    0.00 | 3.133    4.39 | 6.200    9.50 |  9.27    1.09
               0.100    0.00 | 3.167    4.39 | 6.233    9.50 |  9.30    0.73
               0.133    0.00 | 3.200    4.39 | 6.267    7.31 |  9.33    0.73
               0.167    0.00 | 3.233    4.39 | 6.300    5.12 |  9.37    0.73
               0.200    0.00 | 3.267    8.41 | 6.333    5.12 |  9.40    0.73
               0.233    0.00 | 3.300   12.43 | 6.367    5.12 |  9.43    0.73
               0.267    0.37 | 3.333   12.43 | 6.400    5.12 |  9.47    0.73
               0.300    0.73 | 3.367   12.43 | 6.433    5.12 |  9.50    0.73
               0.333    0.73 | 3.400   12.43 | 6.467    5.12 |  9.53    0.73
               0.367    0.73 | 3.433   12.43 | 6.500    5.12 |  9.57    0.73
               0.400    0.73 | 3.467   12.43 | 6.533    5.12 |  9.60    0.73
               0.433    0.73 | 3.500   12.43 | 6.567    5.12 |  9.63    0.73
               0.467    0.73 | 3.533   12.43 | 6.600    5.12 |  9.67    0.73
               0.500    0.73 | 3.567   12.43 | 6.633    5.12 |  9.70    0.73
               0.533    0.73 | 3.600   12.43 | 6.667    5.12 |  9.73    0.73
               0.567    0.73 | 3.633   12.43 | 6.700    5.12 |  9.77    0.73
               0.600    0.73 | 3.667   12.43 | 6.733    5.12 |  9.80    0.73
               0.633    0.73 | 3.700   12.43 | 6.767    5.12 |  9.83    0.73
               0.667    0.73 | 3.733   12.43 | 6.800    5.12 |  9.87    0.73
               0.700    0.73 | 3.767   12.43 | 6.833    5.12 |  9.90    0.73
               0.733    0.73 | 3.800   12.43 | 6.867    5.12 |  9.93    0.73
               0.767    0.73 | 3.833   12.43 | 6.900    5.12 |  9.97    0.73
               0.800    0.73 | 3.867   12.43 | 6.933    5.12 | 10.00    0.73
               0.833    0.73 | 3.900   12.43 | 6.967    5.12 | 10.03    0.73
               0.867    0.73 | 3.933   12.43 | 7.000    5.12 | 10.07    0.73
               0.900    0.73 | 3.967   12.43 | 7.033    5.12 | 10.10    0.73
               0.933    0.73 | 4.000   12.43 | 7.067    5.12 | 10.13    0.73
               0.967    0.73 | 4.033   12.43 | 7.100    5.12 | 10.17    0.73
               1.000    0.73 | 4.067   12.43 | 7.133    5.12 | 10.20    0.73
               1.033    0.73 | 4.100   12.43 | 7.167    5.12 | 10.23    0.73
               1.067    0.73 | 4.133   12.43 | 7.200    5.12 | 10.27    0.73
               1.100    0.73 | 4.167   12.43 | 7.233    5.12 | 10.30    0.73
               1.133    0.73 | 4.200   12.43 | 7.267    4.02 | 10.33    0.73
               1.167    0.73 | 4.233   12.43 | 7.300    2.92 | 10.37    0.73
               1.200    0.73 | 4.267   23.03 | 7.333    2.92 | 10.40    0.73
               1.233    0.73 | 4.300   33.63 | 7.367    2.92 | 10.43    0.73
               1.267    0.73 | 4.333   33.63 | 7.400    2.92 | 10.47    0.73
               1.300    0.73 | 4.367   33.63 | 7.433    2.92 | 10.50    0.73
               1.333    0.73 | 4.400   33.63 | 7.467    2.92 | 10.53    0.73
               1.367    0.73 | 4.433   33.63 | 7.500    2.92 | 10.57    0.73
               1.400    0.73 | 4.467   33.63 | 7.533    2.92 | 10.60    0.73
               1.433    0.73 | 4.500   33.63 | 7.567    2.92 | 10.63    0.73
               1.467    0.73 | 4.533   33.63 | 7.600    2.92 | 10.67    0.73
               1.500    0.73 | 4.567   33.63 | 7.633    2.92 | 10.70    0.73
               1.533    0.73 | 4.600   33.63 | 7.667    2.92 | 10.73    0.73
               1.567    0.73 | 4.633   33.63 | 7.700    2.92 | 10.77    0.73
               1.600    0.73 | 4.667   33.63 | 7.733    2.92 | 10.80    0.73
               1.633    0.73 | 4.700   33.63 | 7.767    2.92 | 10.83    0.73
               1.667    0.73 | 4.733   33.63 | 7.800    2.92 | 10.87    0.73
               1.700    0.73 | 4.767   33.63 | 7.833    2.92 | 10.90    0.73
               1.733    0.73 | 4.800   33.63 | 7.867    2.92 | 10.93    0.73
               1.767    0.73 | 4.833   33.63 | 7.900    2.92 | 10.97    0.73
               1.800    0.73 | 4.867   33.63 | 7.933    2.92 | 11.00    0.73
               1.833    0.73 | 4.900   33.63 | 7.967    2.92 | 11.03    0.73
               1.867    0.73 | 4.933   33.63 | 8.000    2.92 | 11.07    0.73
               1.900    0.73 | 4.967   33.63 | 8.033    2.92 | 11.10    0.73
               1.933    0.73 | 5.000   33.63 | 8.067    2.92 | 11.13    0.73
               1.967    0.73 | 5.033   33.63 | 8.100    2.92 | 11.17    0.73
               2.000    0.73 | 5.067   33.63 | 8.133    2.92 | 11.20    0.73
               2.033    0.73 | 5.100   33.63 | 8.167    2.92 | 11.23    0.73
               2.067    0.73 | 5.133   33.63 | 8.200    2.92 | 11.27    0.73
               2.100    0.73 | 5.167   33.63 | 8.233    2.92 | 11.30    0.73
               2.133    0.73 | 5.200   33.63 | 8.267    2.19 | 11.33    0.73
               2.167    0.73 | 5.233   33.63 | 8.300    1.46 | 11.37    0.73
               2.200    0.73 | 5.267   21.57 | 8.333    1.46 | 11.40    0.73
               2.233    0.73 | 5.300    9.50 | 8.367    1.46 | 11.43    0.73
               2.267    2.56 | 5.333    9.50 | 8.400    1.46 | 11.47    0.73
               2.300    4.39 | 5.367    9.50 | 8.433    1.46 | 11.50    0.73
               2.333    4.39 | 5.400    9.50 | 8.467    1.46 | 11.53    0.73
               2.367    4.39 | 5.433    9.50 | 8.500    1.46 | 11.57    0.73
               2.400    4.39 | 5.467    9.50 | 8.533    1.46 | 11.60    0.73
               2.433    4.39 | 5.500    9.50 | 8.567    1.46 | 11.63    0.73
               2.467    4.39 | 5.533    9.50 | 8.600    1.46 | 11.67    0.73
               2.500    4.39 | 5.567    9.50 | 8.633    1.46 | 11.70    0.73
               2.533    4.39 | 5.600    9.50 | 8.667    1.46 | 11.73    0.73
               2.567    4.39 | 5.633    9.50 | 8.700    1.46 | 11.77    0.73
               2.600    4.39 | 5.667    9.50 | 8.733    1.46 | 11.80    0.73
               2.633    4.39 | 5.700    9.50 | 8.767    1.46 | 11.83    0.73
               2.667    4.39 | 5.733    9.50 | 8.800    1.46 | 11.87    0.73
               2.700    4.39 | 5.767    9.50 | 8.833    1.46 | 11.90    0.73
               2.733    4.39 | 5.800    9.50 | 8.867    1.46 | 11.93    0.73
               2.767    4.39 | 5.833    9.50 | 8.900    1.46 | 11.97    0.73
               2.800    4.39 | 5.867    9.50 | 8.933    1.46 | 12.00    0.73
               2.833    4.39 | 5.900    9.50 | 8.967    1.46 | 12.03    0.73
               2.867    4.39 | 5.933    9.50 | 9.000    1.46 | 12.07    0.73
               2.900    4.39 | 5.967    9.50 | 9.033    1.46 | 12.10    0.73
               2.933    4.39 | 6.000    9.50 | 9.067    1.46 | 12.13    0.73
               2.967    4.39 | 6.033    9.50 | 9.100    1.46 | 12.17    0.73
               3.000    4.39 | 6.067    9.50 | 9.133    1.46 | 12.20    0.73
               3.033    4.39 | 6.100    9.50 | 9.167    1.46 | 12.23    0.73
               3.067    4.39 | 6.133    9.50 | 9.200    1.46 | 12.27    0.36

     Max.Eff.Inten.(mm/hr)=      33.63        19.50
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       6.57 (ii)    7.26 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.18         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.76         0.00        0.765 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.23         5.23
     RUNOFF VOLUME    (mm)=      72.10        31.27        72.06
     TOTAL RAINFALL   (mm)=      73.10        73.10        73.10
     RUNOFF COEFFICIENT   =       0.99         0.43         0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700     0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190     0.765      5.23      72.06
   OUTFLOW: ID= 1 (  0001)      8.190     0.056      8.33      66.24
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.26
                    TIME SHIFT OF PEAK FLOW         (min)=186.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.4873

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):      8.19    0.056     8.33    66.24
      + ID2= 2 (  0100):     12.09    1.115     5.23    71.00
        ==================================================
        ID = 3 (  0051):     20.28    1.156     5.23    69.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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  --------------------------
  | Junction Command(0050) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 3(  0001)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)   0.00     0.00    0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00   0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28   1.156     5.23    69.07
        ==================================================
        ID = 3 (  0052):    20.28   1.156     5.23    69.07

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
                          0.1087     0.2218   |   0.2271      0.7737
                          0.1256     0.2662   |   0.6000      0.8403
                          0.1406     0.3105   |   0.6881      0.9081
                          0.1541     0.3596   |   0.7636      0.9760
                          0.1665     0.4159   |   0.8309      1.0439

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)    20.280     1.156      5.23      69.07
   OUTFLOW: ID= 1 (  0002)    20.280     0.203      7.37      64.49
   OVERFLOW:ID= 3 (  0003)     0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.60
                   TIME SHIFT OF PEAK FLOW         (min)=128.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.6156

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  | Junction Command(0053) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)    (hrs)    (mm)
  INFLOW : ID= 3(  0002)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)   0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
```

0.033	0.00	3.100	4.39	6.167	9.50	9.23	1.46
0.067	0.00	3.133	4.39	6.200	9.50	9.27	1.09
0.100	0.00	3.167	4.39	6.233	9.50	9.30	0.73
0.133	0.00	3.200	4.39	6.267	7.31	9.33	0.73
0.167	0.00	3.233	4.39	6.300	5.12	9.37	0.73
0.200	0.00	3.267	8.41	6.333	5.12	9.40	0.73
0.233	0.00	3.300	12.43	6.367	5.12	9.43	0.73
0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73
1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73
2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73

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2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

```
     Max.Eff.Inten.(mm/hr)=      33.63        19.50
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       8.14 (ii)   10.62 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.14         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.52         0.02         1.541 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27          5.23
     RUNOFF VOLUME    (mm)=      72.10        31.27         71.12
     TOTAL RAINFALL   (mm)=      73.10        73.10         73.10
     RUNOFF COEFFICIENT   =       0.99         0.43          0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     16.700     1.541      5.23      71.12
   OUTFLOW: ID= 1 (  0003)     16.700     0.172      7.43      63.65
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.17
                   TIME SHIFT OF PEAK FLOW         (min)=132.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.9016

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  --------------------------
  | Junction Command(0054) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0003)   0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)   0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.95        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.39	6.167	9.50	9.23	1.46
0.067	0.00	3.133	4.39	6.200	9.50	9.27	1.09
0.100	0.00	3.167	4.39	6.233	9.50	9.30	0.73
0.133	0.00	3.200	4.39	6.267	7.31	9.33	0.73
0.167	0.00	3.233	4.39	6.300	5.12	9.37	0.73
0.200	0.00	3.267	8.41	6.333	5.12	9.40	0.73
0.233	0.00	3.300	12.43	6.367	5.12	9.43	0.73
0.267	0.37	3.333	12.43	6.400	5.12	9.47	0.73
0.300	0.73	3.367	12.43	6.433	5.12	9.50	0.73
0.333	0.73	3.400	12.43	6.467	5.12	9.53	0.73
0.367	0.73	3.433	12.43	6.500	5.12	9.57	0.73
0.400	0.73	3.467	12.43	6.533	5.12	9.60	0.73
0.433	0.73	3.500	12.43	6.567	5.12	9.63	0.73
0.467	0.73	3.533	12.43	6.600	5.12	9.67	0.73
0.500	0.73	3.567	12.43	6.633	5.12	9.70	0.73
0.533	0.73	3.600	12.43	6.667	5.12	9.73	0.73
0.567	0.73	3.633	12.43	6.700	5.12	9.77	0.73
0.600	0.73	3.667	12.43	6.733	5.12	9.80	0.73
0.633	0.73	3.700	12.43	6.767	5.12	9.83	0.73
0.667	0.73	3.733	12.43	6.800	5.12	9.87	0.73
0.700	0.73	3.767	12.43	6.833	5.12	9.90	0.73
0.733	0.73	3.800	12.43	6.867	5.12	9.93	0.73
0.767	0.73	3.833	12.43	6.900	5.12	9.97	0.73
0.800	0.73	3.867	12.43	6.933	5.12	10.00	0.73
0.833	0.73	3.900	12.43	6.967	5.12	10.03	0.73
0.867	0.73	3.933	12.43	7.000	5.12	10.07	0.73
0.900	0.73	3.967	12.43	7.033	5.12	10.10	0.73
0.933	0.73	4.000	12.43	7.067	5.12	10.13	0.73
0.967	0.73	4.033	12.43	7.100	5.12	10.17	0.73
1.000	0.73	4.067	12.43	7.133	5.12	10.20	0.73
1.033	0.73	4.100	12.43	7.167	5.12	10.23	0.73
1.067	0.73	4.133	12.43	7.200	5.12	10.27	0.73
1.100	0.73	4.167	12.43	7.233	5.12	10.30	0.73
1.133	0.73	4.200	12.43	7.267	4.02	10.33	0.73
1.167	0.73	4.233	12.43	7.300	2.92	10.37	0.73
1.200	0.73	4.267	23.03	7.333	2.92	10.40	0.73
1.233	0.73	4.300	33.63	7.367	2.92	10.43	0.73
1.267	0.73	4.333	33.63	7.400	2.92	10.47	0.73
1.300	0.73	4.367	33.63	7.433	2.92	10.50	0.73
1.333	0.73	4.400	33.63	7.467	2.92	10.53	0.73
1.367	0.73	4.433	33.63	7.500	2.92	10.57	0.73
1.400	0.73	4.467	33.63	7.533	2.92	10.60	0.73
1.433	0.73	4.500	33.63	7.567	2.92	10.63	0.73
1.467	0.73	4.533	33.63	7.600	2.92	10.67	0.73
1.500	0.73	4.567	33.63	7.633	2.92	10.70	0.73
1.533	0.73	4.600	33.63	7.667	2.92	10.73	0.73
1.567	0.73	4.633	33.63	7.700	2.92	10.77	0.73
1.600	0.73	4.667	33.63	7.733	2.92	10.80	0.73
1.633	0.73	4.700	33.63	7.767	2.92	10.83	0.73
1.667	0.73	4.733	33.63	7.800	2.92	10.87	0.73
1.700	0.73	4.767	33.63	7.833	2.92	10.90	0.73
1.733	0.73	4.800	33.63	7.867	2.92	10.93	0.73
1.767	0.73	4.833	33.63	7.900	2.92	10.97	0.73
1.800	0.73	4.867	33.63	7.933	2.92	11.00	0.73
1.833	0.73	4.900	33.63	7.967	2.92	11.03	0.73
1.867	0.73	4.933	33.63	8.000	2.92	11.07	0.73
1.900	0.73	4.967	33.63	8.033	2.92	11.10	0.73
1.933	0.73	5.000	33.63	8.067	2.92	11.13	0.73
1.967	0.73	5.033	33.63	8.100	2.92	11.17	0.73
2.000	0.73	5.067	33.63	8.133	2.92	11.20	0.73
2.033	0.73	5.100	33.63	8.167	2.92	11.23	0.73
2.067	0.73	5.133	33.63	8.200	2.92	11.27	0.73
2.100	0.73	5.167	33.63	8.233	2.92	11.30	0.73
2.133	0.73	5.200	33.63	8.267	2.19	11.33	0.73
2.167	0.73	5.233	33.63	8.300	1.46	11.37	0.73
2.200	0.73	5.267	21.57	8.333	1.46	11.40	0.73
2.233	0.73	5.300	9.50	8.367	1.46	11.43	0.73
2.267	2.56	5.333	9.50	8.400	1.46	11.47	0.73
2.300	4.39	5.367	9.50	8.433	1.46	11.50	0.73
2.333	4.39	5.400	9.50	8.467	1.46	11.53	0.73
2.367	4.39	5.433	9.50	8.500	1.46	11.57	0.73
2.400	4.39	5.467	9.50	8.533	1.46	11.60	0.73
2.433	4.39	5.500	9.50	8.567	1.46	11.63	0.73
2.467	4.39	5.533	9.50	8.600	1.46	11.67	0.73
2.500	4.39	5.567	9.50	8.633	1.46	11.70	0.73
2.533	4.39	5.600	9.50	8.667	1.46	11.73	0.73
2.567	4.39	5.633	9.50	8.700	1.46	11.77	0.73
2.600	4.39	5.667	9.50	8.733	1.46	11.80	0.73
2.633	4.39	5.700	9.50	8.767	1.46	11.83	0.73

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2.667	4.39	5.733	9.50	8.800	1.46	11.87	0.73
2.700	4.39	5.767	9.50	8.833	1.46	11.90	0.73
2.733	4.39	5.800	9.50	8.867	1.46	11.93	0.73
2.767	4.39	5.833	9.50	8.900	1.46	11.97	0.73
2.800	4.39	5.867	9.50	8.933	1.46	12.00	0.73
2.833	4.39	5.900	9.50	8.967	1.46	12.03	0.73
2.867	4.39	5.933	9.50	9.000	1.46	12.07	0.73
2.900	4.39	5.967	9.50	9.033	1.46	12.10	0.73
2.933	4.39	6.000	9.50	9.067	1.46	12.13	0.73
2.967	4.39	6.033	9.50	9.100	1.46	12.17	0.73
3.000	4.39	6.067	9.50	9.133	1.46	12.20	0.73
3.033	4.39	6.100	9.50	9.167	1.46	12.23	0.73
3.067	4.39	6.133	9.50	9.200	1.46	12.27	0.36

```
Max.Eff.Inten.(mm/hr)=      33.63        26.33
            over (min)       6.00         8.00
Storage Coeff.  (min)=       6.58 (ii)    7.27 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.18         0.15
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.77         0.00        0.767 (iii)
TIME TO PEAK    (hrs)=       5.23         5.23         5.23
RUNOFF VOLUME    (mm)=      72.10        43.73        72.07
TOTAL RAINFALL   (mm)=      73.10        73.10        73.10
RUNOFF COEFFICIENT   =       0.99         0.60         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.767	5.23	72.07
OUTFLOW:ID= 1	8.21	0.094	7.33	58.80
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=       18.41
Time to reach Max storage              (Hr)=        7.33
Volume of water for drawdown in LID (cu.m.)=     2958.10
Volume of maximum water storage     (cu.m.)=     4232.10
Calculated Drawdown Time               (Hr)=       32.68

--------------------------
| Junction Command(0056) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.09	7.33	58.80
OUTFLOW: ID= 2(0056)	8.21	0.09	7.33	58.80

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| Junction Command(0057) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

```
--------------------------------------------------------------------------------
*************************************
** SIMULATION:Run 12 50yr 12hr AES **
*************************************
--------------------
| CALIB            |
| STANDHYD (  0120)|   Area    (ha)=  14.36
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

```
    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.85	6.167	10.50	9.23	1.62
0.067	0.00	3.133	4.85	6.200	10.50	9.27	1.21
0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81

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0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

```
Max.Eff.Inten.(mm/hr)=      37.17        22.76
           over (min)        8.00        10.00
Storage Coeff.  (min)=       7.47 (ii)    9.86 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.15         0.11
                                                    *TOTALS*
```

```
     PEAK FLOW       (cms)=       1.45         0.02          1.467 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27           5.23
     RUNOFF VOLUME    (mm)=      79.82        36.84          78.79
     TOTAL RAINFALL   (mm)=      80.82        80.82          80.82
     RUNOFF COEFFICIENT   =       0.99         0.46           0.97


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654      0.8399
                          0.0111     0.0722   |   0.2796      0.9338
                          0.0509     0.1444   |   0.2932      1.0277
                          0.0712     0.2166   |   0.3061      1.1216
                          0.0868     0.2888   |   0.3185      1.2155
                          0.1000     0.3706   |   0.3304      1.3093
                          0.1117     0.4644   |   0.3420      1.4032
                          0.1222     0.5583   |   0.3531      1.4971
                          0.1319     0.6522   |   0.3639      1.5910
                          0.2504     0.7461   |   0.3745      1.6846

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360      1.467      5.23      78.79
   OUTFLOW: ID= 1 (  0004)     14.360      0.257      6.53      77.99
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.54
                    TIME SHIFT OF PEAK FLOW         (min)= 78.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.7895

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  --------------------------
  | Junction Command(0055) |
  --------------------------

                          AREA     QPEAK   TPEAK     R.V.
                          (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)   0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)   0.00      0.00    0.00     0.00

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       11.76          0.33
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      283.90         40.00
     Mannings n          =        0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    0.00 | 3.100    4.85 | 6.167   10.50 |  9.23    1.62
                0.067    0.00 | 3.133    4.85 | 6.200   10.50 |  9.27    1.21
                0.100    0.00 | 3.167    4.85 | 6.233   10.50 |  9.30    0.81
                0.133    0.00 | 3.200    4.85 | 6.267    8.08 |  9.33    0.81
                0.167    0.00 | 3.233    4.85 | 6.300    5.66 |  9.37    0.81
                0.200    0.00 | 3.267    9.29 | 6.333    5.66 |  9.40    0.81
                0.233    0.00 | 3.300   13.74 | 6.367    5.66 |  9.43    0.81
                0.267    0.41 | 3.333   13.74 | 6.400    5.66 |  9.47    0.81
                0.300    0.81 | 3.367   13.74 | 6.433    5.66 |  9.50    0.81
                0.333    0.81 | 3.400   13.74 | 6.467    5.66 |  9.53    0.81
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0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

Max.Eff.Inten.(mm/hr)= 37.17 22.76

```
            over (min)        8.00        10.00
Storage Coeff.  (min)=        7.10 (ii)    9.60 (ii)
Unit Hyd. Tpeak (min)=        8.00        10.00
Unit Hyd. peak  (cms)=        0.15         0.12
                                                        *TOTALS*
PEAK FLOW       (cms)=        1.21         0.02          1.234 (iii)
TIME TO PEAK    (hrs)=        5.23         5.27           5.23
RUNOFF VOLUME    (mm)=       79.82        36.84          78.66
TOTAL RAINFALL   (mm)=       80.82        80.82          80.82
RUNOFF COEFFICIENT   =        0.99         0.46           0.97


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB              |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=          8.18          0.01
Dep. Storage     (mm)=          1.00          5.00
Average Slope     (%)=          1.00          2.00
Length            (m)=        233.67         40.00
Mannings n          =          0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.85	6.167	10.50	9.23	1.62
0.067	0.00	3.133	4.85	6.200	10.50	9.27	1.21
0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81

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                1.600    0.81 | 4.667   37.17 | 7.733    3.23 | 10.80    0.81
                1.633    0.81 | 4.700   37.17 | 7.767    3.23 | 10.83    0.81
                1.667    0.81 | 4.733   37.17 | 7.800    3.23 | 10.87    0.81
                1.700    0.81 | 4.767   37.17 | 7.833    3.23 | 10.90    0.81
                1.733    0.81 | 4.800   37.17 | 7.867    3.23 | 10.93    0.81
                1.767    0.81 | 4.833   37.17 | 7.900    3.23 | 10.97    0.81
                1.800    0.81 | 4.867   37.17 | 7.933    3.23 | 11.00    0.81
                1.833    0.81 | 4.900   37.17 | 7.967    3.23 | 11.03    0.81
                1.867    0.81 | 4.933   37.17 | 8.000    3.23 | 11.07    0.81
                1.900    0.81 | 4.967   37.17 | 8.033    3.23 | 11.10    0.81
                1.933    0.81 | 5.000   37.17 | 8.067    3.23 | 11.13    0.81
                1.967    0.81 | 5.033   37.17 | 8.100    3.23 | 11.17    0.81
                2.000    0.81 | 5.067   37.17 | 8.133    3.23 | 11.20    0.81
                2.033    0.81 | 5.100   37.17 | 8.167    3.23 | 11.23    0.81
                2.067    0.81 | 5.133   37.17 | 8.200    3.23 | 11.27    0.81
                2.100    0.81 | 5.167   37.17 | 8.233    3.23 | 11.30    0.81
                2.133    0.81 | 5.200   37.17 | 8.267    2.43 | 11.33    0.81
                2.167    0.81 | 5.233   37.17 | 8.300    1.62 | 11.37    0.81
                2.200    0.81 | 5.267   23.84 | 8.333    1.62 | 11.40    0.81
                2.233    0.81 | 5.300   10.50 | 8.367    1.62 | 11.43    0.81
                2.267    2.83 | 5.333   10.50 | 8.400    1.62 | 11.47    0.81
                2.300    4.85 | 5.367   10.50 | 8.433    1.62 | 11.50    0.81
                2.333    4.85 | 5.400   10.50 | 8.467    1.62 | 11.53    0.81
                2.367    4.85 | 5.433   10.50 | 8.500    1.62 | 11.57    0.81
                2.400    4.85 | 5.467   10.50 | 8.533    1.62 | 11.60    0.81
                2.433    4.85 | 5.500   10.50 | 8.567    1.62 | 11.63    0.81
                2.467    4.85 | 5.533   10.50 | 8.600    1.62 | 11.67    0.81
                2.500    4.85 | 5.567   10.50 | 8.633    1.62 | 11.70    0.81
                2.533    4.85 | 5.600   10.50 | 8.667    1.62 | 11.73    0.81
                2.567    4.85 | 5.633   10.50 | 8.700    1.62 | 11.77    0.81
                2.600    4.85 | 5.667   10.50 | 8.733    1.62 | 11.80    0.81
                2.633    4.85 | 5.700   10.50 | 8.767    1.62 | 11.83    0.81
                2.667    4.85 | 5.733   10.50 | 8.800    1.62 | 11.87    0.81
                2.700    4.85 | 5.767   10.50 | 8.833    1.62 | 11.90    0.81
                2.733    4.85 | 5.800   10.50 | 8.867    1.62 | 11.93    0.81
                2.767    4.85 | 5.833   10.50 | 8.900    1.62 | 11.97    0.81
                2.800    4.85 | 5.867   10.50 | 8.933    1.62 | 12.00    0.81
                2.833    4.85 | 5.900   10.50 | 8.967    1.62 | 12.03    0.81
                2.867    4.85 | 5.933   10.50 | 9.000    1.62 | 12.07    0.81
                2.900    4.85 | 5.967   10.50 | 9.033    1.62 | 12.10    0.81
                2.933    4.85 | 6.000   10.50 | 9.067    1.62 | 12.13    0.81
                2.967    4.85 | 6.033   10.50 | 9.100    1.62 | 12.17    0.81
                3.000    4.85 | 6.067   10.50 | 9.133    1.62 | 12.20    0.81
                3.033    4.85 | 6.100   10.50 | 9.167    1.62 | 12.23    0.81
                3.067    4.85 | 6.133   10.50 | 9.200    1.62 | 12.27    0.40

     Max.Eff.Inten.(mm/hr)=      37.17        22.76
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       6.32 (ii)    6.98 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.18         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.84         0.00         0.845 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.23          5.23
     RUNOFF VOLUME    (mm)=      79.82        36.84         79.78
     TOTAL RAINFALL   (mm)=      80.82        80.82         80.82
     RUNOFF COEFFICIENT   =       0.99         0.46          0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK        R.V.
                                (ha)     (cms)     (hrs)        (mm)
   INFLOW : ID= 2 (  0099)      8.190     0.845      5.23       79.78
   OUTFLOW: ID= 1 (  0001)      8.190     0.061      8.33       73.33
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00        0.00

                  TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                  CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                  PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.27

                  TIME SHIFT OF PEAK FLOW         (min)=186.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5394

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.061     8.33    73.33
      + ID2= 2 (  0100):    12.09    1.234     5.23    78.66
        ==============================================
        ID = 3 (  0051):    20.28    1.279     5.23    76.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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  --------------------------
  | Junction Command(0050) |
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                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00      0.00    0.00     0.00

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--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00    0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28    1.279     5.23    76.51
        ==============================================
        ID = 3 (  0052):    20.28    1.279     5.23    76.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
                          0.1087     0.2218   |   0.2271      0.7737
                          0.1256     0.2662   |   0.6000      0.8403
                          0.1406     0.3105   |   0.6881      0.9081
                          0.1541     0.3596   |   0.7636      0.9760
                          0.1665     0.4159   |   0.8309      1.0439

                                AREA     QPEAK     TPEAK        R.V.
                                (ha)     (cms)     (hrs)        (mm)
   INFLOW : ID= 2 (  0052)     20.280     1.279      5.23       76.51
   OUTFLOW: ID= 1 (  0002)     20.280     0.215      7.37       71.90
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00        0.00

                  TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                  CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                  PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.80
                  TIME SHIFT OF PEAK FLOW         (min)=128.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6904

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  | Junction Command(0053) |
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                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0002)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0053)     0.00      0.00    0.00     0.00

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| CALIB              |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30         0.40
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     333.67        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
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---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	4.85	6.167	10.50	9.23	1.62
0.067	0.00	3.133	4.85	6.200	10.50	9.27	1.21
0.100	0.00	3.167	4.85	6.233	10.50	9.30	0.81
0.133	0.00	3.200	4.85	6.267	8.08	9.33	0.81
0.167	0.00	3.233	4.85	6.300	5.66	9.37	0.81
0.200	0.00	3.267	9.29	6.333	5.66	9.40	0.81
0.233	0.00	3.300	13.74	6.367	5.66	9.43	0.81
0.267	0.41	3.333	13.74	6.400	5.66	9.47	0.81
0.300	0.81	3.367	13.74	6.433	5.66	9.50	0.81
0.333	0.81	3.400	13.74	6.467	5.66	9.53	0.81
0.367	0.81	3.433	13.74	6.500	5.66	9.57	0.81
0.400	0.81	3.467	13.74	6.533	5.66	9.60	0.81
0.433	0.81	3.500	13.74	6.567	5.66	9.63	0.81
0.467	0.81	3.533	13.74	6.600	5.66	9.67	0.81
0.500	0.81	3.567	13.74	6.633	5.66	9.70	0.81
0.533	0.81	3.600	13.74	6.667	5.66	9.73	0.81
0.567	0.81	3.633	13.74	6.700	5.66	9.77	0.81
0.600	0.81	3.667	13.74	6.733	5.66	9.80	0.81
0.633	0.81	3.700	13.74	6.767	5.66	9.83	0.81
0.667	0.81	3.733	13.74	6.800	5.66	9.87	0.81
0.700	0.81	3.767	13.74	6.833	5.66	9.90	0.81
0.733	0.81	3.800	13.74	6.867	5.66	9.93	0.81
0.767	0.81	3.833	13.74	6.900	5.66	9.97	0.81
0.800	0.81	3.867	13.74	6.933	5.66	10.00	0.81
0.833	0.81	3.900	13.74	6.967	5.66	10.03	0.81
0.867	0.81	3.933	13.74	7.000	5.66	10.07	0.81
0.900	0.81	3.967	13.74	7.033	5.66	10.10	0.81
0.933	0.81	4.000	13.74	7.067	5.66	10.13	0.81
0.967	0.81	4.033	13.74	7.100	5.66	10.17	0.81
1.000	0.81	4.067	13.74	7.133	5.66	10.20	0.81
1.033	0.81	4.100	13.74	7.167	5.66	10.23	0.81
1.067	0.81	4.133	13.74	7.200	5.66	10.27	0.81
1.100	0.81	4.167	13.74	7.233	5.66	10.30	0.81
1.133	0.81	4.200	13.74	7.267	4.45	10.33	0.81
1.167	0.81	4.233	13.74	7.300	3.23	10.37	0.81
1.200	0.81	4.267	25.45	7.333	3.23	10.40	0.81
1.233	0.81	4.300	37.17	7.367	3.23	10.43	0.81
1.267	0.81	4.333	37.17	7.400	3.23	10.47	0.81
1.300	0.81	4.367	37.17	7.433	3.23	10.50	0.81
1.333	0.81	4.400	37.17	7.467	3.23	10.53	0.81
1.367	0.81	4.433	37.17	7.500	3.23	10.57	0.81
1.400	0.81	4.467	37.17	7.533	3.23	10.60	0.81
1.433	0.81	4.500	37.17	7.567	3.23	10.63	0.81
1.467	0.81	4.533	37.17	7.600	3.23	10.67	0.81
1.500	0.81	4.567	37.17	7.633	3.23	10.70	0.81
1.533	0.81	4.600	37.17	7.667	3.23	10.73	0.81
1.567	0.81	4.633	37.17	7.700	3.23	10.77	0.81
1.600	0.81	4.667	37.17	7.733	3.23	10.80	0.81
1.633	0.81	4.700	37.17	7.767	3.23	10.83	0.81
1.667	0.81	4.733	37.17	7.800	3.23	10.87	0.81
1.700	0.81	4.767	37.17	7.833	3.23	10.90	0.81
1.733	0.81	4.800	37.17	7.867	3.23	10.93	0.81
1.767	0.81	4.833	37.17	7.900	3.23	10.97	0.81
1.800	0.81	4.867	37.17	7.933	3.23	11.00	0.81
1.833	0.81	4.900	37.17	7.967	3.23	11.03	0.81
1.867	0.81	4.933	37.17	8.000	3.23	11.07	0.81
1.900	0.81	4.967	37.17	8.033	3.23	11.10	0.81
1.933	0.81	5.000	37.17	8.067	3.23	11.13	0.81
1.967	0.81	5.033	37.17	8.100	3.23	11.17	0.81
2.000	0.81	5.067	37.17	8.133	3.23	11.20	0.81
2.033	0.81	5.100	37.17	8.167	3.23	11.23	0.81
2.067	0.81	5.133	37.17	8.200	3.23	11.27	0.81
2.100	0.81	5.167	37.17	8.233	3.23	11.30	0.81
2.133	0.81	5.200	37.17	8.267	2.43	11.33	0.81
2.167	0.81	5.233	37.17	8.300	1.62	11.37	0.81
2.200	0.81	5.267	23.84	8.333	1.62	11.40	0.81
2.233	0.81	5.300	10.50	8.367	1.62	11.43	0.81
2.267	2.83	5.333	10.50	8.400	1.62	11.47	0.81
2.300	4.85	5.367	10.50	8.433	1.62	11.50	0.81
2.333	4.85	5.400	10.50	8.467	1.62	11.53	0.81
2.367	4.85	5.433	10.50	8.500	1.62	11.57	0.81
2.400	4.85	5.467	10.50	8.533	1.62	11.60	0.81
2.433	4.85	5.500	10.50	8.567	1.62	11.63	0.81
2.467	4.85	5.533	10.50	8.600	1.62	11.67	0.81
2.500	4.85	5.567	10.50	8.633	1.62	11.70	0.81
2.533	4.85	5.600	10.50	8.667	1.62	11.73	0.81
2.567	4.85	5.633	10.50	8.700	1.62	11.77	0.81
2.600	4.85	5.667	10.50	8.733	1.62	11.80	0.81
2.633	4.85	5.700	10.50	8.767	1.62	11.83	0.81
2.667	4.85	5.733	10.50	8.800	1.62	11.87	0.81
2.700	4.85	5.767	10.50	8.833	1.62	11.90	0.81
2.733	4.85	5.800	10.50	8.867	1.62	11.93	0.81
2.767	4.85	5.833	10.50	8.900	1.62	11.97	0.81
2.800	4.85	5.867	10.50	8.933	1.62	12.00	0.81
2.833	4.85	5.900	10.50	8.967	1.62	12.03	0.81
2.867	4.85	5.933	10.50	9.000	1.62	12.07	0.81
2.900	4.85	5.967	10.50	9.033	1.62	12.10	0.81
2.933	4.85	6.000	10.50	9.067	1.62	12.13	0.81
2.967	4.85	6.033	10.50	9.100	1.62	12.17	0.81
3.000	4.85	6.067	10.50	9.133	1.62	12.20	0.81
3.033	4.85	6.100	10.50	9.167	1.62	12.23	0.81
3.067	4.85	6.133	10.50	9.200	1.62	12.27	0.40

```
     Max.Eff.Inten.(mm/hr)=      37.17        22.76
                over (min)        8.00        12.00
     Storage Coeff.  (min)=       7.82 (ii)   10.20 (ii)
     Unit Hyd. Tpeak (min)=       8.00        12.00
     Unit Hyd. peak  (cms)=       0.14         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.68         0.02        1.705 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27         5.23
     RUNOFF VOLUME    (mm)=      79.82        36.84        78.79
     TOTAL RAINFALL   (mm)=      80.82        80.82        80.82
     RUNOFF COEFFICIENT   =       0.99         0.46         0.97

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     16.700     1.705      5.23      78.79
   OUTFLOW: ID= 1 (  0003)     16.700     0.252      7.30      71.32
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.77
                    TIME SHIFT OF PEAK FLOW         (min)=124.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.9765

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  | Junction Command(0054) |
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                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)   (hrs)     (mm)
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  INFLOW : ID= 3(  0003)    0.00     0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)    0.00     0.00    0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     233.95         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.00 | 3.100    4.85 | 6.167   10.50 |  9.23    1.62
               0.067    0.00 | 3.133    4.85 | 6.200   10.50 |  9.27    1.21
               0.100    0.00 | 3.167    4.85 | 6.233   10.50 |  9.30    0.81
               0.133    0.00 | 3.200    4.85 | 6.267    8.08 |  9.33    0.81
               0.167    0.00 | 3.233    4.85 | 6.300    5.66 |  9.37    0.81
               0.200    0.00 | 3.267    9.29 | 6.333    5.66 |  9.40    0.81
               0.233    0.00 | 3.300   13.74 | 6.367    5.66 |  9.43    0.81
               0.267    0.41 | 3.333   13.74 | 6.400    5.66 |  9.47    0.81
               0.300    0.81 | 3.367   13.74 | 6.433    5.66 |  9.50    0.81
               0.333    0.81 | 3.400   13.74 | 6.467    5.66 |  9.53    0.81
               0.367    0.81 | 3.433   13.74 | 6.500    5.66 |  9.57    0.81
               0.400    0.81 | 3.467   13.74 | 6.533    5.66 |  9.60    0.81
               0.433    0.81 | 3.500   13.74 | 6.567    5.66 |  9.63    0.81
               0.467    0.81 | 3.533   13.74 | 6.600    5.66 |  9.67    0.81
               0.500    0.81 | 3.567   13.74 | 6.633    5.66 |  9.70    0.81
               0.533    0.81 | 3.600   13.74 | 6.667    5.66 |  9.73    0.81
               0.567    0.81 | 3.633   13.74 | 6.700    5.66 |  9.77    0.81
               0.600    0.81 | 3.667   13.74 | 6.733    5.66 |  9.80    0.81
               0.633    0.81 | 3.700   13.74 | 6.767    5.66 |  9.83    0.81
               0.667    0.81 | 3.733   13.74 | 6.800    5.66 |  9.87    0.81
               0.700    0.81 | 3.767   13.74 | 6.833    5.66 |  9.90    0.81
               0.733    0.81 | 3.800   13.74 | 6.867    5.66 |  9.93    0.81
               0.767    0.81 | 3.833   13.74 | 6.900    5.66 |  9.97    0.81
               0.800    0.81 | 3.867   13.74 | 6.933    5.66 | 10.00    0.81
               0.833    0.81 | 3.900   13.74 | 6.967    5.66 | 10.03    0.81
               0.867    0.81 | 3.933   13.74 | 7.000    5.66 | 10.07    0.81
               0.900    0.81 | 3.967   13.74 | 7.033    5.66 | 10.10    0.81
               0.933    0.81 | 4.000   13.74 | 7.067    5.66 | 10.13    0.81
               0.967    0.81 | 4.033   13.74 | 7.100    5.66 | 10.17    0.81
               1.000    0.81 | 4.067   13.74 | 7.133    5.66 | 10.20    0.81
               1.033    0.81 | 4.100   13.74 | 7.167    5.66 | 10.23    0.81
               1.067    0.81 | 4.133   13.74 | 7.200    5.66 | 10.27    0.81
               1.100    0.81 | 4.167   13.74 | 7.233    5.66 | 10.30    0.81
               1.133    0.81 | 4.200   13.74 | 7.267    4.45 | 10.33    0.81
               1.167    0.81 | 4.233   13.74 | 7.300    3.23 | 10.37    0.81
               1.200    0.81 | 4.267   25.45 | 7.333    3.23 | 10.40    0.81
               1.233    0.81 | 4.300   37.17 | 7.367    3.23 | 10.43    0.81
               1.267    0.81 | 4.333   37.17 | 7.400    3.23 | 10.47    0.81
               1.300    0.81 | 4.367   37.17 | 7.433    3.23 | 10.50    0.81
               1.333    0.81 | 4.400   37.17 | 7.467    3.23 | 10.53    0.81
               1.367    0.81 | 4.433   37.17 | 7.500    3.23 | 10.57    0.81
               1.400    0.81 | 4.467   37.17 | 7.533    3.23 | 10.60    0.81
               1.433    0.81 | 4.500   37.17 | 7.567    3.23 | 10.63    0.81
               1.467    0.81 | 4.533   37.17 | 7.600    3.23 | 10.67    0.81
               1.500    0.81 | 4.567   37.17 | 7.633    3.23 | 10.70    0.81
               1.533    0.81 | 4.600   37.17 | 7.667    3.23 | 10.73    0.81
               1.567    0.81 | 4.633   37.17 | 7.700    3.23 | 10.77    0.81
               1.600    0.81 | 4.667   37.17 | 7.733    3.23 | 10.80    0.81
               1.633    0.81 | 4.700   37.17 | 7.767    3.23 | 10.83    0.81
               1.667    0.81 | 4.733   37.17 | 7.800    3.23 | 10.87    0.81
               1.700    0.81 | 4.767   37.17 | 7.833    3.23 | 10.90    0.81
               1.733    0.81 | 4.800   37.17 | 7.867    3.23 | 10.93    0.81
               1.767    0.81 | 4.833   37.17 | 7.900    3.23 | 10.97    0.81
               1.800    0.81 | 4.867   37.17 | 7.933    3.23 | 11.00    0.81
               1.833    0.81 | 4.900   37.17 | 7.967    3.23 | 11.03    0.81
               1.867    0.81 | 4.933   37.17 | 8.000    3.23 | 11.07    0.81
               1.900    0.81 | 4.967   37.17 | 8.033    3.23 | 11.10    0.81
               1.933    0.81 | 5.000   37.17 | 8.067    3.23 | 11.13    0.81
               1.967    0.81 | 5.033   37.17 | 8.100    3.23 | 11.17    0.81
               2.000    0.81 | 5.067   37.17 | 8.133    3.23 | 11.20    0.81
               2.033    0.81 | 5.100   37.17 | 8.167    3.23 | 11.23    0.81
               2.067    0.81 | 5.133   37.17 | 8.200    3.23 | 11.27    0.81
               2.100    0.81 | 5.167   37.17 | 8.233    3.23 | 11.30    0.81
               2.133    0.81 | 5.200   37.17 | 8.267    2.43 | 11.33    0.81
               2.167    0.81 | 5.233   37.17 | 8.300    1.62 | 11.37    0.81
               2.200    0.81 | 5.267   23.84 | 8.333    1.62 | 11.40    0.81
               2.233    0.81 | 5.300   10.50 | 8.367    1.62 | 11.43    0.81
               2.267    2.83 | 5.333   10.50 | 8.400    1.62 | 11.47    0.81
               2.300    4.85 | 5.367   10.50 | 8.433    1.62 | 11.50    0.81
               2.333    4.85 | 5.400   10.50 | 8.467    1.62 | 11.53    0.81
               2.367    4.85 | 5.433   10.50 | 8.500    1.62 | 11.57    0.81
               2.400    4.85 | 5.467   10.50 | 8.533    1.62 | 11.60    0.81
               2.433    4.85 | 5.500   10.50 | 8.567    1.62 | 11.63    0.81
               2.467    4.85 | 5.533   10.50 | 8.600    1.62 | 11.67    0.81
               2.500    4.85 | 5.567   10.50 | 8.633    1.62 | 11.70    0.81
               2.533    4.85 | 5.600   10.50 | 8.667    1.62 | 11.73    0.81
               2.567    4.85 | 5.633   10.50 | 8.700    1.62 | 11.77    0.81
               2.600    4.85 | 5.667   10.50 | 8.733    1.62 | 11.80    0.81
               2.633    4.85 | 5.700   10.50 | 8.767    1.62 | 11.83    0.81
               2.667    4.85 | 5.733   10.50 | 8.800    1.62 | 11.87    0.81
               2.700    4.85 | 5.767   10.50 | 8.833    1.62 | 11.90    0.81
               2.733    4.85 | 5.800   10.50 | 8.867    1.62 | 11.93    0.81
               2.767    4.85 | 5.833   10.50 | 8.900    1.62 | 11.97    0.81
               2.800    4.85 | 5.867   10.50 | 8.933    1.62 | 12.00    0.81
               2.833    4.85 | 5.900   10.50 | 8.967    1.62 | 12.03    0.81
               2.867    4.85 | 5.933   10.50 | 9.000    1.62 | 12.07    0.81
               2.900    4.85 | 5.967   10.50 | 9.033    1.62 | 12.10    0.81
               2.933    4.85 | 6.000   10.50 | 9.067    1.62 | 12.13    0.81
               2.967    4.85 | 6.033   10.50 | 9.100    1.62 | 12.17    0.81
               3.000    4.85 | 6.067   10.50 | 9.133    1.62 | 12.20    0.81
               3.033    4.85 | 6.100   10.50 | 9.167    1.62 | 12.23    0.81
               3.067    4.85 | 6.133   10.50 | 9.200    1.62 | 12.27    0.40

     Max.Eff.Inten.(mm/hr)=      37.17        30.02
                over (min)        6.00         8.00
     Storage Coeff.  (min)=       6.32 (ii)    6.98 (ii)
     Unit Hyd. Tpeak (min)=       6.00         8.00
     Unit Hyd. peak  (cms)=       0.18         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.85         0.00        0.847 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.23         5.23
     RUNOFF VOLUME    (mm)=      79.82        50.53        79.79
     TOTAL RAINFALL   (mm)=      80.82        80.82        80.82
     RUNOFF COEFFICIENT   =       0.99         0.63         0.99


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  87.0    Ia = Dep. 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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------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
                      DEPTH       STORAGE          |   DEPTH      STORAGE
                      (mm)        (cu.m.)          |   (mm)       (cu.m.)
                        0.00          0.00          |   1041.00      3759.30
                       25.00         49.47          |   1067.00      3854.08
                       51.00         98.94          |   1092.00      3948.08
                       76.00        148.40          |   1118.00      4041.25
                      102.00        197.87          |   1143.00      4133.57
                      127.00        247.34          |   1168.00      4225.00
                      152.00        296.81          |   1194.00      4315.50
                      178.00        346.27          |   1219.00      4405.03
                      203.00        395.74          |   1245.00      4493.56
                      229.00        445.21          |   1270.00      4581.02
                      254.00        554.10          |   1295.00      4667.39
                      279.00        662.70          |   1321.00      4752.59
                      305.00        771.11          |   1346.00      4836.57
                      330.00        879.30          |   1372.00      4919.26
                      356.00        987.27          |   1397.00      5000.60
                      381.00       1095.00          |   1422.00      5080.50
                      406.00       1202.48          |   1448.00      5158.85
                      432.00       1309.70          |   1473.00      5235.54
                      457.00       1416.63          |   1499.00      5310.45
                      483.00       1523.27          |   1524.00      5383.37
                      508.00       1629.60          |   1549.00      5454.08
                      533.00       1735.60          |   1575.00      5522.23
                      559.00       1841.25          |   1600.00      5587.25
                      584.00       1946.55          |   1626.00      5647.31
                      610.00       2051.46          |   1651.00      5703.06
                      635.00       2155.99          |   1676.00      5757.41
```

TOWN OF CALEDON
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660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.847	5.23	79.79
OUTFLOW:ID= 1	8.21	0.101	7.33	66.07
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

Volume Reduction Rate[(RVin-RVout)/RVin](%)= 17.19
Time to reach Max storage (Hr)= 7.33
Volume of water for drawdown in LID (cu.m.)= 3373.82
Volume of maximum water storage (cu.m.)= 4723.07
Calculated Drawdown Time (Hr)= 34.03

| Junction Command(0056) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.10	7.33	66.07
OUTFLOW: ID= 2(0056)	8.21	0.10	7.33	66.07

| Junction Command(0057) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

****
** SIMULATION:Run 13 100yr 12hr AES **
****

CALIB		
STANDHYD (0120)	Area (ha)= 14.36	
ID= 1 DT= 2.0 min	Total Imp(%)= 97.60	Dir. Conn.(%)= 97.60

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	14.02	0.34
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	309.41	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89

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2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

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     Max.Eff.Inten.(mm/hr)=      40.71        26.11
                over (min)        8.00        10.00
     Storage Coeff.  (min)=       7.21 (ii)    9.50 (ii)
     Unit Hyd. Tpeak (min)=       8.00        10.00
     Unit Hyd. peak  (cms)=       0.15         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       1.58         0.02         1.608 (iii)
     TIME TO PEAK    (hrs)=       5.23         5.27          5.23
     RUNOFF VOLUME    (mm)=      87.54        42.62         86.46
     TOTAL RAINFALL   (mm)=      88.54        88.54         88.54
     RUNOFF COEFFICIENT   =       0.99         0.48          0.98


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  76.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| RESERVOIR(  0004)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.2654      0.8399
                          0.0111     0.0722   |   0.2796      0.9338
                          0.0509     0.1444   |   0.2932      1.0277
                          0.0712     0.2166   |   0.3061      1.1216
                          0.0868     0.2888   |   0.3185      1.2155
                          0.1000     0.3706   |   0.3304      1.3093
                          0.1117     0.4644   |   0.3420      1.4032
                          0.1222     0.5583   |   0.3531      1.4971
                          0.1319     0.6522   |   0.3639      1.5910
                          0.2504     0.7461   |   0.3745      1.6846

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0120)     14.360     1.608      5.23      86.46
   OUTFLOW: ID= 1 (  0004)     14.360     0.269      6.57      85.62
   OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00       0.00

                   TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                   CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                   PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.76
                   TIME SHIFT OF PEAK FLOW         (min)= 80.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.8669

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  --------------------------
  | Junction Command(0055) |
  --------------------------

                           AREA     QPEAK   TPEAK     R.V.
                           (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0004)    0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0055)    0.00      0.00    0.00     0.00

  ------------------------------------------------------------------------------
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| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=  12.09
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.30   Dir. Conn.(%)=  97.30
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     11.76         0.33
     Dep. Storage     (mm)=      1.00         5.00
     Average Slope     (%)=      1.00         2.00
     Length            (m)=    283.90        40.00
     Mannings n          =      0.013        0.250
```

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89

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2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        26.11
            over (min)       6.00        10.00
Storage Coeff.  (min)=       6.84 (ii)    9.26 (ii)
Unit Hyd. Tpeak (min)=       6.00        10.00
Unit Hyd. peak  (cms)=       0.17         0.12
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.33         0.02        1.352 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      87.54        42.62        86.33
TOTAL RAINFALL   (mm)=      88.54        88.54        88.54
RUNOFF COEFFICIENT   =       0.99         0.48         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB              |
| STANDHYD (  0099)|   Area    (ha)=   8.19
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                            IMPERVIOUS    PERVIOUS (i)
Surface Area     (ha)=        8.18          0.01
Dep. Storage     (mm)=        1.00          5.00
Average Slope     (%)=        1.00          2.00
Length            (m)=      233.67         40.00
Mannings n           =       0.013         0.250

    NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        26.11
            over (min)       6.00         8.00
Storage Coeff.  (min)=       6.09 (ii)    6.73 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.19         0.16
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.93         0.00        0.926 (iii)
TIME TO PEAK    (hrs)=       5.23         5.23         5.23
RUNOFF VOLUME    (mm)=      87.54        42.62        87.49
TOTAL RAINFALL   (mm)=      88.54        88.54        88.54
RUNOFF COEFFICIENT   =       0.99         0.48         0.99


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. 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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TOWN OF CALEDON
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| RESERVOIR(  0001)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  4.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0700      0.6145

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)      8.190      0.926      5.23      87.49
   OUTFLOW: ID= 1 (  0001)      8.190      0.067      8.33      80.43
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.28
                    TIME SHIFT OF PEAK FLOW         (min)=186.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.5915

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--------------------
| ADD HYD  (  0051)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):     8.19    0.067     8.33    80.43
      + ID2= 2 (  0100):    12.09    1.352     5.23    86.33
        ====================================================
        ID = 3 (  0051):    20.28    1.402     5.23    83.95

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

  --------------------------
  | Junction Command(0050) |
  --------------------------

                            AREA     QPEAK    TPEAK     R.V.
                            (ha)     (cms)    (hrs)     (mm)
  INFLOW : ID= 3(  0001)     0.00      0.00     0.00     0.00
  OUTFLOW: ID= 2(  0050)     0.00      0.00     0.00     0.00

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

--------------------
| ADD HYD  (  0052)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
*** W A R N I N G :  HYDROGRAPH   0050 <ID= 1> IS DRY.
*** W A R N I N G :  HYDROGRAPH   0052 = HYDROGRAPH 0051
        ID1= 1 (  0050):     0.00    0.000     0.00     0.00
      + ID2= 2 (  0051):    20.28    1.402     5.23    83.95
        ====================================================
        ID = 3 (  0052):    20.28    1.402     5.23    83.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0002)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1780      0.4721
                          0.0000     0.0444   |   0.1888      0.5284
                          0.0000     0.0887   |   0.1991      0.5880
                          0.0622     0.1331   |   0.2088      0.6499
                          0.0885     0.1775   |   0.2181      0.7118
                          0.1087     0.2218   |   0.2271      0.7737
                          0.1256     0.2662   |   0.6000      0.8403
                          0.1406     0.3105   |   0.6881      0.9081
                          0.1541     0.3596   |   0.7636      0.9760
                          0.1665     0.4159   |   0.8309      1.0439

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0052)     20.280      1.402      5.23      83.95
   OUTFLOW: ID= 1 (  0002)     20.280      0.226      7.37      79.32
   OVERFLOW:ID= 3 (  0003)      0.000      0.000      0.00       0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.12
                    TIME SHIFT OF PEAK FLOW         (min)=128.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.7660

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  --------------------------
  | Junction Command(0053) |
  --------------------------

                            AREA     QPEAK    TPEAK     R.V.
                            (ha)     (cms)    (hrs)     (mm)
  INFLOW : ID= 3(  0002)     0.00      0.00     0.00     0.00
  OUTFLOW: ID= 2(  0053)     0.00      0.00     0.00     0.00

  ------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0110)|   Area    (ha)=  16.70
|ID= 1 DT= 2.0 min |   Total Imp(%)=  97.60   Dir. Conn.(%)=  97.60
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      16.30          0.40
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     333.67         40.00
     Mannings n          =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89
1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89

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1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        26.11
           over (min)        8.00        10.00
Storage Coeff.  (min)=       7.54 (ii)    9.84 (ii)
Unit Hyd. Tpeak (min)=       8.00        10.00
Unit Hyd. peak  (cms)=       0.15         0.11
                                                    *TOTALS*
PEAK FLOW       (cms)=       1.84         0.03        1.870 (iii)
TIME TO PEAK    (hrs)=       5.23         5.27         5.23
RUNOFF VOLUME    (mm)=      87.54        42.62        86.46
TOTAL RAINFALL   (mm)=      88.54        88.54        88.54
RUNOFF COEFFICIENT   =       0.99         0.48         0.98


  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  76.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS ON
| IN= 2---> OUT= 1 |
| DT=  2.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.4765      1.3727
                          0.0000     0.1242   |   0.5033      1.5204
                          0.0621     0.2484   |   0.5288      1.6681
                          0.0961     0.3725   |   0.5531      1.8158
                          0.1208     0.5019   |   0.5764      1.9635
                          0.1413     0.6343   |   0.5988      2.1112
                          0.1592     0.7820   |   0.6204      2.2589
                          0.1752     0.9297   |   0.6413      2.4066
                          0.4176     1.0774   |   0.6615      2.5543
                          0.4480     1.2251   |   0.6811      2.7020

                                AREA     QPEAK     TPEAK      R.V.
                                (ha)     (cms)     (hrs)      (mm)
  INFLOW : ID= 2 (  0110)     16.700     1.870      5.23     86.46
  OUTFLOW: ID= 1 (  0003)     16.700     0.349      6.50     78.99
  OVERFLOW:ID= 3 (  0003)      0.000     0.000      0.00      0.00

                    TOTAL NUMBER OF SIMULATION OVERFLOW  =     0
                    CUMULATIVE TIME OF OVERFLOW  (HOURS) =  0.00
                    PERCENTAGE OF TIME OVERFLOWING   (%) =  0.00

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.66
                    TIME SHIFT OF PEAK FLOW         (min)= 76.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  1.0355

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  --------------------------
  | Junction Command(0054) |
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                            AREA     QPEAK   TPEAK     R.V.
                            (ha)     (cms)   (hrs)     (mm)
  INFLOW : ID= 3(  0003)     0.00      0.00    0.00     0.00
  OUTFLOW: ID= 2(  0054)     0.00      0.00    0.00     0.00

  --------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0130)|   Area    (ha)=   8.21
|ID= 1 DT= 2.0 min |   Total Imp(%)=  99.90   Dir. Conn.(%)=  99.90
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.20         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     233.95        40.00
     Mannings n          =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.00	3.100	5.31	6.167	11.51	9.23	1.77
0.067	0.00	3.133	5.31	6.200	11.51	9.27	1.33
0.100	0.00	3.167	5.31	6.233	11.51	9.30	0.89
0.133	0.00	3.200	5.31	6.267	8.86	9.33	0.89
0.167	0.00	3.233	5.31	6.300	6.20	9.37	0.89
0.200	0.00	3.267	10.18	6.333	6.20	9.40	0.89
0.233	0.00	3.300	15.05	6.367	6.20	9.43	0.89
0.267	0.45	3.333	15.05	6.400	6.20	9.47	0.89
0.300	0.89	3.367	15.05	6.433	6.20	9.50	0.89
0.333	0.89	3.400	15.05	6.467	6.20	9.53	0.89
0.367	0.89	3.433	15.05	6.500	6.20	9.57	0.89
0.400	0.89	3.467	15.05	6.533	6.20	9.60	0.89
0.433	0.89	3.500	15.05	6.567	6.20	9.63	0.89
0.467	0.89	3.533	15.05	6.600	6.20	9.67	0.89
0.500	0.89	3.567	15.05	6.633	6.20	9.70	0.89
0.533	0.89	3.600	15.05	6.667	6.20	9.73	0.89
0.567	0.89	3.633	15.05	6.700	6.20	9.77	0.89
0.600	0.89	3.667	15.05	6.733	6.20	9.80	0.89
0.633	0.89	3.700	15.05	6.767	6.20	9.83	0.89
0.667	0.89	3.733	15.05	6.800	6.20	9.87	0.89
0.700	0.89	3.767	15.05	6.833	6.20	9.90	0.89
0.733	0.89	3.800	15.05	6.867	6.20	9.93	0.89
0.767	0.89	3.833	15.05	6.900	6.20	9.97	0.89
0.800	0.89	3.867	15.05	6.933	6.20	10.00	0.89
0.833	0.89	3.900	15.05	6.967	6.20	10.03	0.89
0.867	0.89	3.933	15.05	7.000	6.20	10.07	0.89
0.900	0.89	3.967	15.05	7.033	6.20	10.10	0.89
0.933	0.89	4.000	15.05	7.067	6.20	10.13	0.89
0.967	0.89	4.033	15.05	7.100	6.20	10.17	0.89
1.000	0.89	4.067	15.05	7.133	6.20	10.20	0.89
1.033	0.89	4.100	15.05	7.167	6.20	10.23	0.89
1.067	0.89	4.133	15.05	7.200	6.20	10.27	0.89
1.100	0.89	4.167	15.05	7.233	6.20	10.30	0.89
1.133	0.89	4.200	15.05	7.267	4.87	10.33	0.89
1.167	0.89	4.233	15.05	7.300	3.54	10.37	0.89
1.200	0.89	4.267	27.88	7.333	3.54	10.40	0.89
1.233	0.89	4.300	40.71	7.367	3.54	10.43	0.89
1.267	0.89	4.333	40.71	7.400	3.54	10.47	0.89
1.300	0.89	4.367	40.71	7.433	3.54	10.50	0.89
1.333	0.89	4.400	40.71	7.467	3.54	10.53	0.89
1.367	0.89	4.433	40.71	7.500	3.54	10.57	0.89
1.400	0.89	4.467	40.71	7.533	3.54	10.60	0.89
1.433	0.89	4.500	40.71	7.567	3.54	10.63	0.89
1.467	0.89	4.533	40.71	7.600	3.54	10.67	0.89
1.500	0.89	4.567	40.71	7.633	3.54	10.70	0.89

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1.533	0.89	4.600	40.71	7.667	3.54	10.73	0.89
1.567	0.89	4.633	40.71	7.700	3.54	10.77	0.89
1.600	0.89	4.667	40.71	7.733	3.54	10.80	0.89
1.633	0.89	4.700	40.71	7.767	3.54	10.83	0.89
1.667	0.89	4.733	40.71	7.800	3.54	10.87	0.89
1.700	0.89	4.767	40.71	7.833	3.54	10.90	0.89
1.733	0.89	4.800	40.71	7.867	3.54	10.93	0.89
1.767	0.89	4.833	40.71	7.900	3.54	10.97	0.89
1.800	0.89	4.867	40.71	7.933	3.54	11.00	0.89
1.833	0.89	4.900	40.71	7.967	3.54	11.03	0.89
1.867	0.89	4.933	40.71	8.000	3.54	11.07	0.89
1.900	0.89	4.967	40.71	8.033	3.54	11.10	0.89
1.933	0.89	5.000	40.71	8.067	3.54	11.13	0.89
1.967	0.89	5.033	40.71	8.100	3.54	11.17	0.89
2.000	0.89	5.067	40.71	8.133	3.54	11.20	0.89
2.033	0.89	5.100	40.71	8.167	3.54	11.23	0.89
2.067	0.89	5.133	40.71	8.200	3.54	11.27	0.89
2.100	0.89	5.167	40.71	8.233	3.54	11.30	0.89
2.133	0.89	5.200	40.71	8.267	2.66	11.33	0.89
2.167	0.89	5.233	40.71	8.300	1.77	11.37	0.89
2.200	0.89	5.267	26.11	8.333	1.77	11.40	0.89
2.233	0.89	5.300	11.51	8.367	1.77	11.43	0.89
2.267	3.10	5.333	11.51	8.400	1.77	11.47	0.89
2.300	5.31	5.367	11.51	8.433	1.77	11.50	0.89
2.333	5.31	5.400	11.51	8.467	1.77	11.53	0.89
2.367	5.31	5.433	11.51	8.500	1.77	11.57	0.89
2.400	5.31	5.467	11.51	8.533	1.77	11.60	0.89
2.433	5.31	5.500	11.51	8.567	1.77	11.63	0.89
2.467	5.31	5.533	11.51	8.600	1.77	11.67	0.89
2.500	5.31	5.567	11.51	8.633	1.77	11.70	0.89
2.533	5.31	5.600	11.51	8.667	1.77	11.73	0.89
2.567	5.31	5.633	11.51	8.700	1.77	11.77	0.89
2.600	5.31	5.667	11.51	8.733	1.77	11.80	0.89
2.633	5.31	5.700	11.51	8.767	1.77	11.83	0.89
2.667	5.31	5.733	11.51	8.800	1.77	11.87	0.89
2.700	5.31	5.767	11.51	8.833	1.77	11.90	0.89
2.733	5.31	5.800	11.51	8.867	1.77	11.93	0.89
2.767	5.31	5.833	11.51	8.900	1.77	11.97	0.89
2.800	5.31	5.867	11.51	8.933	1.77	12.00	0.89
2.833	5.31	5.900	11.51	8.967	1.77	12.03	0.89
2.867	5.31	5.933	11.51	9.000	1.77	12.07	0.89
2.900	5.31	5.967	11.51	9.033	1.77	12.10	0.89
2.933	5.31	6.000	11.51	9.067	1.77	12.13	0.89
2.967	5.31	6.033	11.51	9.100	1.77	12.17	0.89
3.000	5.31	6.067	11.51	9.133	1.77	12.20	0.89
3.033	5.31	6.100	11.51	9.167	1.77	12.23	0.89
3.067	5.31	6.133	11.51	9.200	1.77	12.27	0.44

```
Max.Eff.Inten.(mm/hr)=      40.71        33.73
           over (min)        6.00         8.00
Storage Coeff.  (min)=       6.09 (ii)    6.73 (ii)
Unit Hyd. Tpeak (min)=       6.00         8.00
Unit Hyd. peak  (cms)=       0.19         0.16
                                                    *TOTALS*
PEAK FLOW       (cms)=       0.93         0.00        0.928 (iii)
TIME TO PEAK    (hrs)=       5.23         5.23         5.23
RUNOFF VOLUME    (mm)=      87.54        57.44        87.51
TOTAL RAINFALL   (mm)=      88.54        88.54        88.54
RUNOFF COEFFICIENT   =       0.99         0.65         0.99

  (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
       CN*  =  87.0    Ia = Dep. Storage  (Above)
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
      THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
------------------
| CHAMBER(  0060)|  OUTFLOW: ON,   UNDERDRAIN: OFF,  INFIL: ON
|IN= 2--> OUT= 3 |  CHAMBER:
| DT=  1.0 min   |  MAX STO VOL (cu.m.)= 6506.94  Bottom Area(m2)   = 4870.00
------------------
```

DEPTH (mm)	STORAGE (cu.m.)	DEPTH (mm)	STORAGE (cu.m.)
0.00	0.00	1041.00	3759.30
25.00	49.47	1067.00	3854.08
51.00	98.94	1092.00	3948.08
76.00	148.40	1118.00	4041.25
102.00	197.87	1143.00	4133.57
127.00	247.34	1168.00	4225.00
152.00	296.81	1194.00	4315.50
178.00	346.27	1219.00	4405.03
203.00	395.74	1245.00	4493.56
229.00	445.21	1270.00	4581.02
254.00	554.10	1295.00	4667.39
279.00	662.70	1321.00	4752.59
305.00	771.11	1346.00	4836.57
330.00	879.30	1372.00	4919.26
356.00	987.27	1397.00	5000.60
381.00	1095.00	1422.00	5080.50
406.00	1202.48	1448.00	5158.85
432.00	1309.70	1473.00	5235.54
457.00	1416.63	1499.00	5310.45
483.00	1523.27	1524.00	5383.37
508.00	1629.60	1549.00	5454.08
533.00	1735.60	1575.00	5522.23
559.00	1841.25	1600.00	5587.25
584.00	1946.55	1626.00	5647.31
610.00	2051.46	1651.00	5703.06
635.00	2155.99	1676.00	5757.41
660.00	2260.10	1702.00	5810.73
686.00	2363.78	1727.00	5862.91
711.00	2467.02	1753.00	5913.33
737.00	2569.79	1778.00	5962.80
762.00	2672.07	1803.00	6012.26
787.00	2773.85	1829.00	6061.73
813.00	2875.11	1854.00	6111.20
838.00	2975.83	1880.00	6160.67
864.00	3075.97	1905.00	6210.14
889.00	3175.53	1930.00	6259.60
914.00	3274.49	1956.00	6309.07
940.00	3372.81	1981.00	6358.54
965.00	3470.48	2007.00	6408.01
991.00	3567.46	2032.00	6457.47
1016.00	3663.75	2057.00	6506.94

DEPTH (m)	DISCHARGE (cms)	DEPTH (m)	DISCHARGE (cms)
0.000	0.000	0.460	0.066
0.010	0.011	0.510	0.069
0.060	0.024	0.560	0.072
0.110	0.032	0.610	0.075
0.160	0.039	0.660	0.079
0.210	0.045	0.710	0.081
0.260	0.049	0.760	0.084
0.310	0.054	0.810	0.087
0.360	0.058	0.860	0.090
0.410	0.062	0.910	0.092

```
NATIVE SOIL LAYER:
Infiltration (m/hr) = 0.0051
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW:ID= 2	8.21	0.928	5.23	87.51
OUTFLOW:ID= 1	8.21	0.109	7.33	73.38
OVERFLOW:ID= 3	0.00	0.000	0.00	0.00

```
Volume Reduction Rate[(RVin-RVout)/RVin](%)=      16.15
Time to reach Max storage              (Hr)=       7.33
Volume of water for drawdown in LID (cu.m.)=    3796.52
Volume of maximum water storage     (cu.m.)=    5212.99
Calculated Drawdown Time               (Hr)=      35.32

--------------------------
| Junction Command(0056) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1(0060)	8.21	0.11	7.33	73.38
OUTFLOW: ID= 2(0056)	8.21	0.11	7.33	73.38

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

--------------------------
| Junction Command(0057) |
--------------------------
```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 3(0060)	0.00	0.00	0.00	0.00
OUTFLOW: ID= 2(0057)	0.00	0.00	0.00	0.00

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

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APPENDIX

C INFILTRATION GALLERY SUPPORTING DOCUMENTS

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PRODUCT BROCHURE

STORMCON

STORMWATER MANAGEMENT SOLUTIONS.

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STORMCON
STORMWATER MANAGEMENT SOLUTIONS.

GreenStorm ST
GreenStorm ST-B

Rigofill ST / ST-B product by FRÄNKISCHE

Underground storage infiltration modules

www.stormcon.ca

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The GreenStorm ST* system

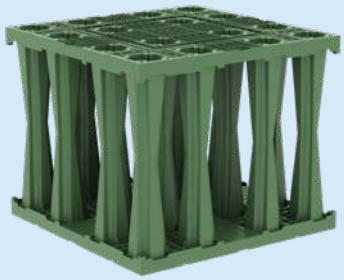
Certification CSTB

Avis Technique 17.2/14-285_V2

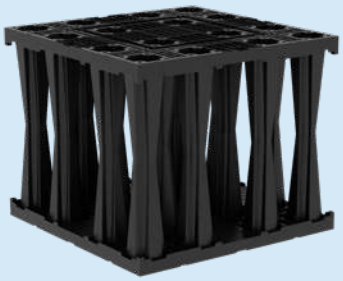
Rigofill inspect
Rigofill ST

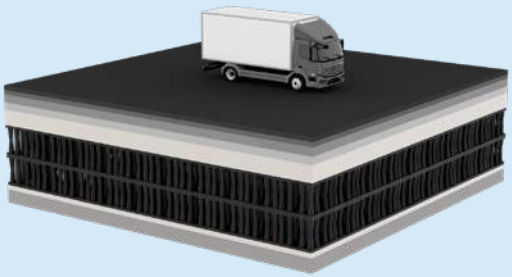
GreenStorm ST* system

GreenStorm ST*



GreenStorm ST-B*





extremely high volume very easy to install 100% inspectable

NB

In what follows, an illustrative explanation of the GreenStorm system will be given by means of the green module.
All properties and advantages also apply to the GreenStorm ST-B system. The systems have been optimised for different installation situations.

In the following, please be sure to pay attention to these signs:

Statements marked with this sign apply to both GreenStorm ST and GreenStorm ST-B.

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Storing stormwater with storage/infiltration systems

Basic element for underground water storage facilities

GreenStorm ST* are plastic tanks to be installed underground (storage/ infiltration modules) in which water is collected and stored. Storage/infiltration systems temporarily collect stormwater and discharge it later. In addition to infiltration using underdrained swale systems, pipe swales, and gravel swales common in the past, increasingly more storage/infiltration systems are being built today.

The storage space of the storage/ infiltration system consists of numerous GreenStorm ST* modules which can be combined three-dimensionally to form large systems.

The advantage of this method is that the void ratio is up to three times larger in these infiltration systems than in gravel swales which saves space and excavation work.

GreenStorm ST* is a modular system which is characterised by high flexibility, rapid installation and a high level of user-friendliness.

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Application – infiltration

Stormwater infiltration – giving back to nature

Large amounts of stormwater can reduce the performance of wastewater treatment systems. Infiltrating unpolluted stormwater nearby has therefore several advantages.

A constant growth in built-up areas and increase in impervious surfaces prevent natural infiltration of stormwater into the soil. Special infiltration systems are used in order to discharge it to the water cycle. In addition to infiltration using pipe swales, increasingly more storage/infiltration systems are being built.

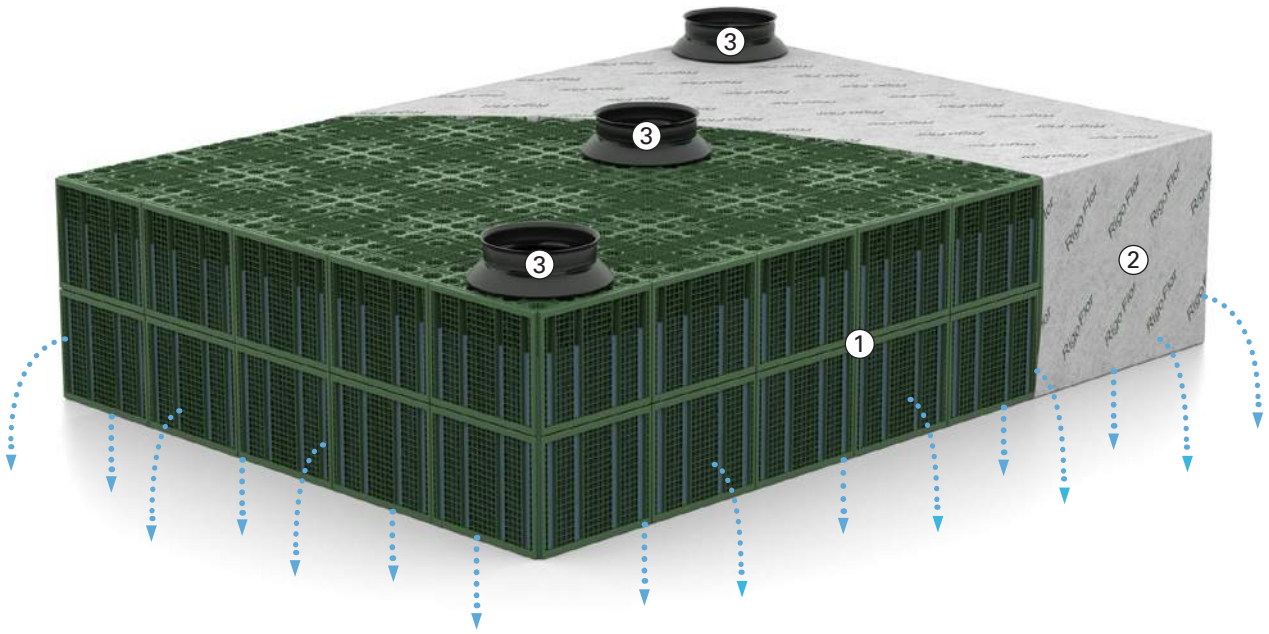
The advantage of this method is that the storage volume of the infiltration system is increased, and space and excavation are saved as compared to gravel swales. Stormwater is thus returned to the natural water cycle and can contribute to producing new groundwater. Infiltration systems are subject to very high requirements. Consequently, they have become an important component of urban drainage.

Storage/infiltration systems considerably increase the underground storage volume. High-performance storage/infiltration systems can be installed even in confined space.

In particular in urban construction no additional space is required and precious building ground is saved.

Légende

1. GreenStorm ST* storage /infiltration module
2. Geotextile
3. QuadroControl ST system shaft



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Application – retention

Retaining stormwater – instead of flooding

If subsoil conditions are unfavourable to infiltration, the goal is to retain the stormwater and ensure a retarded, timelagged discharge. Exposure to impulsive stress can be eliminated or reduced in sewer networks, wastewater treatment systems and waterbodies.

Stormwater retention systems retard the infiltration of stormwater. They are comprised of a watertight retaining element, an inlet and a vortex outlet.

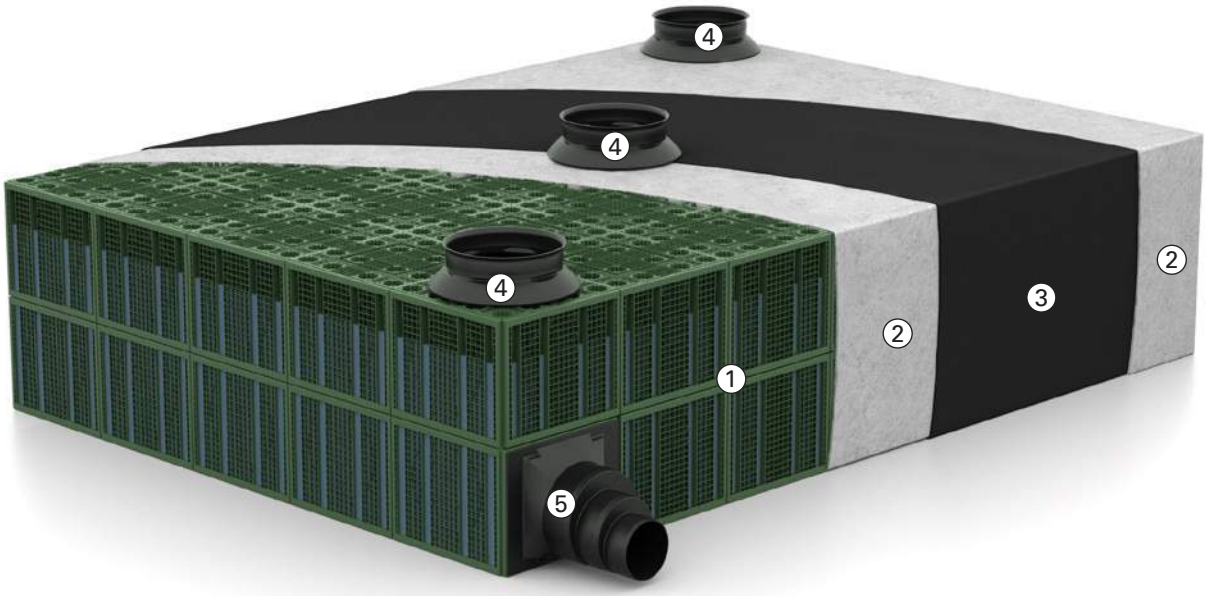
The stormwater distributes evenly in the system where it can be stored and is then discharged in a controlled manner through throttle shafts. If infiltration must be avoided or to prevent unintended discharge of groundwater or strata water (e.g., in case of contaminated soil), it is necessary to waterproof the retention system.

Stormwater runoff from impervious surfaces that cannot infiltrate naturally leads to peak loads in sewer systems.

Stormwater retention facilities collect stormwater in an underground storage tank and discharge it in a retarded manner but continuously. Their very short construction times make storage/ infiltration systems an inexpensive alternative to conventional retention facilities such as retention channels or underground concrete tanks.

Légende

1. GreenStorm ST* storage /infiltration module
2. Geotextile
3. Impermeable membrane
4. QuadroControl ST system shaft
5. Adapter



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Application – harvesting / fire water storage

Harvesting stormwater – saving drinking water

Water – particularly drinking water – is a priceless resource which should be treated responsibly and used sparingly. It is therefore wise to collect, store and use stormwater if the water must not necessarily be suitable for drinking purposes, instead of allowing the water to infiltrate into the soil unused or diverting it into the sewer system.

There are many examples: irrigation for greens, car wash, use in toilets, etc.

Water is diverted into a waterproof storage/infiltration system and can be supplied for use via a pumping system.

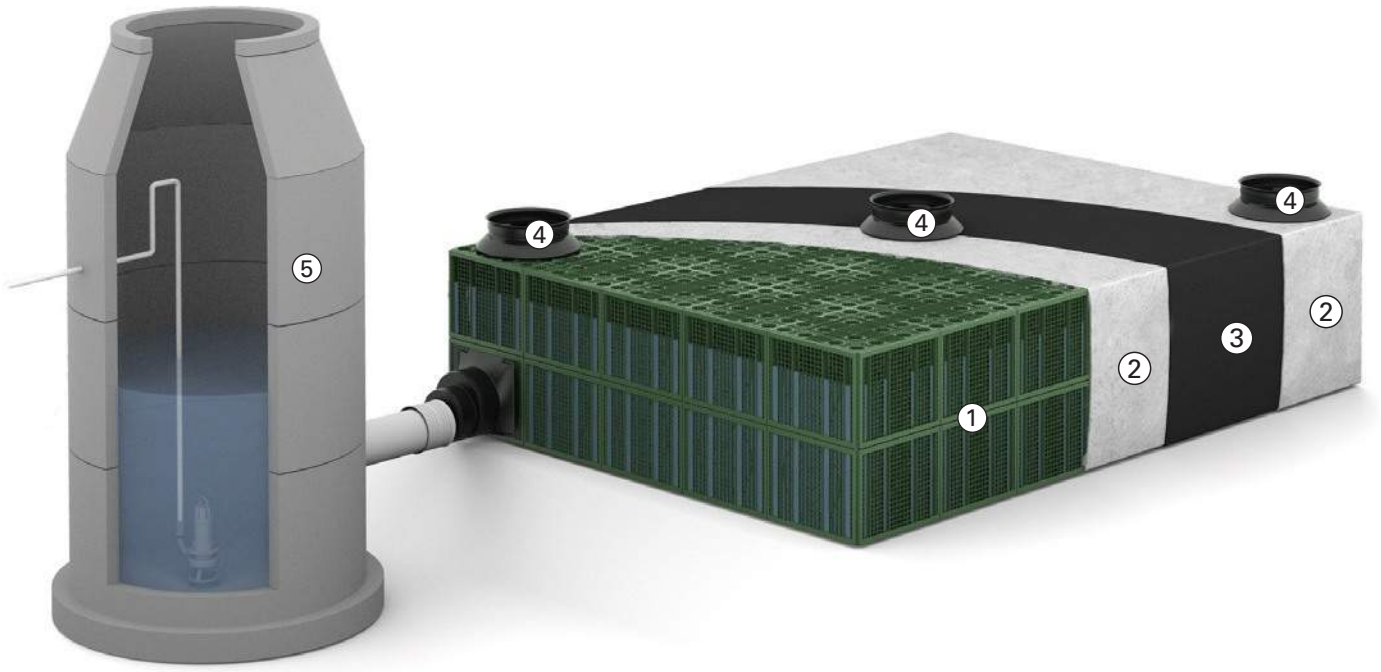
The use of the GreenStorm inspect system allows for finding solutions that fit project-specific requirements – even under the most difficult conditions such as very tight space, narrow conditions, low cover, high groundwater level, etc.

Stormwater harvesting systems provide water for different domestic and industrial water uses. They comprise a watertight retaining element, an inlet with upstream stormwater treatment system, a pump shaft and a system control.

Using GreenStorm ST* for fire water storage also saves water, since system checks can be made in a filled state and water does not have to be pumped out as is the case with conventional concrete tanks.

Légende

1. GreenStorm ST* storage/infiltration module
2. Geotextile
3. Impermeable membrane
4. QuadroControl ST system shaft
5. Tapping shaft (on-site)



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Modular design

Individual system geometries due to modular design

Sizes (length and width) of GreenStorm ST*orage/infiltration systems can be freely designed with hardly any limitations. The 800 mm cellular block type structure can easily be adapted to fit nearly any layout.

With heights of 660 mm (full block) and 350 mm (half block), systems can be built in various sizes to accommodate any single- or multi-layer combination. Therefore, the system can very easily be adapted to on-site requirements. Under high groundwater conditions or low permeability of backfill soil, for example, rather shallow depth systems are to be preferred.

For soils with good permeability, however, high and compact systems are favourable and may be built accordingly. The maximum space available is used.

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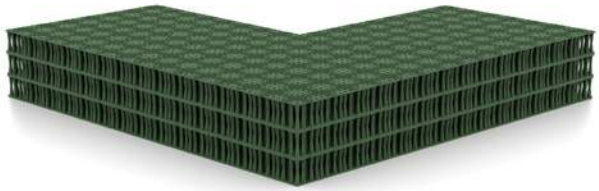
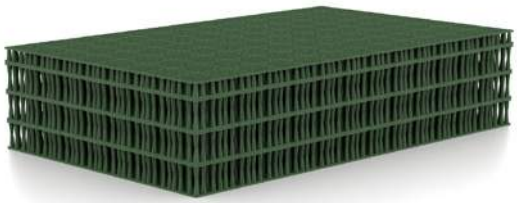
Possible system geometries

GreenStorm ST*
2-layer

GreenStorm ST*
1-layer



GreenStorm ST*
3-layer



GreenStorm ST*
3 1/2-layer

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Storage volume

Extremely high volume

The GreenStorm ST* full block provides a storage volume of 406 litres with a gross volume of 422 litres. With a storage volume of more than 96 %, it stores three times as much water as gravel swales.

The half block has a height of 350 mm and is used if shallow systems are required, e.g., in case of high groundwater levels. With a gross volume of 224 litres, it offers a storage volume of 212 litres.

Column void
The column void of the storage/infiltration module is 100 % available as storage space. Large openings at the column base and at the column connection allow unrestricted filling and emptying of the columns.

Storage/infiltration systems as compared to gravel swales

Pipe and gravel swales only use approx. 30 % of their volume to store water. Therefore, three times the required water storage volume must be provided by excavation. This requires lots of space which is frequently not available in urban areas.

GreenStorm ST* storage/infiltration systems save an enormous amount of space and excavation work. Thus, subsoil storage spaces for stormwater can be built in a very efficient and cost-saving way.

Storage/infiltration systems considerably increase the storage space. High-performance storage/infiltration systems can be installed even in confined space.

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Installation

Easy construction site handling

Requires little space for storage
The storage/infiltration modules are delivered in compact, stacked units with 17 modules per pallet.
The easy stackability of the GreenStorm ST* and ST-B modules allows them to be stored even in confined construction space, even outside the excavation pit.
This facilitates installation, since no additional storage space must be provided in the excavation pit. Installation is neither impeded nor constrained.

Pre-assembly
Depending on the requirements, GreenStorm
ST and GreenStorm ST*-B modules can be pre-assembled in no time at all, both outside and inside the excavation pit with just one easy move. Easy high tensile strength snap connections allow for combining two half elements to create a reliable unit in only a short period of time. This can easily be done by one person alone without requiring any additional tools. The moveable parts of the snap connection are recessed and thus protected from damage.

Easy assembly
There is no need to adhere to any complex installation pattern – the pre-assembled modules or half blocks can just as well be connected to create a single unit.
The low weight allows this to be done by one person only. Connectors establish firm connections between the individual modules. The surface can be accessed immediately without any risk of accidents, since the hole size of the columns is dimensioned respectively (< 100 mm).
Thus, no additional covers of column holes are required.

Up to

88 %

storage space saved as compared to unstackable storage/infiltration modules

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CCTV inspection even when filled

Storage/infiltration systems are durable structures for urban drainage; they must work reliably for decades. Durability and reliability are essential requirements. The best way to inspect the state of a system using state-of-the-art technology is CCTV inspection. Thus, a storage/infiltration system can be inspected excellently – for final acceptance or later. This provides safety for authorities, engineers, construction companies, customers, and operators.

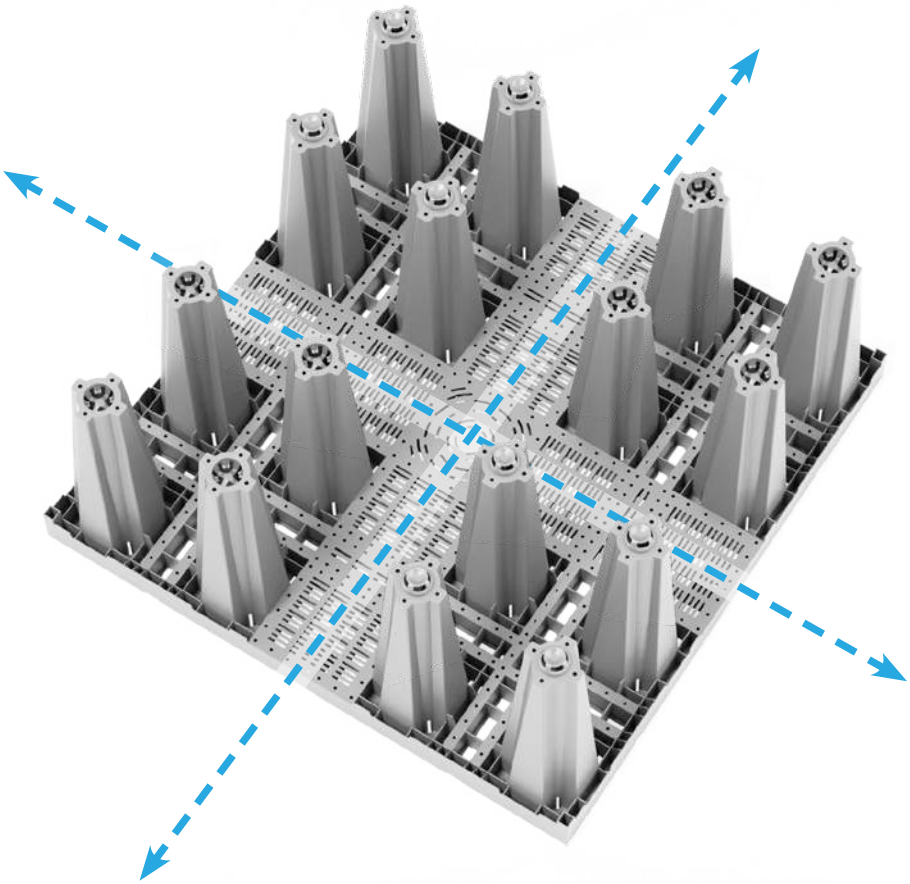
Cross-shaped inspection tunnel

GreenStorm ST* modules have a cross-shaped tunnel which makes the storage/infiltration system camera-accessible and flushable in two axes and thus in four dimensions.
The special and open design of the inspection tunnel allows for an unobstructed view of the entire interior and not only the inspection tunnel.

For example, the statically relevant load-bearing elements, the condition of the geotextile and the entire soil area can be viewed. GreenStorm ST* and GreenStorm ST*-B thus provide excellent options to control the "inner life" of a storage/infiltration system at any time.

The ideal, level and vibration-free running surface and the slim column structure allow for an unobstructed view of the entire module volume. The Quadro Control ST shaft for GreenStorm ST*, which can be integrated, allows for easy access of the automotive dolly for both professional final acceptance inspection and flushing technology.

100 %
inspectable



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Inspection

Recommended camera equipment

A standard sewer camera is sufficient for camera inspection.
A rotatable and height-adjustable camera head allows for an optimal view of the lateral soil area, a controllable carriage ensures a centred positioning, and high-performance optics together with lighting allow for a perfect picture.

Certified CCTV accessibility

GreenStorm ST* has been designed for the use of modern CCTV inspection technology.
The inspectability of the GreenStorm ST* and QuadroControl ST system unit has been tested and confirmed by leading manufacturers of pipe CCTV inspection technology!

Recommended: tender invitation for final acceptance inspection

Final acceptance of sewers using camera inspection has long since become a matter of course in sewer construction.
Also in the construction of storage/ infiltration systems, the final acceptance inspection is important! Planning engineers should absolutely include this in their tender documents. For instructions on the professional system configuration of the CCTV inspection technology, please refer to **www.fraenkische.com**

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Loading

GreenStorm ST* Heavy traffic

Storage/infiltration systems are subsoil structures and must have sufficient load-carrying capacity against impacting soil and traffic loads.

GreenStorm ST* storage/ infiltration systems are extremely strong and have been designed with various applications in mind:
While GreenStorm ST* has been designed in
particular for traffic loads of up to 13 tons axle load.

Certification CSTB

Avis Technique 17.2/14-285_V2

Rigofill inspect
Rigofill ST

High resistance

When installed under traffic areas, relevant national guidelines must be observed.

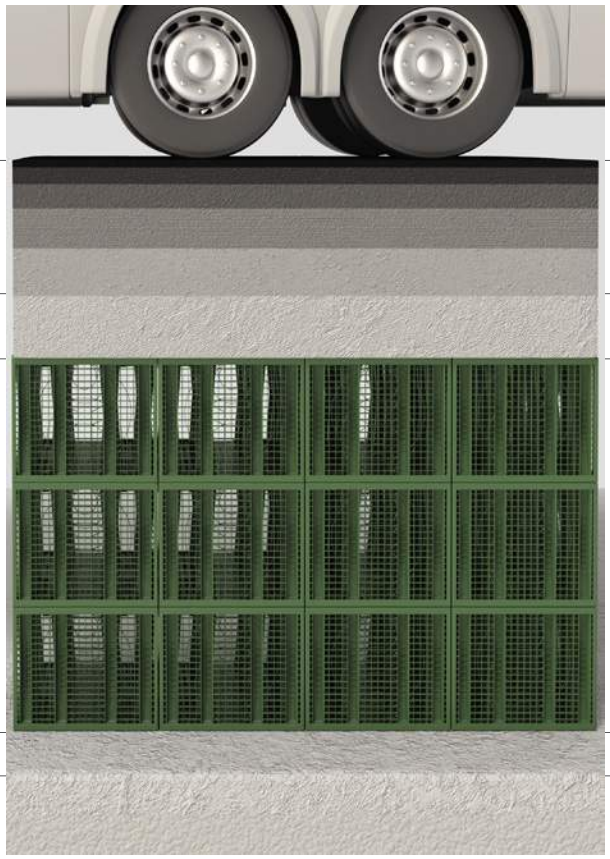
To build the planum for the road construction, an upper levelling layer must be provided. It should preferably be built as a gravel sub-base with a thickness of at least 350 mm, other materials usually result in larger covers.

Generally, a uniform modulus of deformation EV2 ≥ 45 MN/m² must be proven on the planum.

Installation under traffic area

The subsoil structures must have sufficient load-carrying capacity against impacting soil and traffic loads to ensure reliable stability.

This is why GreenStorm ST* is suitable for traffic loads of up to 15 tons axle load (20 tons possible, please refer to our technical department).



With conventional installation parameters*, depths of cover of DC 4 m and soil depths DSof 6 m are possible for infiltration systems. A project-specific stability analysis can be prepared by STORMCON.

*specific weight of soil 18 kN/m³
Mean soil temperature max. 23 °C,
6 m soil depth, = 0.3, 4-laye

*Rigofill ST and Rigofill ST-B product by FRÄNKISCHE

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Loading

GreenStorm ST-B* Light traffic, green spaces

The special material composition of GreenStorm ST-B* makes it ideal for surfaces with less traffic such as sports fields or green spaces.

STORMCON storage/ infiltration systems have been designed for a minimum lifetime of 50 years.

Installation under traffic areas

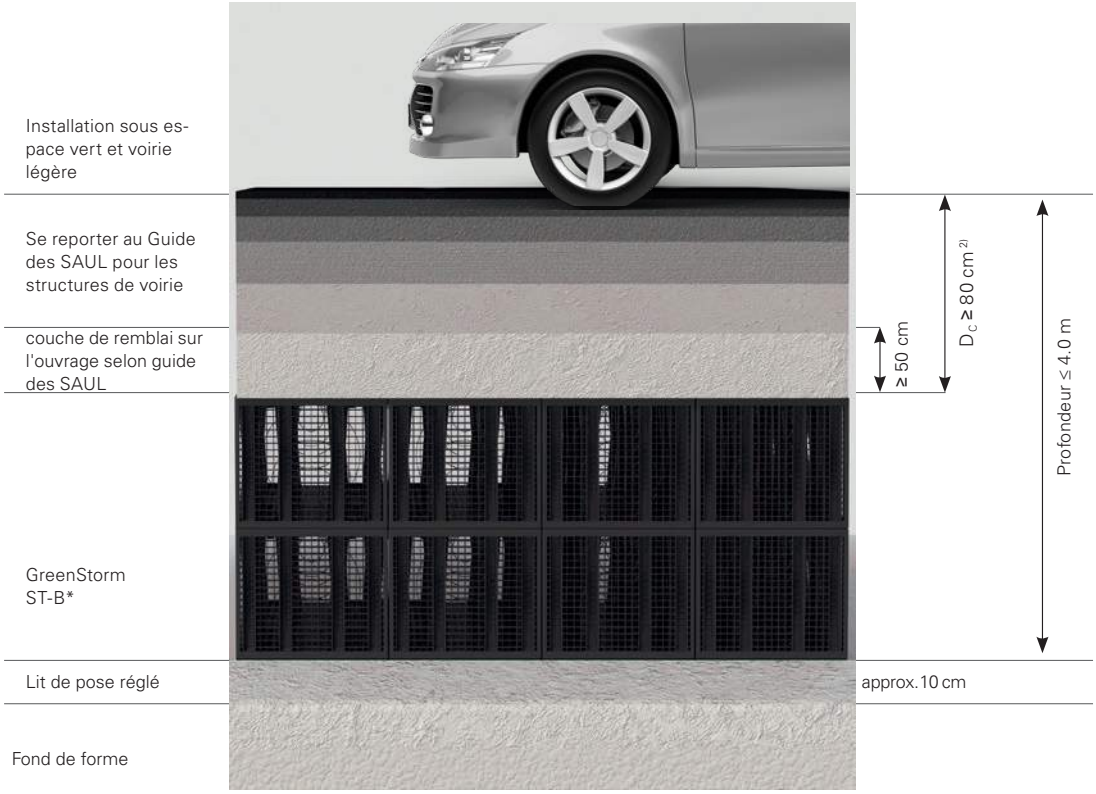
When installed under traffic areas, the relevant national guidelines must be observed.

To build the planum for the road construction, an upper levelling layer must be provided. It should preferably be built as a gravel sub-base with a thickness of at least 350 mm, other materials usually result in larger covers.

Generally, a uniform modulus of deformation EV2 ≥ 45 MN/m² must be proven on the planum.

Standard installation under a traffic area

The GreenStorm ST-B* storage/infiltration module is suitable for traffic loads of up to 10 tons axle load and therefore also suitable for the construction of systems under parks, greens and car parks.



With conventional installation parameters*, depths of cover up to 2.5 m and soil depths up to 4 m are possible for infiltration systems. A project-specific stability analysis can be prepared by STORMCON.

*Light traffic, specific weight of soil 18 kN/m3 Mean soil temperature max. 23 °C, = 0.3

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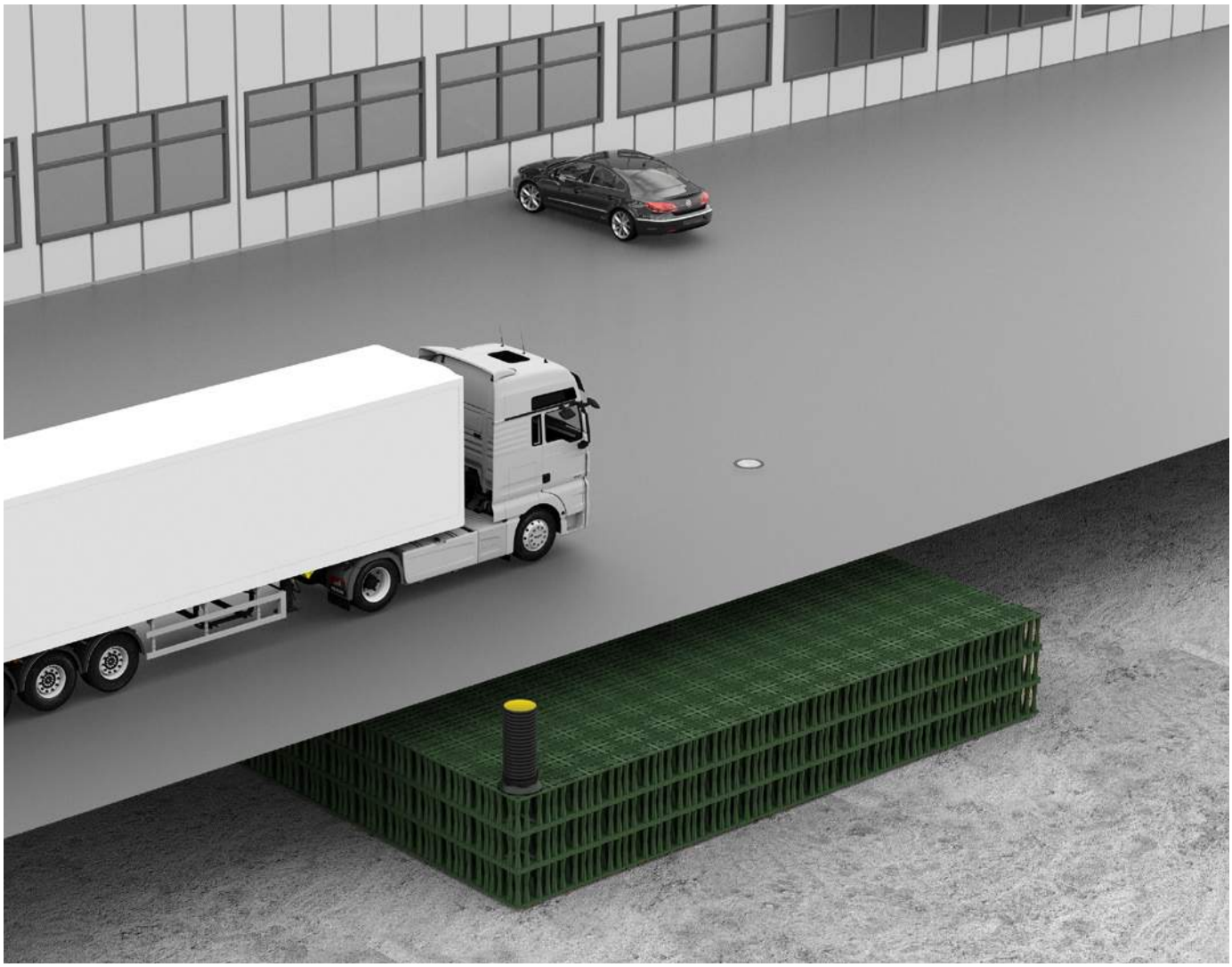
Example

GreenStorm ST* Heavy traffic



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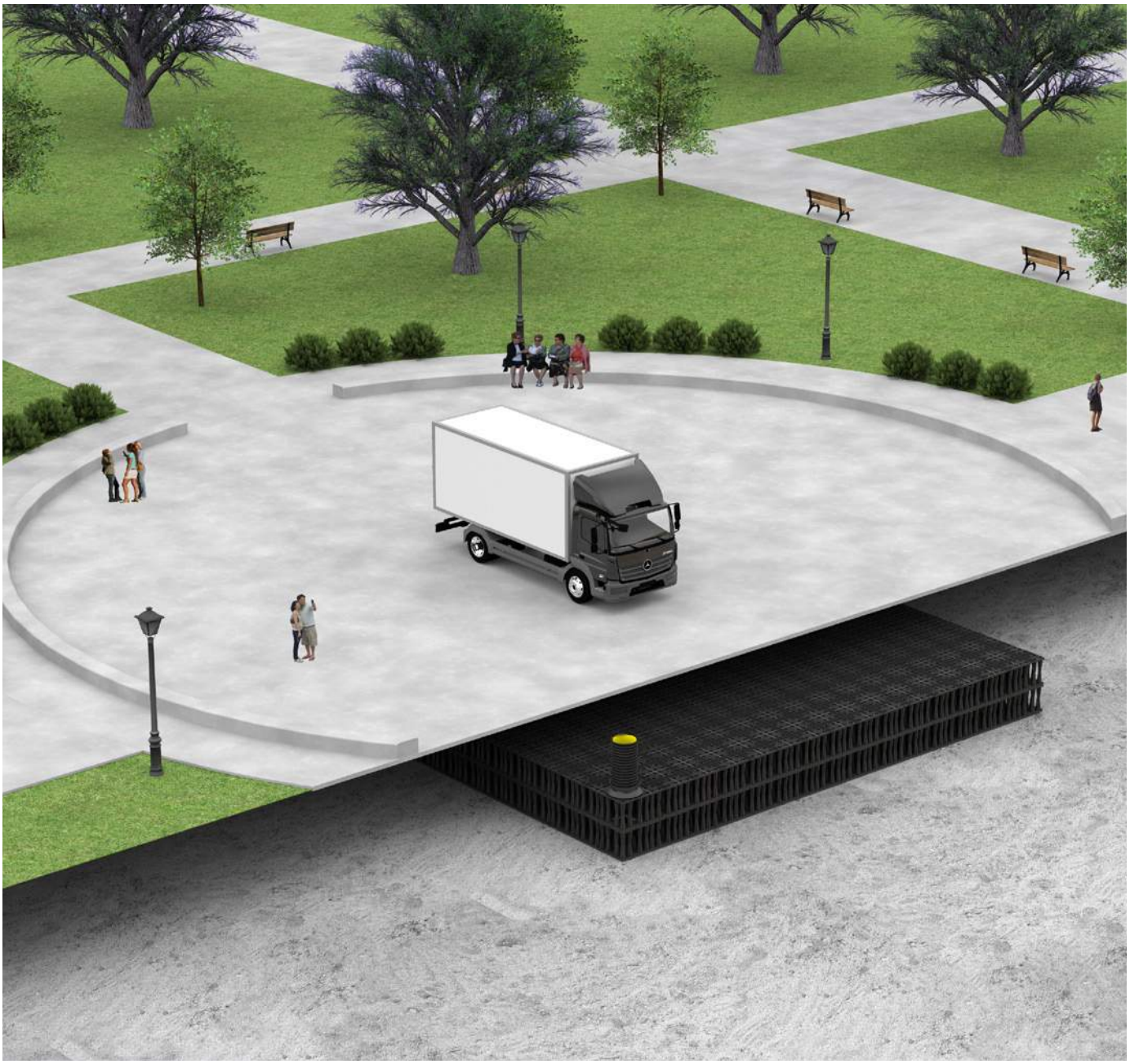
Example

GreenStorm ST-B* Light traffic



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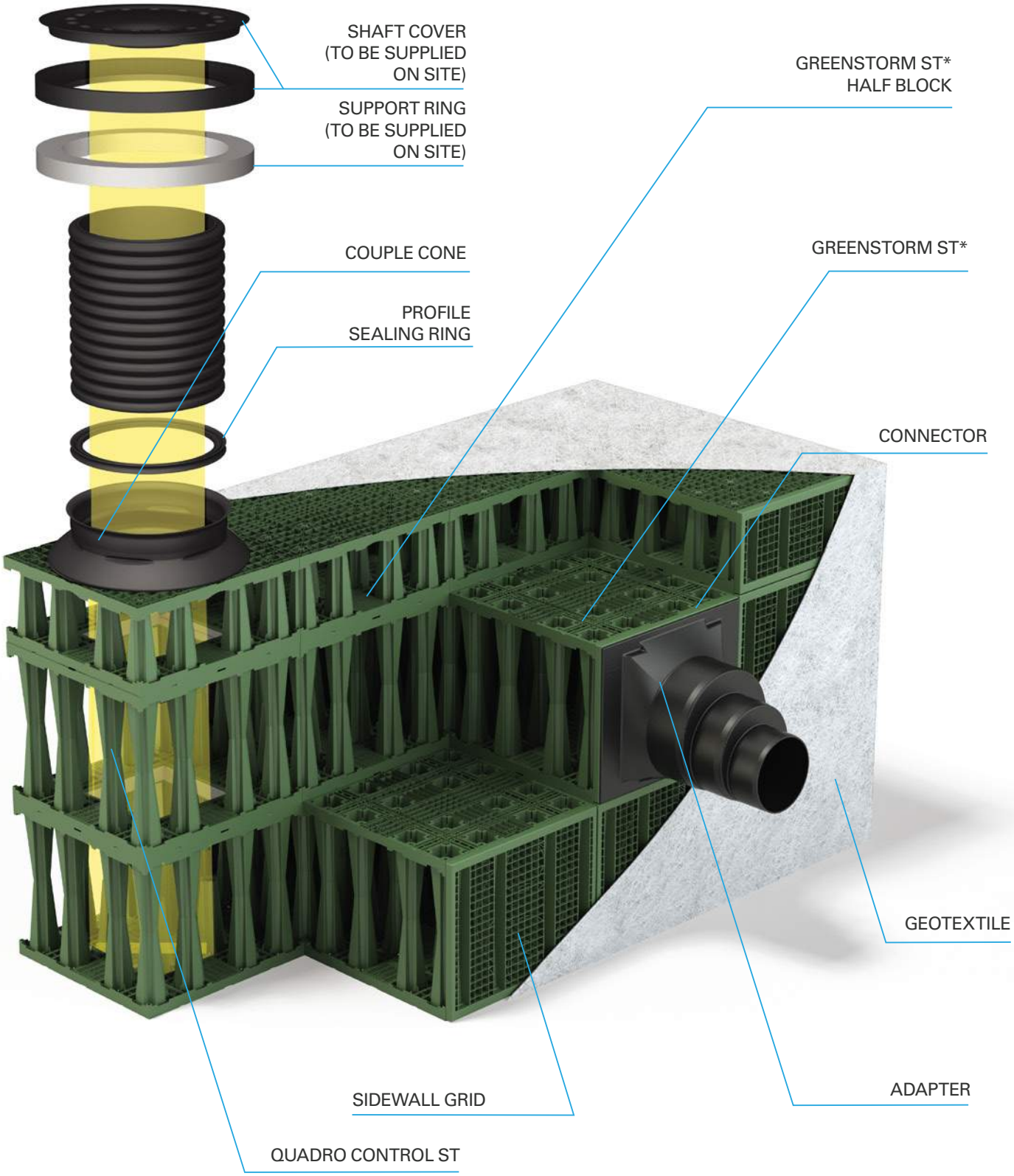
Quadro® Control ST – system shaft



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Quadro® Control ST – system shaft

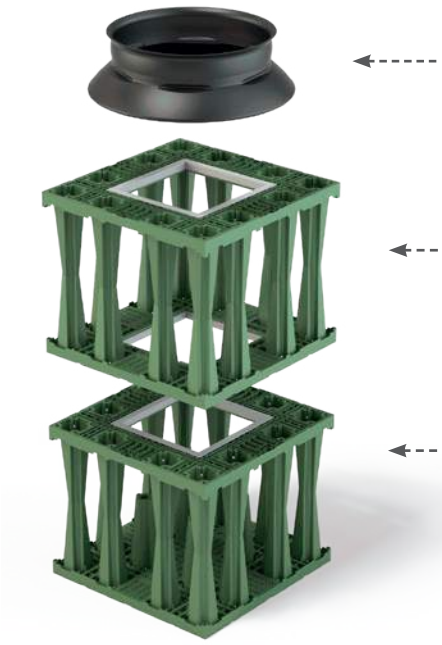
Integrated inspection shafts

Quadro® Control ST is a polypropylene inspection shaft which can be integrated in the storage/infiltration system.

It is square with a base of 800 x 800 mm and can be used in any position of the layout.

Its height results from the number of layers of the connected storage/infiltration system. The shaft allows for comfortable access to the inspection tunnel from aboveground. High-performance inspection and flushing equipment can easily be inserted into the inspection tunnel. The shaft is integrated in the storage/infiltration system and grows layer by layer as construction progresses. QuadroControl ST is delivered with all required components and will be assembled on site.

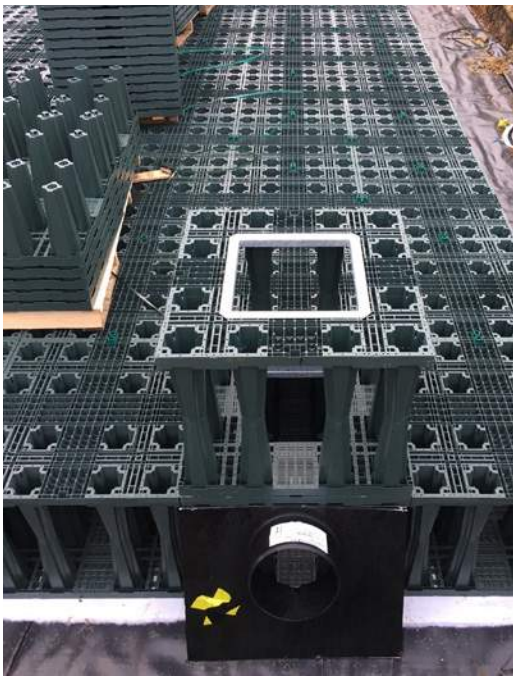
Structure



The shaft cone is the transition to the extension pipe. The length of the extension pipe is chosen depending on the installation depth.

The shaft is integrated in the storage/infiltration system and grows layer by layer as construction progresses.

The shaft components are stackable and delivery includes the cone with all required components as shaft package.

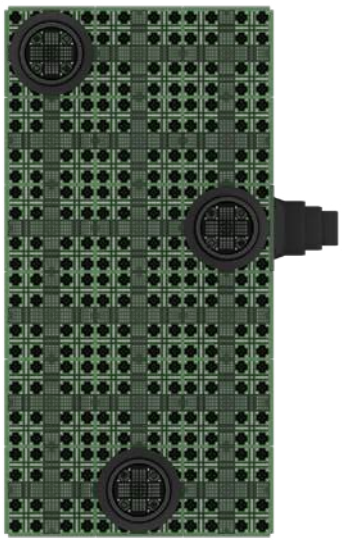


Arrangement of inspection shafts

Number of and position in the system are above all determined by the size of the system, access, pipe connections and design of the outdoor facilities.

In order to ensure that flushing of the complete system is possible, each module should comprise at least one inspection shaft. In addition, the shafts should be positioned such that the shaft covers do not interfere with the design of the outdoor facilities, but can easily be accessed by vehicles for maintenance purposes.

Adjacent shafts should be staggered in the layout.



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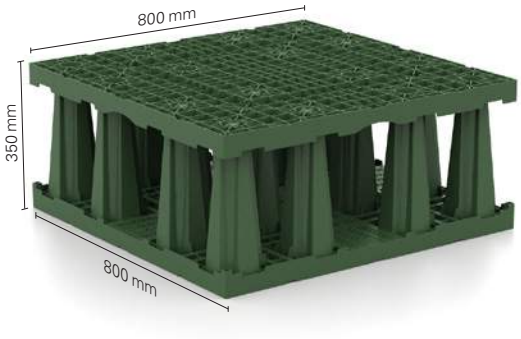
GreenStorm ST* – Design-relevant dimensions

Dimensions



Sidewall grid connection options

Full block connection options
Dia 100 mm, 135 mm, 150 mm, 200 mm, 250 mm, 300 mm, 375 mm et 450 mm

This allows all available nominal diameters to be realised both at the top and the bottom of the module.

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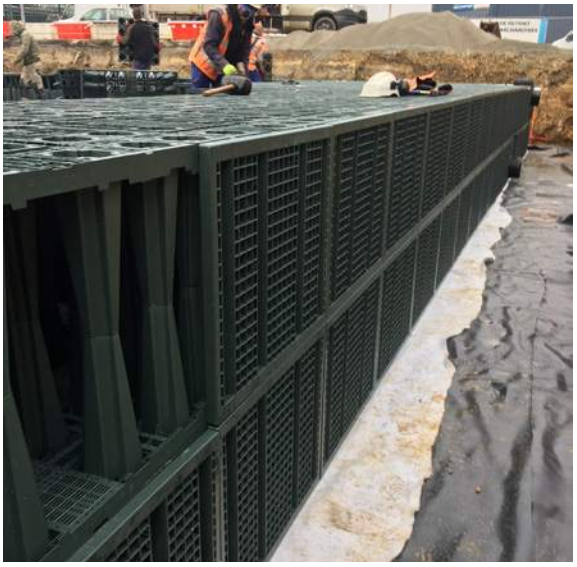
GreenStorm ST* – Design-relevant dimensions

Sidewall grid connection options

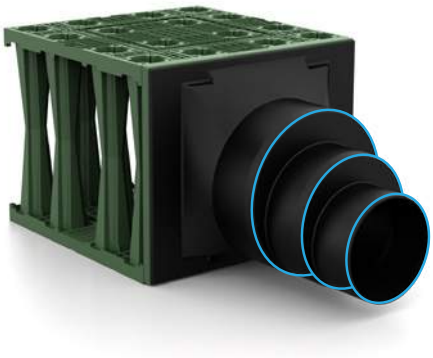
Half block connection options
Dia 100 mm, 135 mm, 150 mm, 200 mm
et 250 mm

The side plates can be drilled to the height and desired position within the frame.



Adapter connection options

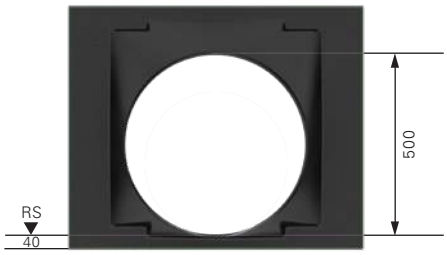
Connections:
Dia 300 mm, 450 mm
et 525 mm



Outside diameter 315 mm for a pipe diameter 300 mm PVC

Outside diameter 400 mm for a pipe diameter 450 mm PVC. A flexible sleeve off center is required.

Outside diameter 500 mm for a pipe of diameter 525 mm. A flexible sleeve off center is required



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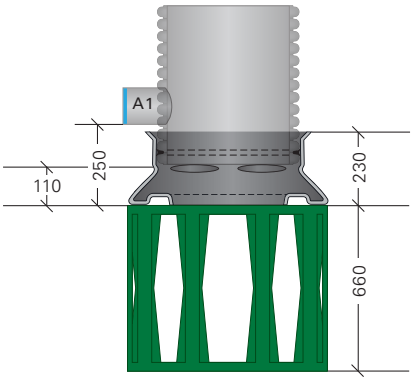
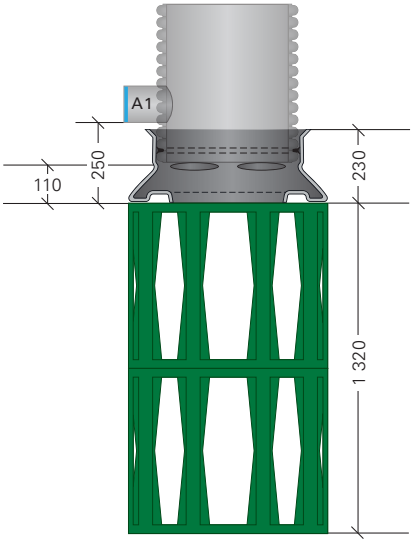
Quadro® Control ST – Design-relevant dimensions

Dimensions of Quadro® Control ST

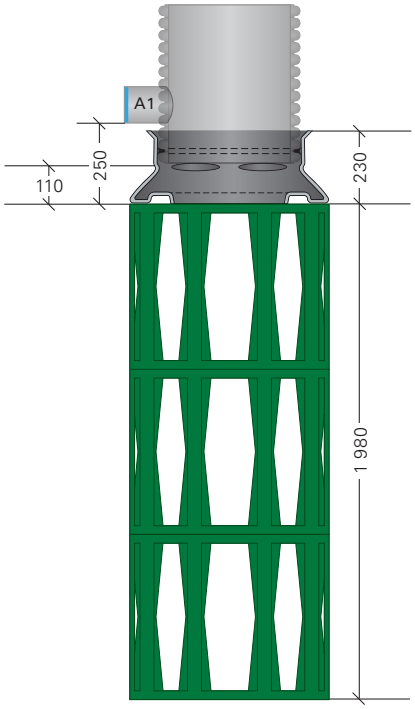
Connection options	
A1	DN/OD 200 or DN/OD 315 connection possible



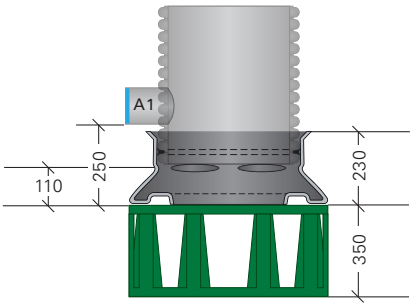
1-layer



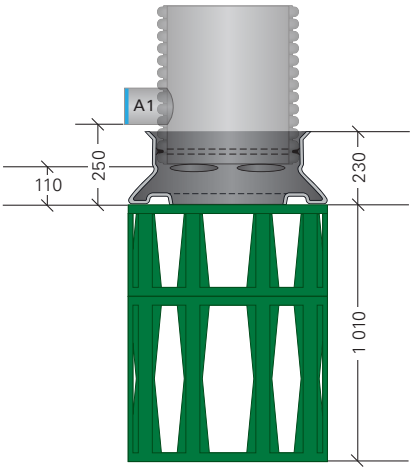
2-layer



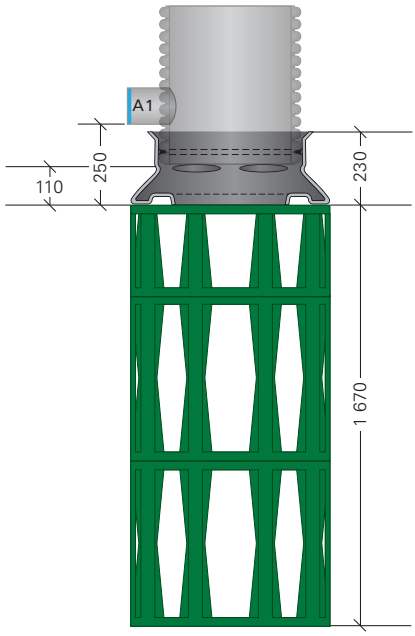
3-layer



1/2-layer



1 1/2-layer



2 1/2-layer

*Rigofill ST and Rigofill ST-B product by FRÄNKISCHE

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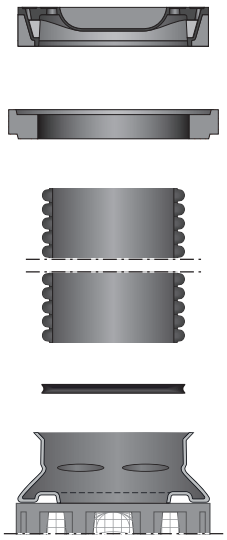
Quadro® Control ST – Design-relevant dimensions

Shaft design of Quadro® Control ST

Structure of inspection shaft

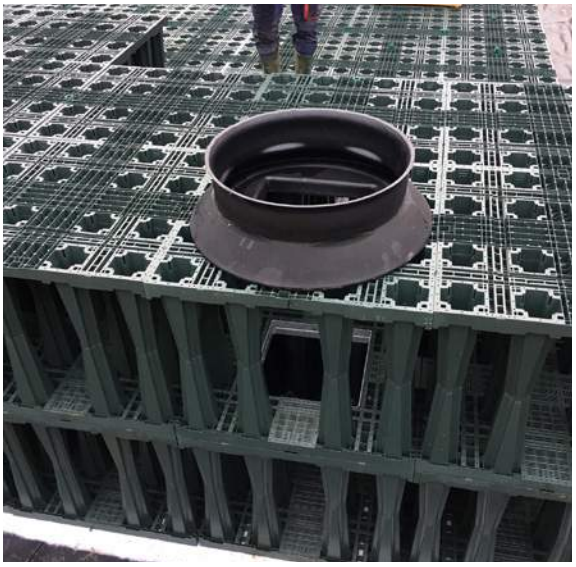


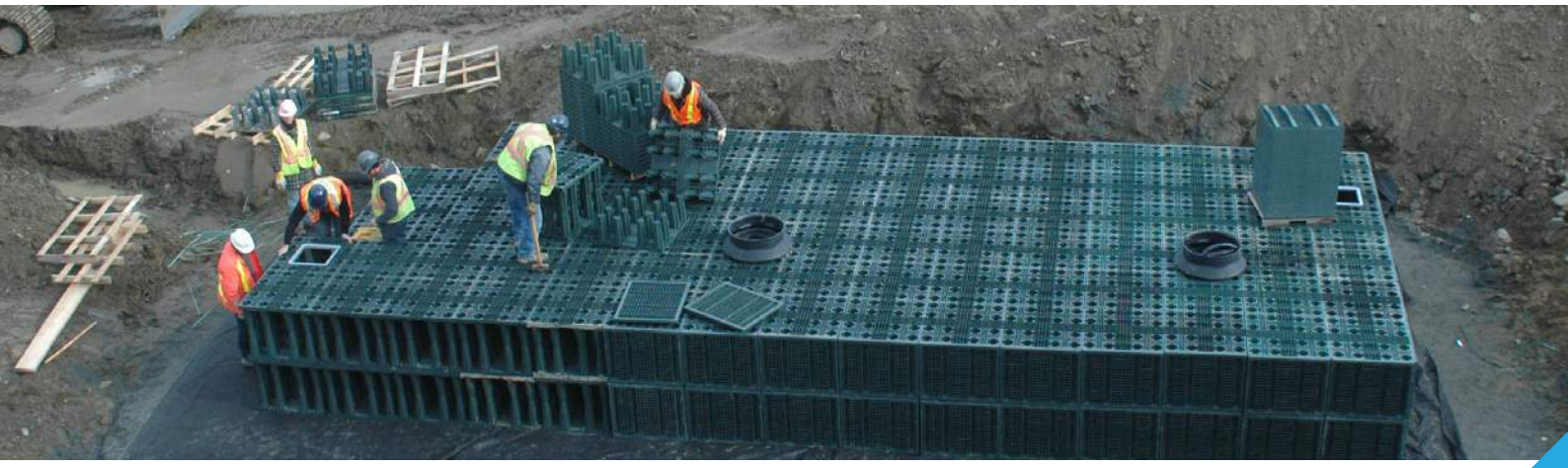
Class B or D
shaft cover acc. to DIN EN 124,
CW 610

Support ring acc. to DIN 4034,
D_i = 625 mm

Extension pipe
D_o 600

Sealing ring





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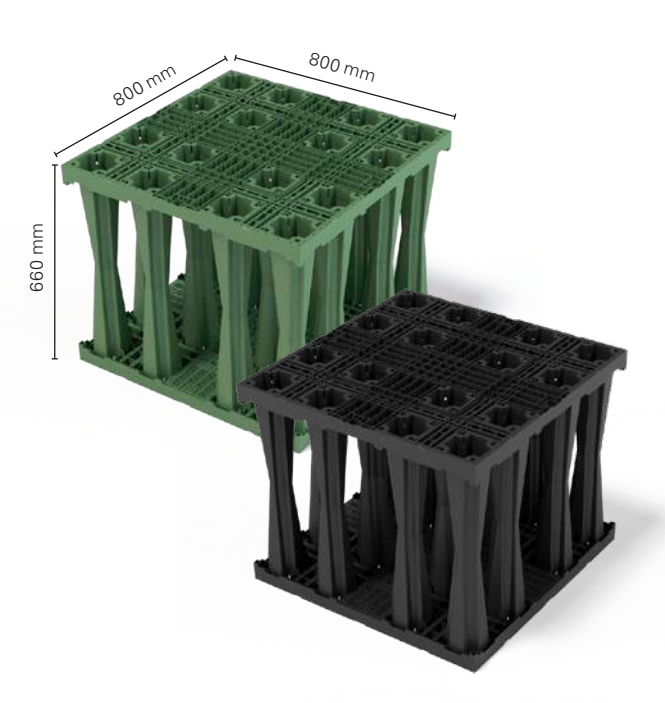
GreenStorm ST* and ST-B*

GreenStorm ST* and ST-B*

GreenStorm ST* and GreenStorm ST-B* are highly durable and hard-wearing storage/infiltration module with a base of 800 x 800 mm and a height of 660 mm full blocks.

The polypropylene full block consists of two half elements to be installed on site and has a void ratio of more than 96 %. Water can flow through the module three-dimensionally almost without any obstacles. GreenStorm ST* and GreenStorm ST-B* allows for virtually any size and geometry of the systems.

The cross-shaped inspection tunnel in the storage/infiltration modules has been designed for the use of automotive dollies. This allows the effective drainage surface and the entire system volume with all statically relevant bearing-type fixtures to be inspected.

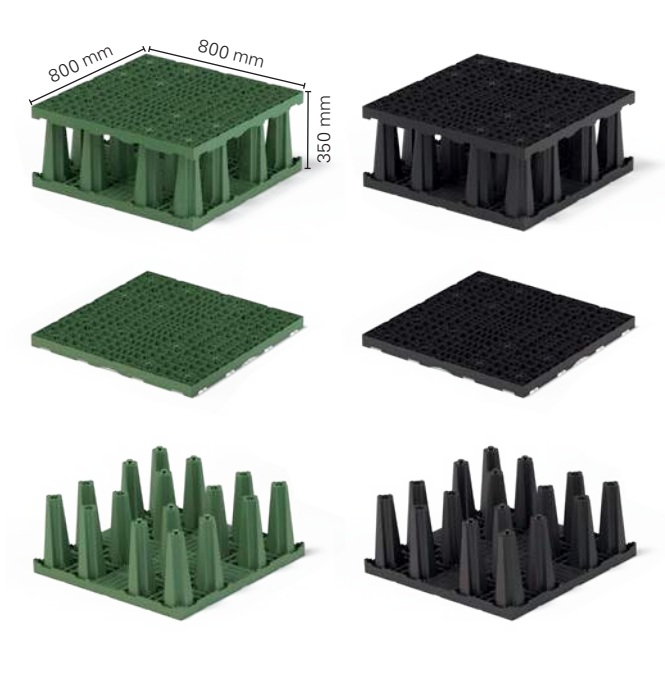


GreenStorm ST* and ST-B* – half block

The GreenStorm ST* and GreenStorm ST-B* half block have a base of 800 x 800 mm and a height of 350 mm.

It consists of only one half element which must be assembled with a roof slab on site. This roof slab is only required for the half block. The GreenStorm ST* and GreenStorm ST-B* half block are used in particular for systems with shallow installation depths, e.g., in case of high groundwater levels.

Systems in various heights can be realised in 35 cm steps and adjusted to almost any layout in combination with the full block.



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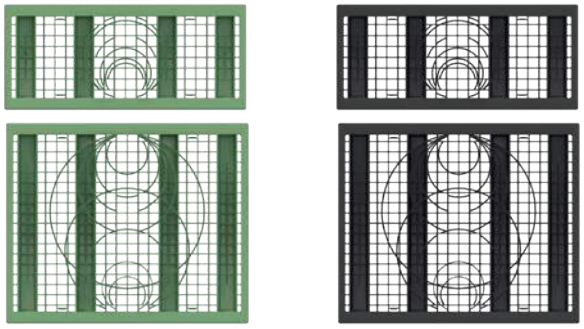
GreenStorm ST* and ST-B* – Accessories



Différentes hauteurs de connexion (indépendamment du diamètre nominal) sont requises au-dessus du fond selon le nombre d'étages :

ST	ST-B	Nombre d'étages	Hauteur de raccord
●	●	0.5-layer	40 mm
●	●	1-layer	40 mm
●	●	1.5-layer	700 mm
●	●	2-layer	700 mm
●	●	2.5-layer	1 360 mm
●	●	3-layer	1 360 mm

Sidewall grid

The sidewall grids serve as external boundary.

They can be assembled easily using snap connections. The predefined position of the connections at the sidewall grids guarantees that the connections of inlet pipe and outlet pipe and the tunnel are same level. The sidewall grids can be assembled easily also outside the excavation pit.

The sidewall grid for the full block and Quadro® Control ST and Quadro® Control ST-B has a size of W x D x H = 800 x 30 x 660 mm and is suited for connecting lateral solid wall pipes DN 110, 125, 160, 200, 225, 250, 315, 400 and 500.

The sidewall grid for the half block or the half-layer shaft has a size of W x D x H = 800 x 30 x 350 mm and is suited for connecting lateral solid wall pipes DN 110, 125, 160, 200, 225 and 250. In storage/infiltration designs with inside corners, shortened sidewall grids are used at one side.

Adapter

The adapter for GreenStorm ST* and GreenStorm ST-B* has a length of 800 mm and a height of 660 mm and serves as an inlet and outlet connection.

It provides an inlet connection with an optimised flow design with diffusor effect for solid wall pipes DN 315, 400 and 500. It can be connected to GreenStorm ST* and GreenStorm ST-B* easily and quickly thanks to the snap connection.

The predefined position of the snap connection at the module guarantees that inlet pipe and outlet pipe and tunnel connect same level.

The adapter ensures a connection with the same crown, as it is installed turned by 180°.

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TECHNICAL DETAILS

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Stormwater management
Stormwater storage

Rigofill®ST
Storage/infiltration module

Polypropylene storage/infiltration module, consisting of half elements (full block) to be installed on site or half element(s) and roof slab (half block) with sidewall grids depending on the position in the storage/infiltration module, accessible in two axes thanks to cross-shaped, continuous inspection tunnel, colour: green

Technical data		
Application:	Highly durable and hard-wearing storage/infiltration module for the construction of gravel-free, underground swales for the infiltration, retention and storage of stormwater run-off in combination with RigoFlor special geotextile lining, QuadroControl ST inspection shafts and more accessories.	
Material / raw material:	PP (polypropylene)	
Specification/ approvals:	France: CSTB (Centre Scientifique et Technique du Bâtiment) United Kingdom: BBA (British Board of Agrément) Poland: IBDiM (Instytut Badawczy Dróg i Mostów)	
Dimensions: Length x width [m]	0.80 x 0.80	
Height: [m]	Half block 0.35	Full block 0.66
Weight: [kg]	14	19
Storage capacity: [%]	95	96
Volume [litres]:	Gross volume: 224 Storage volume: 212	Gross volume: 422 Storage volume: 406
Nominal diameter of inlet/outlet at the storage/infiltration module:	At the sidewall grid: Solid-wall pipe DN/OD 110, DN/OD 125, DN/OD 160, DN/OD 200, DN/OD 250, DN/OD 270	At the sidewall grid: Solid-wall pipe DN/OD 110, DN/OD 125; DN/OD 160, DN/OD 200, DN/OD 250, DN/OD 270, DN/OD 400, DN/OD 500 Using adapter: Solid-wall pipe DN/OD 315, DN/OD 400, DN/OD 500
Carrying capacity:	Maximum cover up to 4 m* Maximum soil depth up to 6 m* Heavy goods vehicle traffic (HGV 60) from a minimum cover of 80 cm with proper road layout Long-term carrying capacity has been proven	

*… depending on local installation conditions

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Stackability:	Horizontal and vertical connect using connectors
Inspectability:	Accessible in two axes thanks to cross-shaped, continuous inspection tunnel W x H 0.16 m x 0.59 m, designed for the use of automotive dollies, for optimum inspection of the permeable surface (geotextile wrapping) and inspection of any statically relevant load-bearing elements; free access opening 500 mm at the cone of the inspection shaft for inserting inspection and flushing devices
Inspection shaft:	QuadroControl ST system shaft can be integrated anywhere in the modular block type structure, length x width = 0.80 m x 0.80 m, as inspection shaft, ventilation of the system with QuadroControl ST when using shaft covers with ventilation openings. Consisting of half elements to be installed on site and cone (full block shaft) or half element(s) and roof slab (half block shaft) with sidewall grid depending on the position on the storage/infiltration module ½-layer 1-layer 1 ½-layer 2-layer 2 ½-layer 3-layer
Accessories:	For Rigofill ST accessories, see Drainage Systems price catalogue More information: “Rigofill® ST | Rigofill® ST-B - underground storage/infiltration module“ product documentation www.fraenkische.com
Miscellaneous:	Installation according to “Rigofill® ST | Rigofill® ST-B - installation manual” www.fraenkische.com

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SERVICE LIFE

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Statement regarding the lifetime of Rigofill storage/infiltration modules

Dear Sir or Madam,

The technical lifetime of a product covers the time span in which the warranted characteristics of a product are given and the planned utilization is possible without restrictions. The requested period of effectiveness for the structural elements is usually restricted either by operational reasons or by the change of utilization requirements. Hence the technical lifetime has to match or can considerably exceed the planned utilization period.

For plastic storage/infiltration modules made according to the current authoritative approval regulations, quality guidelines and plans, normative test methods are designed to certify for a minimum product lifetime of 50 years.

- Germany → DIBt (Deutsches Institut für Bautechnik)
- Germany → RAL (Gütekennzeichen)
- France → CSTB (Centre Scientifique et Technique du Bâtiment)
- UK → BBA (British Board of Agreement)
- Belgium → BCCA (Belgian Construction Certification Association)
- Poland → IBDiM (Instytut Badawczy Dróg i Mostów)

During the many years of our product development and the therewith connected research studies, we have accumulated comprehensive knowledge. We conducted long term tests on the basis of which we can today precisely define the long term characteristics of the modules with respect to the above mentioned analysis standards.

As reported by the above mentioned approvals and seals of quality, we confirm that our Rigofill product has a minimum 50-year lifetime expectancy according to the state of the art technology. Due to the specific long term characteristics of our plastic products in underground installations, we can moreover confirm that the **actual life time will exceed the minimum requested 50 years.**

To offer an also ecologically valuable product our storage/infiltration modules are manufactured with high-quality recycling material – predominantly from the food industry. On customer demand we can also deliver the products made from virgin material which will provide the same life expectancy.

During the last 20 years, the success of our many projects realizations and the experiences acquired in practice and in research reinforce our analysis of product characteristics, especially regarding the proven lifetimes and selection of materials.

Sincerely yours,

Dipl.- Ing. (FH) Michael Schütz
Head of R&D / Productmanagement
Drainage Systems

Christoph Huth
Productmanagement
Drainage Systems

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INSTALLATION INSTRUCTIONS

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Rigofill ST | Rigofill ST-B

Installation manual

SLW 30 / HGV 30

SLW 60 / HGV 60

EN | Last modified: January 2018

DRAINAGE SYSTEMS

ELECTRICAL SYSTEMS

BUILDING TECHNOLOGY

INDUSTRIAL PRODUCTS

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1. Safety instructions

ATTENTION

Staff responsible for installation, assembly, operation, maintenance and repair must have appropriate qualifications required for this kind of work.
The builder is responsible for organising in detail authority, responsibility and supervision of staff.

The operational safety of the system components supplied is only guaranteed in case of proper installation and correct use. Technical threshold values must not be exceeded.

Observe the accident prevention regulations and relevant standards and directives for installation, fitting, operation, maintenance and repair!

This includes (in extracts):

- Accident prevention regulations
  - Construction work BGV C22
  - Technical wastewater systems GUV-V C5
- Safety regulations for working in enclosed spaces of technical wastewater systems GUV-R 126
- Handling biological working materials in technical wastewater systems GUV-R 145
- Directives for working in tanks and narrow spaces BGR 117
- Standards
  - Excavations and trenches - slopes, planking and strutting, breadths of working spaces DIN 4124
  - Construction and testing of drains and sewers DIN EN 1610
- Tool for safety and health protection in technical wastewater systems.

WARNING

- Hazards from gases and vapours such as risk of suffocation, risk of poisoning and risk of explosion
- Risk of falling
- Risk of drowning
- Germ pollution and wastewater with sewage
- High physical and psychic strain during work in deep, narrow and dark spaces
- and others

DANGER

Non-compliance with the operating manual may result in considerable property damage, injury or death.

CAUTION

The system is part of an entire network. During installation, maintenance, service and repair work on one component, always consider the entire system.
Avoid work during rain.

Changes or modifications to the system may only be carried out with the agreement of the manufacturer. For safety reasons, use original spare parts and accessories approved by the manufacturer. The use of other parts voids the liability for any consequences arising therefrom.

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General information on using our products and systems:

Information about or assessments of the use and installation of our products and systems is exclusively provided on the basis of the information submitted. We do not assume any liability for damage caused by incomplete information. If the actual situation deviates from the planned situation or if a new situation occurs or if different or new installation techniques are applied, these must be agreed upon with FRÄNKISCHE, since these situations or techniques may lead to different conclusions. Notwithstanding the above, the customer is solely responsible for verifying the suitability of our products and systems for the intended purpose. In addition, we do not assume any liability or responsibility for system characteristics and functionalities when third-party products or accessories are used in combination with FRÄNKISCHE systems. We only assume liability if original FRÄNKISCHE products are used. For use in other countries than Germany, country-specific standards and regulations must also be observed.

All information in this publication generally reflects the state of the art at the time of printing. Furthermore, considerable care was taken when preparing this publication. Nevertheless, typesetting and translation errors cannot be entirely excluded. We also reserve the right to make changes to our products, specifications and other data. Changes may also become necessary as a result of legal, material-related or other technological requirements, which cannot or can no longer be considered in this publication. For this reason, we cannot assume any liability which is based solely on the data provided in this publication. The decisive role with regard to the data on products and services is always played by the order placed, the product actually purchased and the documentation in connection with it, or the information provided by our specialist staff in each specific individual case.

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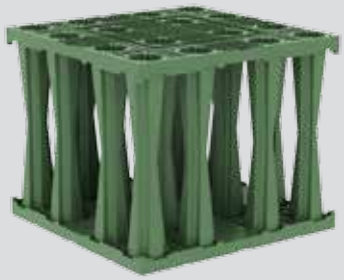
Rigofill® ST - system

Rigofill® ST



Rigofill® ST-B

SLW 60 / HGV 60

SLW 30 / HGV 30

NB

In what follows, an illustrative explanation of the Rigofill system will be given by means of the green module. All properties and advantages also apply to the Rigofill ST-B system. The systems have been optimised for different installation situations.

In the following, please be sure to pay attention to these signs:
Statements marked with this sign apply to both Rigofill ST and Rigofill ST-B.

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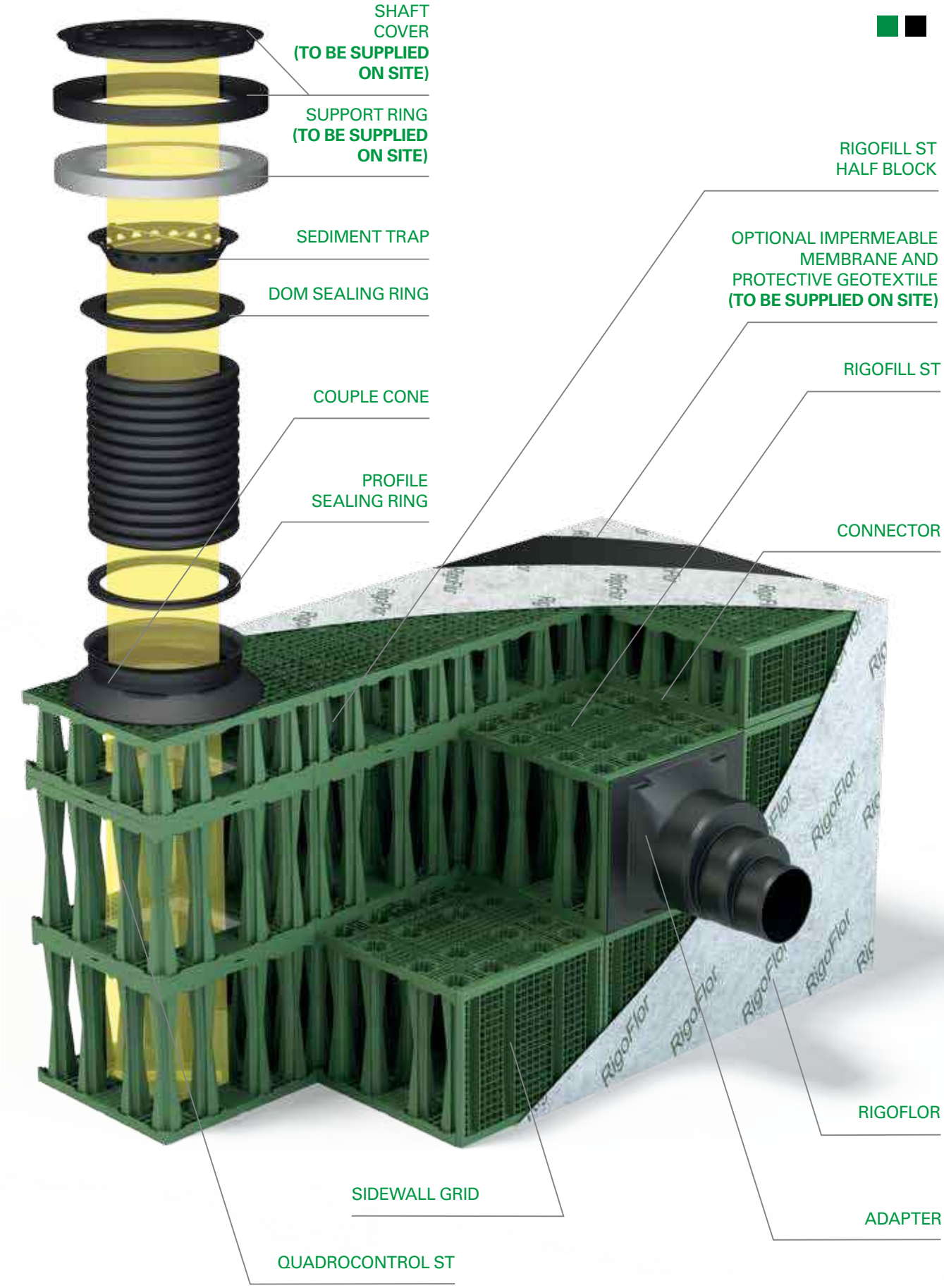
4. Rigofill® ST unit



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4. Rigofill® ST system components

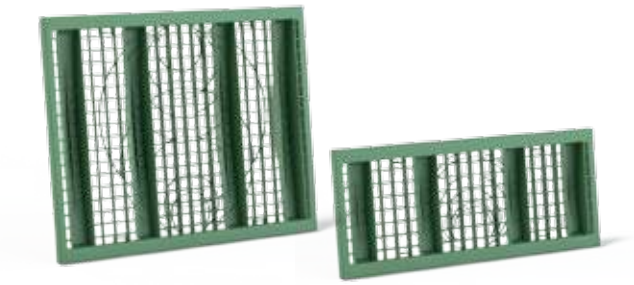
Rigofill® ST

consisting of:
Rigofill ST half elements

Rigofill® ST half block

consisting of:
one Rigofill ST half element and one roof slab

Sidewall grid

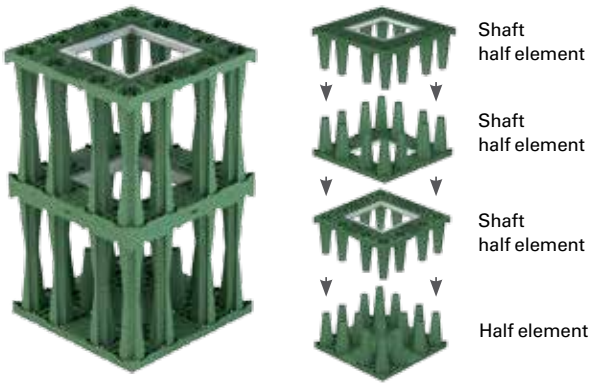


Sidewall grid for
Rigofill ST full block

Sidewall grid for
Rigofill ST half block

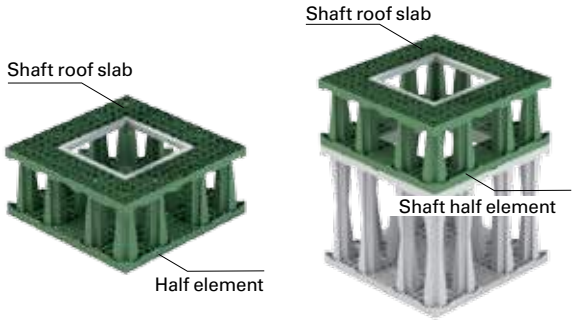
Adapter

Quadro®Control ST



consisting of:
one half element and several shaft half elements

Quadro®Control ST – half shaft



consisting of:
one half element
and one shaft roof slab

consisting of:
one shaft half element
and one shaft roof slab

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5. Rigofill® ST storage/infiltration module

5.1 Transport and storage

Rigofill ST modules are delivered stacked on pallets (1.60 m x 0.80 m). A pallet contains 34 half elements for 17 modules. When leaving the factory, two pallets are typically stacked on top of each other. Sidewall grids and roof slabs (required for half blocks only) are packed on separate pallets.
The components of the QuadroControl ST shaft are delivered pre-assembled on separate pallets. These pallets are marked accordingly. Preferably unload the pallets using forklifts or other lifting tools. The lifting tools must have the technical equipment required for lifting gear operation.

Rigofill ST can be stored outdoors. Storage time should, however, not exceed **one year** . Protect the material from direct sunlight (e.g. store in the shade or cover with bright-coloured, light-tight foil).

Check the components for defects before installation.

The impact stability of the material decreases in sub-zero temperatures. **Damaged modules must NOT be installed!**

The relevant safety provisions of the building industry apply.

⚠ **CAUTION**

Solid and level ground is required for storage at the construction site.

Avoid dropping, dumping as well as hitting the Rigofill ST modules against each other!

5.2 Separating pallets

We recommend using hoisting slings to separate both stacked pallets. Separate the pallets before removing the half elements.

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5. Rigofill® ST storage/infiltration module

5.3 Excavating pit and creating bearing

The excavation pit must be made according to planning specifications. During excavation work, the walls of the pit must be sloped or constructed such that they pose no danger to the workers due to downsliding masses. In addition, national regulations must be observed. Take measures to ensure that the excavation pit is free from water during the entire execution time.

In order to install Rigofill ST modules, a horizontal, level and stable bearing is essential. To this end, create a levelling layer of approx. 10 cm, preferably made of crushed stones or gravel (without fine fractions), above the bottom of the excavation pit. The layer must be compacted carefully and smoothed to achieve a level surface. The compression level D_{pr} should be ≥ 97 % (E_{vd} ≥ 25 MN/m² or CBR ≥ 8 % top edge of the bearing). If the soil has been included in the infiltration calculation, the permeability of the compacted layer must at least correspond to the permeability (k_f value) of the backfill soil (soil groups GE, GW, SE, SW, SI).

The quality of the bedding area is decisive for further installation and strongly affects both bearing and setting properties of the storage/infiltration modules, particularly in case of multi-layer designs and higher loads (soil and traffic loads).

5.4 Laying geotextile

Wrap the entire storage/infiltration system in geotextile. Before starting to lay the modules, spread out the geotextile on the planum. The geotextile must have sufficient lateral excess length in order to eventually wrap up the entire system. It must overlap at least 30 cm at all edges.

ATTENTION

Ensure that the geotextile surface is completely closed and no openings occur even during backfilling!

Important characteristics of geotextile (e.g. RigoFlor):

Thickness:	**≥ 2 mm**
Puncture resistance:	**2.0 kN**
Geotextile class:	**3**
Characteristic opening width:	**0.08 mm**
k_f value (at 20 kPa):	**6 x 10^{-2} m/s**
Water permeability acc. to EN ISO 11058:	**90 l/sm²**
Mass per unit area:	**200 g/m²**

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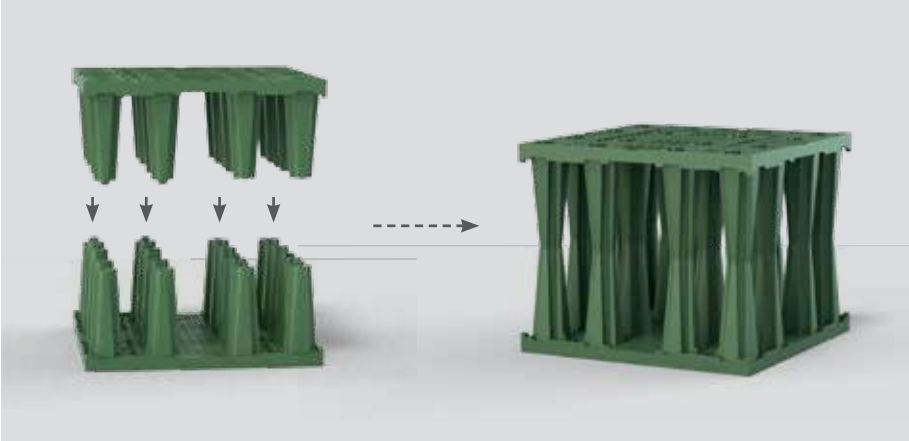
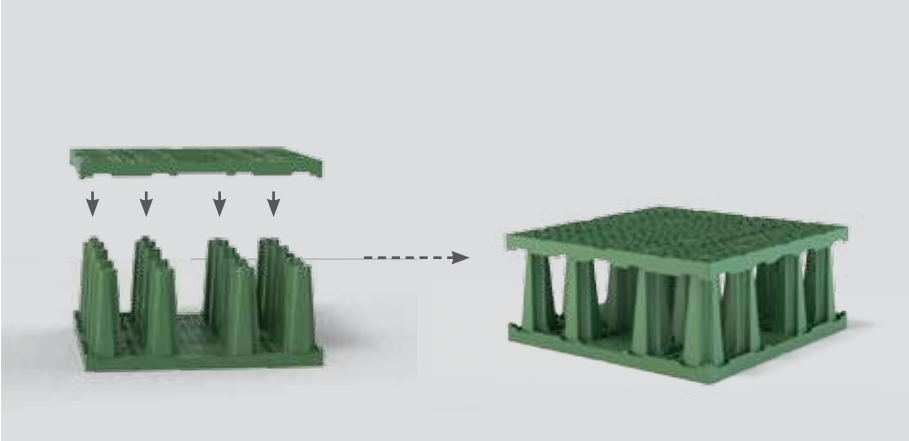
5. Rigofill® ST storage/infiltration module

5.5 Installation



Each Rigofill ST module consists of two half elements. Slight hand pressure is enough to create a connection of high tensile strength. The modules can be pre-assembled both inside and outside the excavation pit.

The pre-assembled modules must be arranged according to planning specifications.



Each Rigofill ST half block consists of one half element and one roof slab. Slight hand pressure is enough to create a connection of high tensile strength. The modules can be pre-assembled both inside and outside the excavation pit.
For a 0.5-layer system, the pre-assembled modules must be arranged on the planum according to planning specifications. For multi-layer systems, the half blocks must be arranged in the top layer.

ATTENTION

Half blocks must be installed with the roof slab located on top.

5.5.1 Pre-assembly outside the excavation pit

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5. Rigofill® ST storage/infiltration module

5.5.2 Pre-assembly inside the excavation pit

Assembly inside the excavation pit

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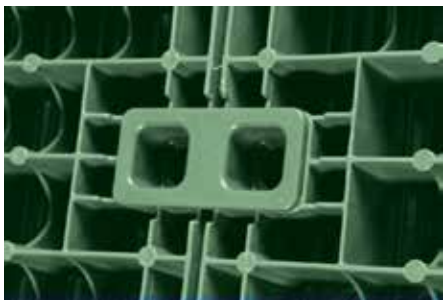
5. Rigofill® ST storage/infiltration module

5.5.3 Connectors



Single-layer connector using the example of Rigofill ST

Multiple-layer connector using the example of Rigofill ST-B

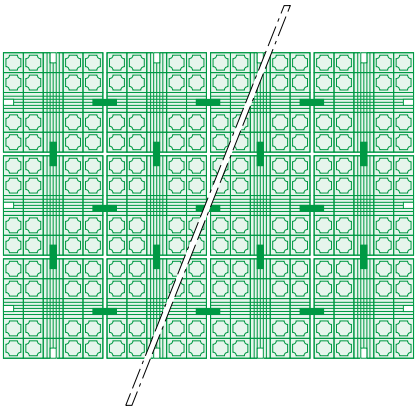
Connector, full block/half block:

Connectors help secure the modules in place.

Secure modules using connectors on the top surface of the module in the centre of each edge that neighbours another module.

Determination of requirements:

Connector	Application	Requirement	
single-layer	for single-layer installation	requirement for **single-layer** installation	1 pc. per module
		requirement for **multiple layer** installation	2 pcs. per module
multiple layer	for multiple layer installation	requirement for **2-layer** installation	1 pc. per module
		requirement for **3-layer** installation	1.3 pcs. per module



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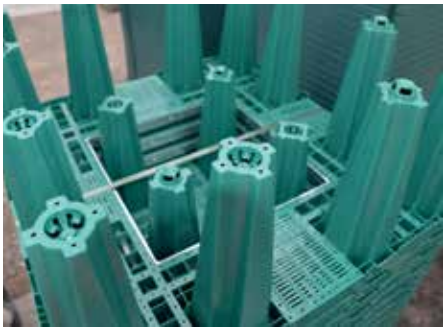
6. Quadro®Control ST - shaft elements

6.1 Delivery



The components of the QuadroControl ST shaft are delivered to the site pre-assembled and packed on a pallet.

6.2 Shaft variants

1/2-layer | 1-layer | 1 1/2-layer | 2-layer | 2 1/2-layer | 3-layer

Product	Cat. no.	Cone	Profile sealing ring for extension pipe	Shaft half element	Shaft roof slab with frame	Half element
		pc(s).	pc(s).	pc(s).	pc(s).	pc(s).
Quadro Control ST 0.5	**515.04.005**	1	1		1	1
Quadro Control ST 1	**515.04.010**	1	1	1		1
Quadro Control ST 1.5	**515.04.015**	1	1	2	1	1
Quadro Control ST 2	**515.04.020**	1	1	3		1
Quadro Control ST 2.5	**515.04.025**	1	1	4	1	1
Quadro Control ST 3	**515.04.030**	1	1	5		1
QuadroControl ST-B 0.5	**515.04.205**	1	1		1	1
QuadroControl ST-B 1	**515.04.210**	1	1	1		1
QuadroControl ST-B 1.5	**515.04.215**	1	1	2	1	1
QuadroControl ST-B 2	**515.04.220**	1	1	3		1
QuadroControl ST-B 2.5	**515.04.225**	1	1	4	1	1
QuadroControl ST-B 3	**515.04.230**	1	1	5		1

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6.3 Installation of shaft elements

The shaft is constructed layer by layer and it grows as construction of the system progresses.

The installation of the bottom layer of the QuadroControl ST shaft always starts with connecting the half element and the shaft half element.

Install the shaft bottom in the intended position in the layout.

Please ensure that the opening with the metal frame faces upwards. Use block connectors to connect to the adjacent Rigofill ST modules.

Additional complete layers:
Each of these layers is made of two shaft half elements. Place the shaft components onto the already existing shaft bottom using multi-layer connectors.

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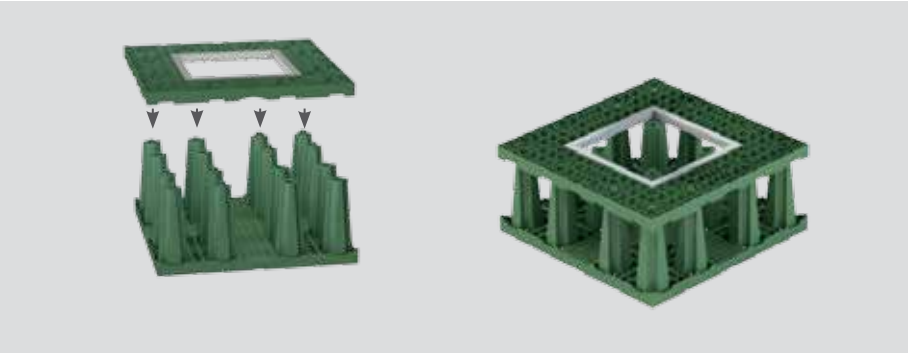
6.3 Installation of shaft elements

Half-layer shaft:

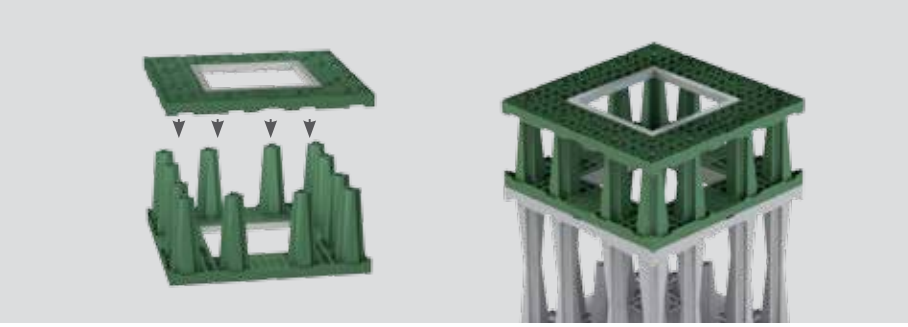
Always start by putting the half element and the shaft roof slab together.

Install the shaft in the intended position in the layout. Please ensure that the opening with the metal frame faces upwards. Use block connectors to connect to the adjacent Rigofill ST modules.



Upper half layer:

This layer consists of a shaft half element and a shaft roof slab. Place the half layer onto the subjacent shaft part using multi-layer connectors; the roof slab must face upwards.



How to place cones:

Regardless of the number of layers, the couple cones provide the transition to the extension pipes. Preferably put the couple cones on the shaft openings only after the upper system layer has been completed.

Before installing the couple cones, wrap the entire storage/infiltration system including shafts in geotextile. At the square openings, cut out the geotextile.

Installation of extension pipes:

Insert the extension pipes into the cone coupling using the sealing rings included in the delivery (please use lubricant). Before, mount profile sealing rings onto the first corrugation trough of the extension pipes.

Make sure that the extension pipes are installed upright and do not shift during compaction.

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6.4 Temporary construction site covers

Extension pipes are delivered with temporary construction site covers. They are used to prevent backfill or other dirt from entering the shafts during installation. The temporary construction site cover is not accessible and may not be trafficked! Do NOT remove temporary construction site covers before installing permanent shaft covers.

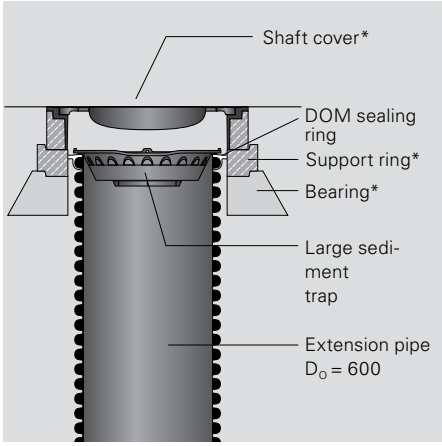
Purpose of temporary construction site covers when backfilling

Temporary construction site cover for extension pipes

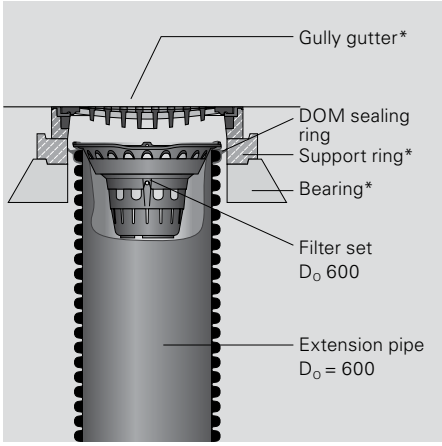
6.5 Shaft covers

After installing the covering (see next chapter), mount shaft covers. Cut the extension pipe D_O 600 such that it reaches the support ring. Seal the gap between the support ring and the shaft cover using a DOM sealing ring. Mount the sealing ring onto the last corrugation of the extension pipe. Place a sediment trap D_O 600 on the extension pipe. If according to planning specifications, the shaft must feature a gully gutter, place the filter set D_O 600 on the extension pipe.

Shaft covers or gully gutters and concrete support rings are not included in the scope of delivery and must be supplied on site. Carry out and install shaft covers according to planning specifications. The inside diameter must be at least 610 mm. Shaft covers must be suitable for the expected traffic loads. If national guidelines, such as EN 124, are applicable, they must be observed.
Put a support ring h = 100 mm on an appropriate bearing under the shaft cover/gully gutter. Create the bearing from compacted bearing layer material or in-situ concrete C 16/20. Avoid interlocking of the bearing with the corrugations of the extension pipe (use casing aid!). Vertical loads may only be transferred to the load-bearing underground.



Shaft cover on the shaft (e.g. inspection shaft)
* to be supplied on site



Gully gutter on the shaft
(e.g. swale emergency overflow)
* to be supplied on site

⚠ CAUTION

Installation in sub-zero temperatures requires greater care (impact stability, please refer to the section on transport and storage).
Modules are slippery when wet or frosty!

DOM sealing ring

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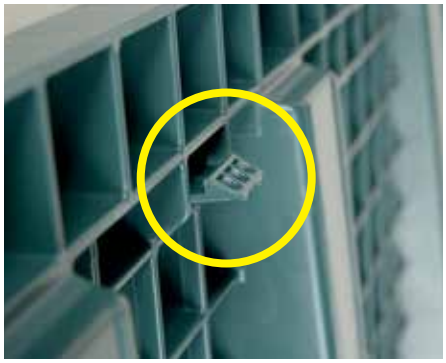
7. Final installation steps

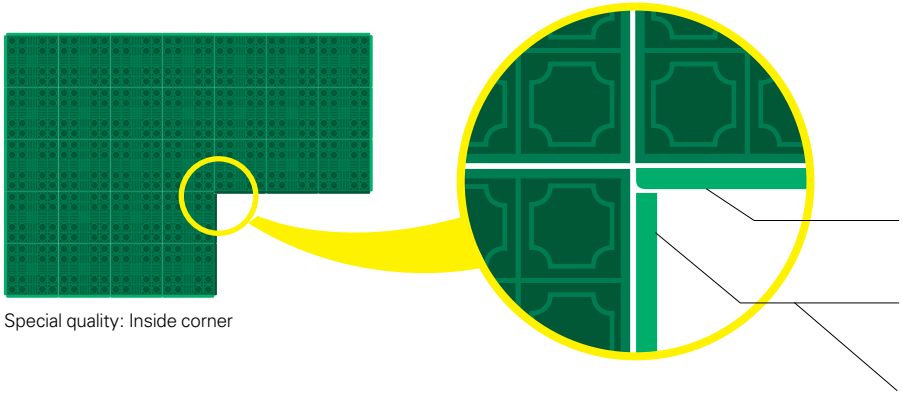
7.1 Installing sidewall grids

Use sidewall grids to cover tunnel ends of the storage/infiltration system. Place the sidewall grid in the centre. Pressing the sidewall grid is enough to connect the module tight using four locking pins.



ATTENTION

Depending on on-site requirements, the installation of the sidewall grids can already take place outside the excavation pit. If there is enough space, the installation of all sidewall grids can alternatively be carried out after the installation of modules has been completed.
Similar application with sidewall grid/ half block.



Special quality: Inside corner

NB

Use sidewall grids shortened at one side for storage/infiltration designs with inside corners.

Rigofill ST sidewall grid
Cat. no. **519.94.000**

Rigofill ST sidewall grid, **short**
Cat. no. **519.94.010**

Rigofill ST half block sidewall grid, **short**
Cat. no. **519.94.011**

Rigofill ST-B sidewall grid
Cat. no. **519.94.200**

Rigofill ST-B sidewall grid, **short**
Cat. no. **519.94.210**

Rigofill ST-B sidewall grid, **short**
Cat. no. **519.94.211**

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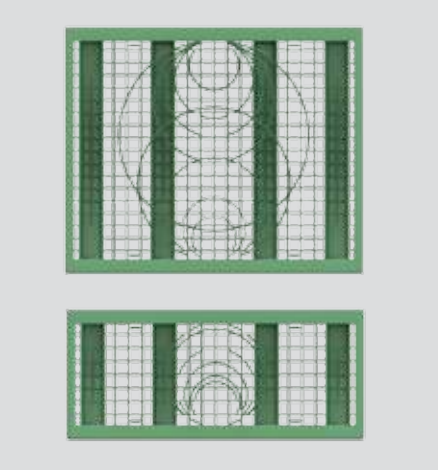
7. Final installation steps

7.2 Cutting openings in sidewall grids



To directly connect supply pipe and drain pipe, the sidewall grids have pre-marked circles for solid wall pipes with nominal diameters of DN 110 to 500 (DN 110 to DN 250 for sidewall grid/half block).

Module layers	Connection height
1/2-layer	40 mm
1-layer	40 mm
1 1/2-layer	700 mm
2-layer	700 mm
2 1/2-layer	1,360 mm
3-layer	1,360 mm

Connection heights (independent of nominal diameter) from the trench soil

NB

We recommend using a jigsaw.

7.3 Inserting adapters (DN 315/DN 400/DN 500)

The adapter must be cut to the nominal diameter according to planning specifications.

The pipe DN 315 can be connected directly. The adapter can be installed at soil level or turned by 180° at crown level.

Securing with an adapter fastener

NB

An angular grinder is best suited for cutting. Please cut approx. 1 cm from the edge to maintain the insertion chamfer. Mount the prepared adapter to the module just like a sidewall grid and secure it using an adapter fastener.

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7. Final installation steps

7.4 Creating geotextile wrapping

Rigofill systems must be wrapped completely in geotextile (e.g. RigoFlor). At the edges, provide sufficient overlapping (at least 30 cm) to make sure no backfill material enters the system. Produce sand-tight pipe inlets by cross-shaped cutting of the geotextile.

ATTENTION

Ensure that the geotextile surface is completely closed and no openings occur even during backfilling!

7.5 Lateral backfilling

Connectors secure the individual Rigofill ST modules and prevent the storage/ infiltration system from shifting during backfilling.

Use non-cohesive, non-frozen earthwork material with a maximum grain size of 32 mm for backfilling.

Distribute the backfill material evenly and compact it in layers of max. 30 cm using a light or medium compacting machine (area vibrator or vibratory rammer). In doing so, a compaction level D_{pr} of ≥ 97 % should be achieved. The modules must NOT be damaged. National guidelines for earthworks (such as ZTV E-StB) must be adhered to.

Make sure that the geotextile overlapping is not pulled apart during backfilling and compacting and that the Rigofill ST modules are not damaged!

The permeability of the backfill must at least correspond to the permeability of the backfill soil.

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Rigofill® ST SLW 60 / HGV 60

7.6 Creating cover

The storage/infiltration module must be covered according to planning specifications. Non-cohesive, compactable graded earthwork material with a maximum grain size of 32 mm should be used for cover, which is a mandatory requirement under trafficked areas!

Frozen soil is not permissible! Additionally, national guidelines for earthworks (such as ZTV E-StB) apply.

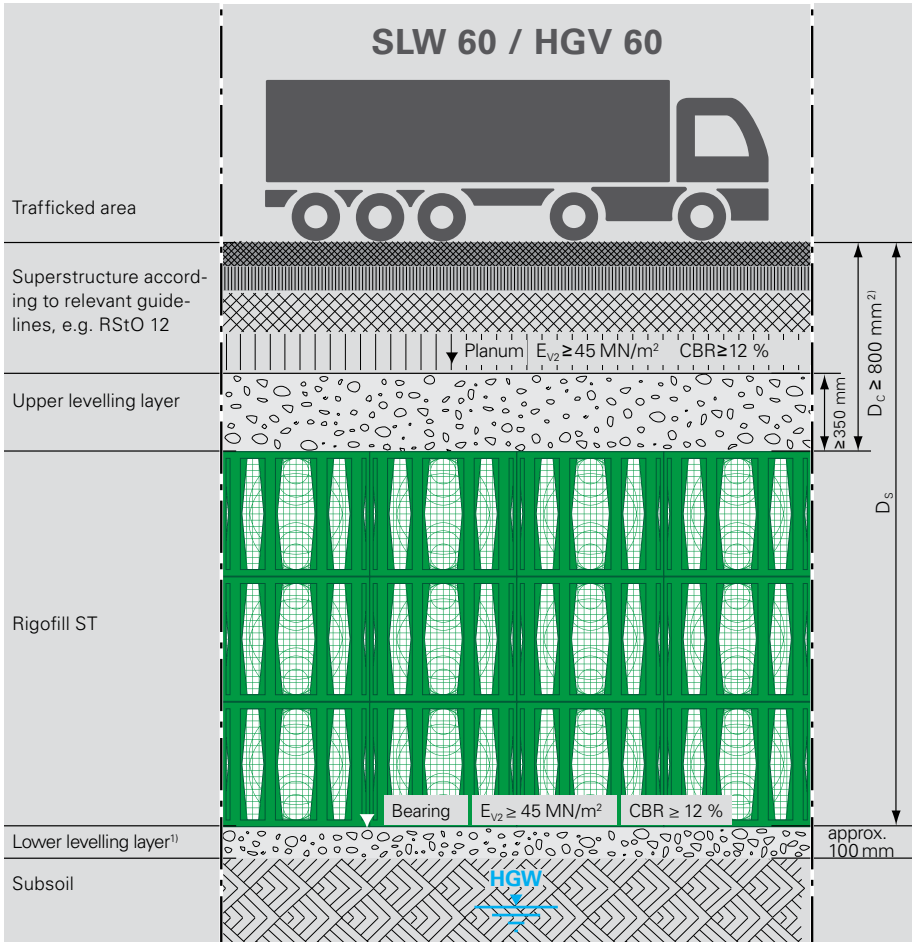
Stability analysis
Storage/infiltration systems are subsoil structures and must have sufficient load-carrying capacity against permanently impacting soil and traffic loads. The stability must be proven according to Eurocode, taking into account partial safety factors and/or limiting factors. With conventional installation parameters*, depths of cover of D_C 4 m and soil depths of D_S 6 m are possible for infiltration systems. A project-specific stability analysis can be prepared by FRÄNKISCHE. Under trafficked areas, a minimum cover D_C of 80 cm must be observed.

* HGV 60, specific weight of soil 18 kN/m³;
Mean soil temperature max. 23 °C;
Soil depth 6 m; κ=0,3; 4-layer

ATTENTION

Note for HGW over structure soil: Rigofill ST systems, which are used as watertight storage systems with impermeable membranes, have been designed for application above the highest groundwater level (HGW). Use in groundwater is possible under corresponding technical conditions after consultation with FRÄNKISCHE. Please contact us!

Standard installation under a trafficked area



1) At least the same permeability (k_f) as the subsoil for infiltration systems
2) Lower cover upon request!

National guidelines, e.g. RStO 12, must always be observed for installation under trafficked areas. To build the planum for the subsequent road construction, a cover must be provided, preferably a gravel sub-base with a thickness of at least 35 cm. Other construction materials normally lead to greater depths of cover.

Generally, at the surface of the cover (= planum), a uniform modulus of deformation $E_{V2} \geq 45$ MN/m² or CBR ≥ 12% must be achieved.

Soil layers must always be provided and compacted in layers of max. 30 cm. The compaction level D_{pr} should be ≥ 97%.

Carry out compacting using light or medium area vibrators only!

⚠ CAUTION

Compacting using vibratory rollers and explosion rammers is not permissible!

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7.7 Creating cover

The storage/infiltration module must be covered according to planning specifications. Non-cohesive, compactable graded earthwork material with a maximum grain size of 32 mm should be used for cover, which is a mandatory requirement under trafficked areas!

Frozen soil is not permissible! Additionally, national guidelines for earthworks (such as ZTV E-StB) apply.

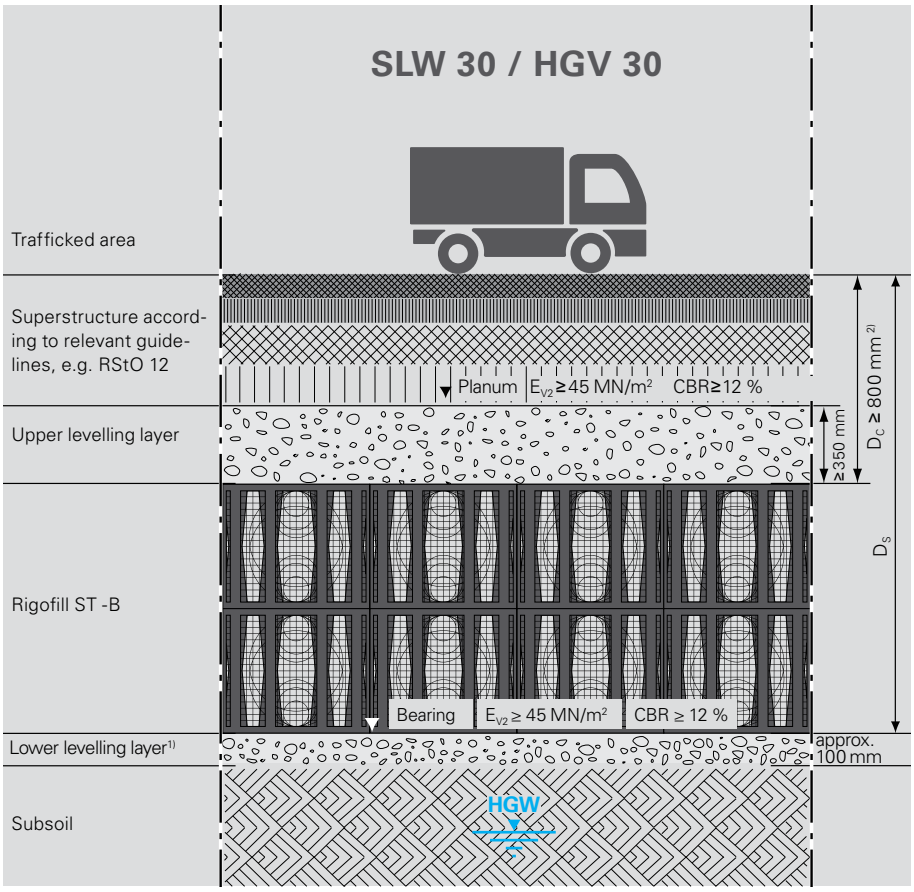
Stability analysis
Storage/infiltration systems are subsoil structures and must have sufficient load-carrying capacity against permanently impacting soil and traffic loads. The stability must be proven according to Eurocode, taking into account partial safety factors and/or limiting factors. With conventional installation parameters*, depths of cover of D_C 2.5 m and soil depths of D_S 4 m are possible for infiltration systems. A project-specific stability analysis can be prepared by FRÄNKISCHE. Under trafficked areas, a minimum cover D_C of 80 cm must be observed.

* HGV 30, specific weight of soil 18 kN/m³, Mean soil temperature max. 23°C, κ=0.3

ATTENTION

Note for HGW over structure soil: Rigofill ST-B systems, which are used as watertight storage systems with impermeable membranes, have been designed for application above the highest groundwater level (HGW). Use in groundwater is possible under corresponding technical conditions after consultation with FRÄNKISCHE. Please contact us!

Standard installation under a trafficked area



1) At least the same permeability (k_f) as the subsoil for infiltration systems
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National guidelines, e.g. RStO 12, must always be observed for installation under trafficked areas. To build the planum for the subsequent road construction, a cover must be provided, preferably a gravel sub-base with a thickness of at least 35 cm. Other construction materials normally lead to greater depths of cover.

Generally, at the surface of the cover (= planum), a uniform modulus ofdeformation E_{V2} ≥ 45 MN/m² or CBR ≥ 12% must be achieved.

Soil layers must always be provided and compacted in layers of max. 30 cm. The compaction level D_{pr} should be ≥ 97%.

Carry out compacting using light or medium area vibrators only!

⚠ CAUTION

Compacting using vibratory rollers and explosion rammers is not permissible!

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7.8 Use of construction vehicles during installation

Use of vehicles when applying the first cover layer:

The first cover layer can be applied for example using a wheel loader or a front-type mobile excavator. For a wheel loader or mobile excavator with a maximum total weight of 15 tons (chain, 4 wheels, twin-tyres), a compacted cover of at least 30 cm must be placed over the storage/ infiltration system. Possible formation of ruts must be taken into account!
Avoid steering manoeuvres at this construction stage.

Use of construction vehicles:

Driving over the cover with heavy construction vehicles with a wheel load of up to 50 kN (e.g. HGV 30) is possible if the thickness of the compacted cover is not less than 60 cm. Possible formation of ruts must be taken into account!
When dumping the earthwork material, the wheel load of 50 kN must not be exceeded; if necessary, load distribution plates must be used.

⚠ CAUTION

It is not permissible to drive construction vehicles directly on the modules!

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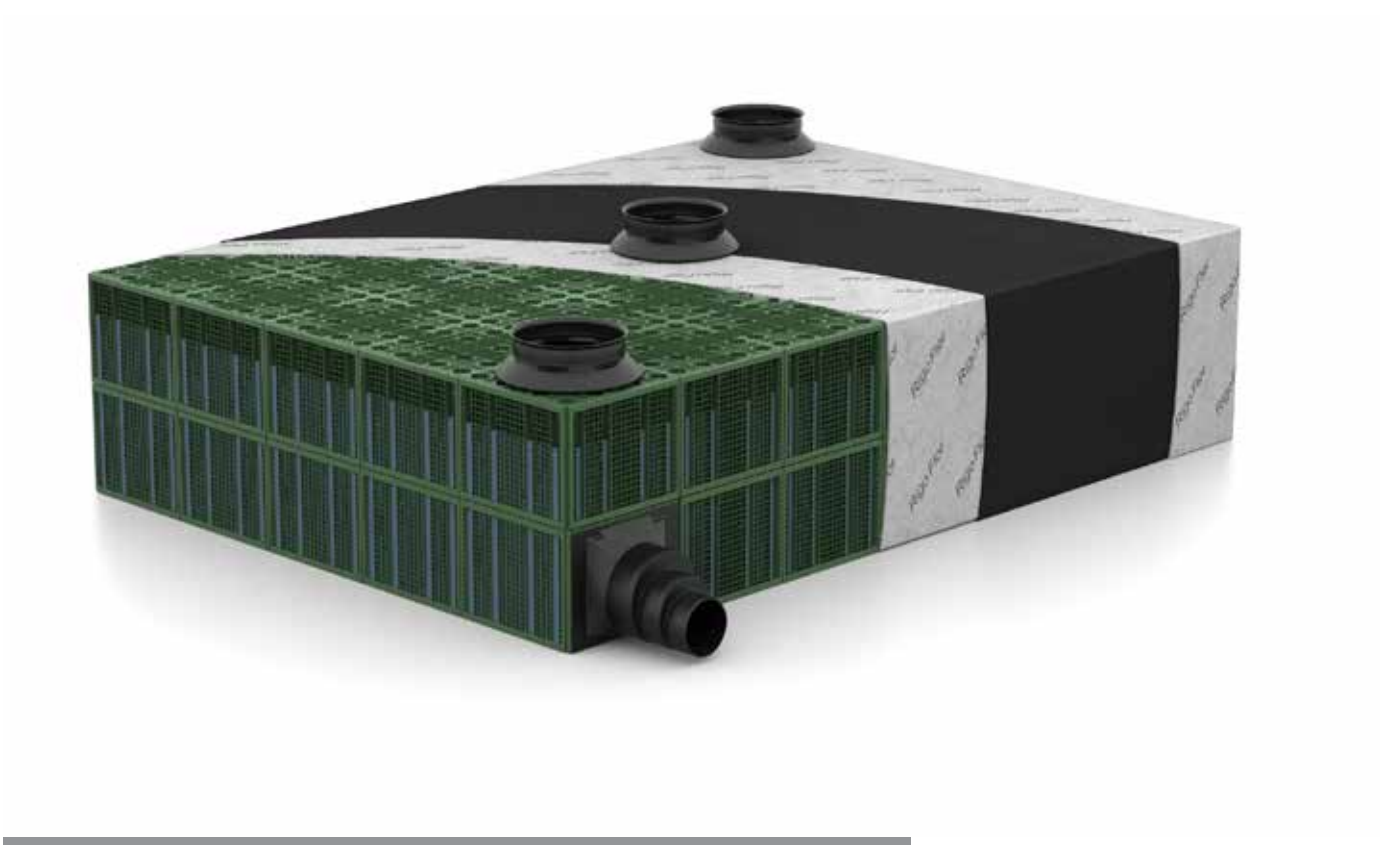
8. Waterproof systems

Modular reservoir construction for many applications

When using Rigofill ST for stormwater storage, the system can be wrapped in impermeable plastic foil (KDB).
Please observe the manufacturer's specifications when installing the KDB impermeable membrane.



Applications

- Stormwater retention
- Stormwater harvesting
- Fire water storage
- Combined applications

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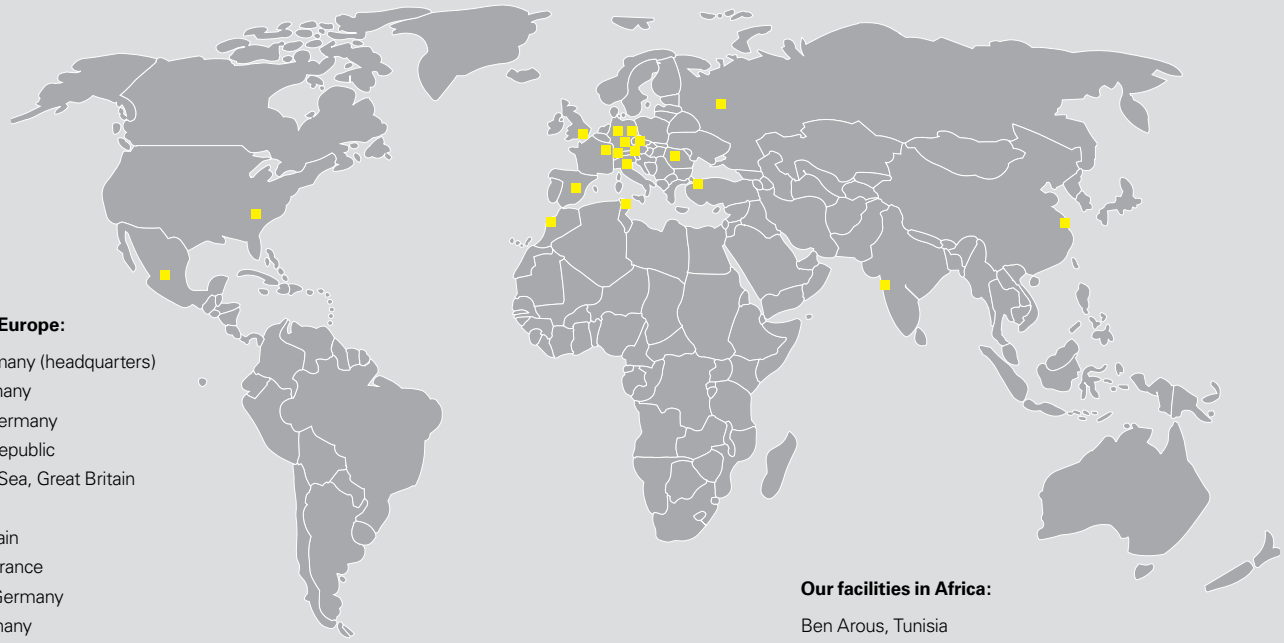
globally successful!



Our facilities in Europe:

Königsberg, Germany (headquarters)
Bückeburg, Germany
Schwarzheide, Germany
Okříšky, Czech Republic
St.-Leonards-on-Sea, Great Britain
Moscow, Russia
Yeles/Toledo, Spain
Torcy-le-Grand, France
Ebersbach/Fils, Germany
Hermsdorf, Germany
Mönchaltorf, Switzerland
Milan, Italy
Istanbul, Turkey
Cluj, Romania
Wels, Austria

Our facilities in Asia:

Anting/Shanghai, China
Hangzhou, China
Pune, India

Our facilities in Africa:

Ben Arous, Tunisia
Casablanca, Morocco

Our facilities in North America and Mexico:

Anderson, USA
Guanajuato, Mexico

FRÄNKISCHE is an innovative, growth-oriented, medium-sized family-owned enterprise and industry leader in the design, manufacturing and marketing of technically superior corrugated pipe systems for drainage, electrical, building technology and industrial applications.

We currently employ about 4,200 people worldwide. Both our many years of experience and expertise in plastics processing, our consulting services and the large array of products are highly valued by our customers.

FRÄNKISCHE is a third generation family owned business that was established in 1906 and is now run by Otto Kirchner. Today, we are globally represented with production facilities and sales offices. The proximity to our customers enables us to develop products and solutions that are perfectly tailored to our customers' needs. Our action and business philosophy focus on our customers and their needs and requirements for our products.

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OPERATION & MAINTENANCE

STORMCON

STORMWATER MANAGEMENT SOLUTIONS.

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Installation of Rigofill storage/infiltration modules under the effects of frost / in frost zones

When using Rigofill modules for the realization of underground infiltration or storage tanks, the general climatic conditions at the location must be taken into account.
In zones exposed to frost, the effects of temperature on the product properties and the entire underground building during installation and operation have to be considered.

The construction work must always be carried out professionally in accordance with the relevant national guidelines and additionally in accordance with our installation guideline.

Product characteristics of Rigofill:

Rigofill modules are made of the thermoplastic Polypropylene (PP). The term "thermoplastic" already says that this plastic has temperature-dependent properties.
At lower ambient temperatures, the material generally becomes stiffer and the strength of the modules also increases. This leads to improved static properties.

However, the impact sensitivity increases at lower temperatures.
In particular during installing the modules, backfilling and closing the construction pit, punctual impact stresses can occur and should therefore be minimized by appropriate care. This is particularly important when selecting and using compaction equipment and compaction processes.

Due to the robustness of Rigofill, the installation does not lead to a problem, even if it is exposed to frost. This has been practiced for many years in Central and Northern Europe.

Properties of the entire underground building

According to the state of the art, the corresponding regulations and our installation guideline, the following requirements have to be considered:

1. Soil investigation to evaluate the soil situation on site and as a basis for the realization of the building project; the soil quality and the load-bearing capacity of the subsoil are decisive for the planned use and the installation of the underground building
2. Manufacturing of a suitable lower bedding zone
3. Manufacturing of the lateral bedding zone and backfill
4. Manufacturing of the cover and remaining backfilling

For points 2 - 4, suitable soil material has to be used in the required composition to achieve the desired load capacities. This is usually non-cohesive, compressible material. Frozen Materials are not allowed!

A stable subsoil is important for the buried structure in order to ensure the permanent function and lifetime. Usually it can be assumed that frozen ground does not guarantee sufficient load-bearing capacity; especially if a frost-thaw change can take place. This can lead to softening and destabilization of the subsoil and, under certain circumstances, to a complete loss of the load-

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bearing capacity. In order to prevent this, the installation on frozen ground must be avoided or constructive protective measures must be taken.

Taking into account the aspects described above, Rigofill can certainly also be used in frost zones.

Dipl.-Ing. (FH) Michael Schütz
Head of R&D / Product Management
Drainage Systems

Dipl.-Ing (FH) Guido Weigl
Product Management
Drainage Systems

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Maintenance manual
Rigofill ST

1. Maintenance intervals

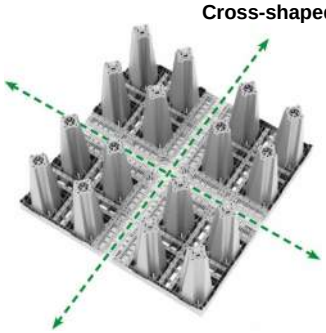
During the construction phase, always make sure that no dirt or foreign particle enters the shafts. During and immediately after the construction phase, increased contaminant load from the connected areas can be expected.
The first check (and possible adjustment) of the infiltration system should be made after completion and before the handover of the system.
A visual inspection of the system including a camera inspection of blocks and shafts is recommended. The result should be recorded in a log.
Further controls and, if necessary, cleaning should be carried out twice during the first year of use. These controls provide information regarding the intervals at which the inspection and cleaning are to be carried out in the future.
In the case of exceptional weather conditions, additional checks or maintenance are recommended.

2. Cleaning

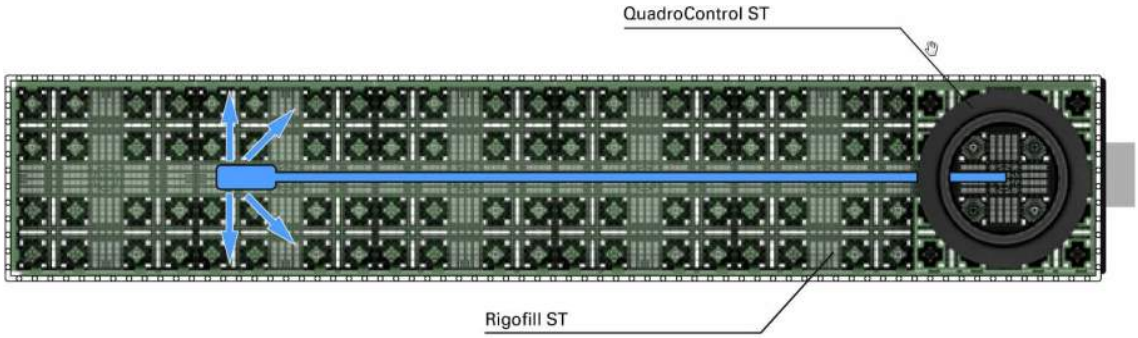
2.1. Rigofill ST

The tank can be flushed by means of a sewer cleaning system via the cross-shaped tunnels of Rigofill ST.

Cross-shaped inspections-/maintenance tunnel



Rigofill ST can be cleaned with a flushing pressure of approx. **90 - 120 bar.** The flush water transports the dirt to the control shaft QuadroControl ST and is sucked off there



Please use the bottom tunnel of the shaft for shaft!

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The material like sludge and sand as well as the flushing water taken out of the tank may contain hydrocarbons and heavy metals. These have to be disposed of according to the local regulations.

1.1. Filter Sets

The filter sets consisting of sand catcher (bucket) and filter sack (please keep the size of the connected area in mind), respectively the strainer bucket for throttle shafts are based on the principle of keeping back and accumulating solid. The accumulated dirt has to be disposed of regularly. Regular maintenance is important for a long standing operation of the complete detention facility.

Depending on the dirt transported in the incoming water and the calculated security factor much shorter cleaning intervals may be required (in some cases within a few weeks only) – especially shortly before the rain season (autumn). We therefore recommend to start with control and cleaning intervals of a few weeks only and depending on the respective degree if soiling the interval may be extended. In Europe the critical time usually is spring because of the pollen in the air.

The filter sack is to be interconnected with the bucket by pulling the cord of the rim over its rim.
Via the handle the bucket may be pulled out of the shaft – a hock may make it easier to bull the bucket out. If there is dirt in the filter sack this has to be disposed of as well. If necessary the dirt may me flushed out.

The original permeability of the geotextile may not be reached again, thus eventually (after several years) the filter sack may have to be exchanged – please revert to our replacement set if necessary.
Taking out the filter set constantly is not permitted and may lead to a blockage of the whole detention and infiltration unit.

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CERTIFICATIONS

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Technical Appraisal 17.2/14-285 _V2

Cancels and supersedes Technical Appraisal 17/14-285*V1

Procédé de stockage d'eau pluviale

Rainwater storage process

Rigofill inspect
Rigofill ST

Holder: FRAENKISCHE France SAS
Les Grands Champs
Route de Brienne
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Plants: FR-10700 TORCY LE GRAND

DE-01987 SCHWARZHEIDE

Specialised Group No. 17.2

Networks and Purification

Published on

In case of doubt or dispute, the French version only is valid.

Commission in charge of issuing Technical Appraisals and Technical Application Documents

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On 02 July 2019, Specialised Group no. 17 "Networks and Purification" examined the request relating to the Rigofill inspect and Rigofill ST blocks submitted by the Company FRAENKISCHE France SAS. This Group issued the following Technical Appraisal concerning these components. This document, to which the Technical File drawn up by the applicant is appended, transcribes the appraisal on the product formulated by Specialised Group No. 17 and the provisions for installation proposed for its use in the target area of use and under the conditions of Mainland France and its Overseas *Départements* and Regions (DROM). This Appraisal cancels and supersedes Technical Appraisal 17/14-285*V1.

1. Brief definition

1.1 Brief description

The Rigofill inspect and Rigofill ST retention and infiltration system is made from polypropylene blocks consisting of factory-assembled and site-assembled elements.

The blocks can be juxtaposed (Rigofill inspect and Rigofill ST) and stacked (Rigofill inspect or Rigofill ST, no stacking of inspect/ST together), to form a reservoir for rainwater.

Rigofill inspect blocks have two flow and dredging channels. The free space between the columns of the Rigofill ST block allows operational devices to pass through (refer to diagrams 1e and 1f for dimensions).

- Various polypropylene accessories enable hydraulic connections or ventilation of the tanks. These accessories also include the Quadro-control inspection unit.
- These blocks must in all cases be assembled using the polypropylene connectors designed for this purpose.

The main characteristics of Rigofill inspect elementary blocks are as follows:

- Colour: green.
- Length: 800 mm.
- Width: 800 mm.
- Height: 663 or 355 mm.

The main characteristics of Rigofill ST elementary blocks are as follows:

- Colour: green.
- Length: 803 mm.
- Width: 803 mm.
- Height: 663 or 354 mm.

1.2 Identification

In accordance with the reference system for QB marking, each block bears the following statements:

- the commercial designation: Rigofill inspect or Rigofill ST,
- the commercial designation: Quadro-control (inspection unit),
- the identification of the plant,
- the material: PP,
- the date of manufacture: week, year,
- the logo followed by the reference shown on the certificate.

2. APPRAISAL

2.1 Area of use

Rigofill inspect and Rigofill ST blocks are designed to make underground tanks, under the conditions defined in sections 1 and 6 of the Technical File, so as to enable:

- rainwater to be retained when the structure is covered with a water-tight geo-membrane,

  or
- infiltration into the supporting ground when the structure is not designed to be water-tight.

It should be remembered that:

- Rigofill inspect and Rigofill ST blocks must never be located in zones liable to flooding,
- there must be an outlet: overflow and connection to a rainwater evacuation system.

2.2 Appraisal of the product

2.21 Compliance with current laws and regulations and other fitness for use qualities

2.211 Environmental Data

Rigofill inspect and Rigofill ST products have no Environmental Statement ("Déclaration Environnementale (DE)"), and therefore no particular environmental performance may be claimed by it. The Environmental Statement documents do not fall within the scope of an appraisal of the system's fitness for use.

2.212 Health aspects

This appraisal is formulated in the light of the written commitment of the holder to apply the regulations, and in particular all regulatory obligations relating to products which may contain hazardous substances, for their manufacturing, integration into the structures of the accepted field of use and use of these. Control of the information and declarations issued in application of currently enforced regulations is outside the scope of this appraisal. The holder of this appraisal remains fully liable for this information and these declarations.

2.213 Other fitness for use qualities

Rigofill inspect and Rigofill ST Ultra Light Cellular Structures and their installation comply with the recommendations of the Technical Guide "Ultra Light Cellular Structures for rainwater management" (IFSTTAR-2011).

The tests or studies undertaken by the applicant or at CSTB, together with the references supplied, show that this product performs satisfactorily in the area of use envisaged in 2.1.

Compliance with the design and installation conditions defined in the Technical File is an essential condition for correct operation of the system.

The usable volumes of the structures used limits the volumes of the excavations required.

The modular design can be adapted to topological constraints on the structure.

The structure created using Rigofill inspect and Rigofill ST blocks must allow several functions to be carried out, which need to be examined:

Mechanical strength

A knowledge of and application of the geo-technical characteristics of the ground is essential for the design and fabrication of the structure.

Compliance with the arrangements that are recommended by the project manager at the pre-study stage, depending on the specific circumstances of the site, is essential in order to ensure the stability of the structure and to ensure its compatibility with any road-building applications.

It should be remembered that the long-term maximum admissible deformation of the structure is to be set by the Project manager. This requirement may limit the number of layers that are admissible, irrespective of other considerations to be taken into account. The long-term deformation value to be taken into consideration is 2.5% of the total height of the blocks.

In addition, the means implemented by the company FRAENKISCHE France SAS to:

- ensure that the blocks' mechanical performance remains constant,
- guarantee that the dimensioning specifications are met,
- ensure on site that the conditions for use are met,

and to take account of dynamic effects (according to the specifications of section 70), when the structure is used under a highway, enable the structure consisting of inspect blocks to be dimensioned only on the basis of a γM safety coefficient of 1.5.

For climatic zones where temperatures of the sub-soil are greater than the values commonly observed in Metropolitan France, this value should be modified to 1.6.

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In the case of a structure consisting of Rigofill ST and Rigofill inspect blocks (or only of ST blocks), this value must be increased to 1.85.

Use when the water table is present must be made subject to special checks, as defined in the Technical Guide. Particular care should be paid to the means used to ensure the load-bearing capacity of the subjacent soil.

The Quadro-control inspection unit must be associated with a slab, as described in the Technical File.

Hydraulic

The arrangements for calculating the infiltration flow-rates into the soil, the design dimensions of the structures and the general construction arrangements are defined in the Technical Guide "Ultra Light Cellular Structures for rainwater management" (IFSTTAR-2011) and in "Fascicule 70 Titre II".

Long-term reliability of hydraulic performance is intimately linked with compliance with maintenance conditions.

2.22 Durability – Maintenance

2.221 Material

Given the nature of the material of construction, the durability of the components is not a particular problem.

2.222 Conditions for access

The conditions for access as defined in the Technical File are satisfactory.

Access must be through inspection units or hatches located upstream and downstream of the structure, or using integrated inspection wells.

2.223 Long-term reliability of the functions

The Ultra Light Cellular Structure cannot be cleaned out fully. Only the flow channels or drains can be cleaned more or less completely.

The installation of an upstream treatment device minimises the frequency of maintenance operations and ensures long-term functional reliability of the storage structure.

Consideration must be given to the characteristics of the rainwater (presence of macro-waste, dead leaves etc.) in order to define the access conditions, the percolation channels and the nature of the prior treatment.

The capacity of the drains or channels to allow the rainwater to flow through the structure is dependent on the maintenance conditions being met.

Inspection hatches or units (whether or not integrated) and lower channels must be inspected, and if necessary, cleared out after heavy rain or accidents, and at a frequency which is appropriate for the site conditions. Maintenance operations must be modified in response to the results of these inspections.

In the case of infiltration structures, compliance with the project design study approach as defined in section § 3 of the ULCS guide (nature of the effluents, soil characteristics etc.) and of maintenance conditions are essential to ensure that the infiltration capacity is maintained over time.

On condition that the design rules and maintenance arrangements are complied with, the storage volume of the structure can be considered to be maintained over time.

2.23 Manufacturing and inspection

Rigofill inspect and Rigofill ST blocks are manufactured by injection.

Quadro-control inspection units are manufactured by rotational moulding.

The purchasing specification relating to the material has been submitted to CSTB.

The manufacture of components making up the Rigofill inspect and Rigofill ST blocks is subject to internal inspections incorporated in a quality system based on Standard NF EN ISO 9001 (2015).

The internal and external inspections as described in the Technical File ensure that acceptably consistent quality is achieved.

This appraisal is formulated taking into consideration the manufacturing checks and inspection methods described in the Technical File drawn up by the Applicant (DTED).

2.24 Installation

The installation of the product offers no particular difficulties if it is carried out in accordance with the instructions in the Technical File.

The installation conditions must be rigorously monitored.

Particular attention must be paid to the flatness of the support bed, to the choice of backfill materials and compacting conditions, in particular in the case of an infiltration structure.

The light weight of the blocks facilitates their installation.

2.3 Technical Specifications Sheet

2.31 Product characteristics

The characteristics of the Rigofill inspect and Rigofill ST blocks must be in compliance with those indicated in the Technical File.

2.32 Manufacturing

Internal inspection as described in the Technical File must be implemented by the manufacturer.

2.33 Design

The elements that must be collated in the context of the prior study are defined in the Technical Guide "Ultra Light Cellular Structures for rainwater management" (IFSTTAR-2011) and in "Fascicule 70 Titre II".

These include in particular the following elements:

- associated with the physical environment: terrain topography, height of water table, permeability and geo-technical characteristics of the soil.
- associated with urbanisation: re-use of space, presence of buildings, water quality and use, traffic.
- assessment of water variables: catchment area, active surface, volumes and flows based on the 2017 Technical Memento (ASTEE – formerly Technical Instruction 77/284.

2.34 Installation

Compliance with the installation conditions stated in chapter 7 is an essential condition for ensuring correct operation of tanks formed from Rigofill inspect and Rigofill ST blocks.

The same is true for additional specifications specified by the Project manager which are a consequence of the specific conditions of the site of the retention and rainwater infiltration tanks.

Conclusions

Overall assessment

The use of the Rigofill inspect and Rigofill ST blocks in the accepted area of use is a favourable one.

Validity

Until 31 August 2022

For Specialised Group No. 17
The Chairman

3. Additional comments from the Specialised Group

Specialised Group no. 17 draws the designer's attention to:

- the importance of protecting these structures to prevent the introduction of materials which might settle out,
- the constraints associated with clearing-out operations. In particular, the pressurised water cleaning systems selected must be verified to ensure that they are compatible with the product characteristics.

The Quadro-control inspection unit must not be used in connection with construction of traditional sewerage networks.

Rapporteur of Specialised Group no. 17

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Technical File
drawn up by the applicant

A. Description

1. Principle

1.1 General description

Rigofill inspect and ST products fall into the category of structures that are built as defined in the guide "Ultra Light Cellular Structures for rainwater management" produced in December 2011 by IFSTTAR.

Rigofill inspect and ST blocks are designed to create underground tanks to optimise management of run-off rainwater in the field of public works and civil engineering.

They have a mechanical structure with vertical columns and horizontal stiffness, and enable structures with integrated flow channels to be created.

Structures made from Rigofill inspect and ST blocks and the various accessories allow the following functions to be carried out:

Service functions:

The service functions performed by structures made from Rigofill inspect and ST blocks are storage and/or infiltration.

Effluents are retained when the structure is covered with a water-tight geo-membrane.

When the structure is not designed to be water-tight, infiltration into the supporting soil can occur.

Technical functions:

The technical functions carried out by structures made from Rigofill inspect and ST are as follows:

Collection and Release:

- Both these functions are carried out using accessory components, comprising inspection openings or inspections chambers that are installed at the periphery, interface components and channels which are integral with the blocks.
- In the case of a water-tight structure, the evacuation flow-rate is a function of the water height in the structure and of the internal diameter of the connection to the evacuation network, or is regulated by means of a suitable device.
- Flow channels allow effluent to be distributed inside the structure.

Structural:

The structural character of the blocks allows soil to be used at the surface.

Access:

Access to the channels of the storage structure is through manholes or inspection units (on the periphery) or Quadro-Control units incorporated in the structure.

Ventilation:

The structure must allow air pressure to equilibrate during filling and emptying phases.

1.2 Blocks

There are several different models:

- The Rigofill inspect block, consisting of two inspect elements associated with an intermediate inspect plate (*See figure 1b*)
- the Rigofill inspect half-block, consisting of one inspect element and one inspect baseplate (*See figure 1c*)
- The Rigofill ST block, consisting of two ST elements (*See figure 1e*)
- the Rigofill ST half-block, consisting of an ST element with an ST baseplate (*See figure 1f*)

The lateral faces of Rigofill inspect blocks have cavities enabling a smooth tube made of thermoplastic material of DN 150 to be connected.

All structures designed using Rigofill inspect and ST blocks allow continuous flow channels to be created.

1.3 Accessories

The accessories which can be combined with Rigofill inspect and ST blocks enabling the structure to be formed are as follows:

1.31 Single-layer and multi-layer connectors

The connectors are intended to connect the blocks to one another. They are used to ensure that the blocks are positioned correctly during installation. (*See figure 2a and figure 2b)*

They are attached using clips to the designated locations in the middle of the upper edge of each block.

1.32 End plate for Rigofill inspect

The purpose of the end plates (*see figure 3a)* is to close the faces of the tank made of Rigofill inspect to prevent the geotextiles and/or the Geomembrane-based Water-tightness Device (DEG) penetrating into the structure. Two of these are required for a Rigofill inspect block, and one for a Rigofill inspect half-block.

They have matrices which must be cut, which are suitable for standardised tubes made of thermoplastic material of DN 100 and 200 allowing the water pipe to be connected to the tank, or enabling it to be ventilated. They are attached by integrated clips.

1.33 Perforated end plate for Rigofill inspect aperture DN 150 or DN 200

Perforated end plates (*see figure 3a)* have the same functions as end plates, but also allow a connection to be made from a water channel to the tank. They are attached by integrated clips.

1.34 Lateral face for Rigofill ST

The purpose of the lateral faces for Rigofill ST blocks and half-blocks (*see figure 3b)* is to close the faces of the tank made of Rigofill ST to prevent the geotextiles and/or the Geomembrane-based Water-tightness Device (DEG) penetrating into the structure.

They have matrices which must be cut, which are suitable for standardised tubes made of thermoplastic material of DN 110 to 500 for the Rigofill ST block and of DN 110 to 250 for the Rigofill ST half-block allowing the water pipe to be connected to the tank, or enabling it to be ventilated. They are attached by integrated clips.

1.35 Channel connection face for Rigofill ST

The channel connection face for Rigofill ST (See figure 3c) has matrices of the "male" type corresponding to standardised thermoplastic tubes of DN 315, 400 and 500 mm, allowing the water pipe to be connected, or enabling it to be ventilated. They are attached by integrated clips.

1.36 Quadro-control inspection unit

The Quadro-control inspection unit is available in two heights, corresponding to a Rigofill inspect and ST block or half-block.

The geometry of the Quadro-control inspection unit (*see Figures 4a, b, c*) means that it can be used in place of one Rigofill inspect or ST element or half-element when building the structure.

A cone fitted on to the inspection unit allows the extension pipe to be inserted into the upper part.

The Quadro-control inspection unit allows a front and/or side connection.

Surface loads are distributed by means of a reinforced concrete distribution slab.

2. Method of manufacture and materials

2.1 Manufacturing method

- Inspect and ST blocks are manufactured by injection. Rigofill inspect blocks and half-blocks are formed in the factory (Torcy-le-Grand) by mate fitting.
- The end plates, the lateral faces and the connectors are manufactured by injection.
- The Quadro-control inspection units (Schwarzheide factory), the channel connection face and the cone are manufactured by rotational moulding.
- The extension pipe of the Quadro-control inspection units is manufactured by co-extrusion.
- The distribution slab is manufactured by moulding (vibrated reinforced concrete)

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2.2 Materials

2.21 Rigofill ST Blocks and baseplates (ST)

The material used is newly manufactured or recycled external polypropylene, to which the elements enabling application by injection are added. The characteristics of polypropylene are as follows:

Characteristics	Specifications	Test parameters	Test methods
Density	≥ 890 kg/m³	T=23 ±2°C	NF EN ISO 1183
Thermal stability (OIT*)	≥ 8 min.	200°C	NF EN ISO 11357-6
Melt flow index	15.0≥MFR≥3.5 g/10 min.	T=230°C/2.16 kg	NF EN ISO 1133
Tensile strength at yield point	≥22.5 MPa	Speed 50 mm/min. T=23 ± 2°C	NF EN ISO 527
Elongation to the yield point	> 4.0 %		
Tensile modulus	≥ 1100 MPa	Speed 2 mm/min. T=23 ± 2°C	

* Checks on finished products.

The purchasing specification relating to monitoring of the materials has been submitted to CSTB.

2.22 Rigofill inspect Blocks and intermediate plates and baseplates (inspect)

The material used is newly manufactured or recycled external polypropylene, to which the elements enabling application by injection are added. The characteristics of polypropylene are as follows:

Characteristics	Specifications	Test parameters	Test methods
Density	≥ 890 kg/m³	T=23 ±2°C	NF EN ISO 1183
Thermal stability (OIT*)	≥ 8 min.	200°C	NF EN ISO 11357-6
Melt flow index	15.0≥MFR≥3.5 g/10 min.	T=230°C/2.16 kg	NF EN ISO 1133
Tensile strength at yield point	≥25 MPa	Speed 50 mm/min. T=23 ± 2°C	NF EN ISO 527
Elongation to the yield point	> 4.0 %		
Tensile modulus	≥ 1100 MPa	Speed 2 mm/min. T=23 ± 2°C	

* Checks on finished products.

The purchasing specification relating to monitoring of the materials has been submitted to CSTB.

2.23 Connectors, end plates and lateral faces

Connectors, end plates and lateral faces are made of polypropylene with the same characteristics as the inspect blocks.

2.24 Quadro-control inspection unit and cone

The material used is polypropylene, to which the elements enabling it to be used are added.

The characteristics of polyethylene are as follows:

Characteristics	Specifications	Test parameters	Test methods
Density	≥ 925 kg/m³	T=23 ±2°C	NF EN ISO 1183-2
Thermal stability (OIT*)	≥ 10 min.	200 °C	NF EN ISO 11357-6
Melt flow index	16≥MFR≥ 3 g/10 min.	T=190°C/5 kg	NF EN ISO 1133
Tensile strength at yield point	≥ 15.5 MPa	Speed 50 mm/min. T=23 ± 2°C	NF EN ISO 527-2
Tensile modulus	≥ 700 MPa	Speed 2 mm/min. T=23 ± 2°C	

* Checks on finished products.

2.25 Extension pipe of the inspection unit

The extension pipe of the inspection unit, which has smooth inner walls (DN/ID 500), is made of polyethylene with the following characteristics:

Characteristics	Specifications	Test parameters	Test methods
Density	≥ 950 kg/m³	T=23 ±2°C	NF EN ISO 1183-2
Melt flow index	1.2≥MFR≥ 10 g/10 min.	T=190°C/5 kg	NF EN ISO 1133
Thermal stability (OIT)	≥ 10 min.	200 °C	NF EN ISO 11357-6

2.26 Distribution slab

The distribution slab is made from reinforced concrete

The reinforcements consist of 2 x Ø800 hoops and 2 x Ø970 hoops connected by 4 calipers made of Ø 4 wire.

Measured under the conditions of Standard NF EN 12390-3, the compressive strength of the concrete is higher than 30 MPa.

3. Product description

3.1 Blocks

3.11 Appearance, finish

The inner and outer surfaces of the Rigofill inspect and ST blocks are smooth and free of fine cracking. The blocks are green in colour.

3.12 Dimensions

The blocks' overall dimensions are as follows:

Product	Block Rigofill inspect	Half-block Rigofill inspect	Block Rigofill ST	Half-block Rigofill ST
Length (mm)	800 ± 2	800 ± 2	803 ± 2	803 ± 2
Width (mm)	800 ± 2	800 ± 2	803 ± 2	803 ± 2
Height (mm)	663 ± 5	355 ± 4	663 ± 5	354 ± 4

The channels' dimensions are as follows:

Product	Block Rigofill inspect	Half-block Rigofill inspect
Length (mm)	800	800
Width (mm)	220	220
Height (mm)	275	275
Number of channels per product	2	1

The details of the dimensions are shown on the figures referenced 1e and 1f.

The diameter of the columns for Rigofill inspect blocks is 50 mm, with a wall thickness greater than 3 mm. The wall thickness of Rigofill ST is approximately 3 mm in the middle of the column.

The dimensions of the end plates, lateral faces and connectors are represented in figures 3a, 3b and 3c.

3.13 Masses

The mass of a Rigofill inspect element is 8.29 kg ± 120 g.

The mass of a Rigofill inspect intermediate plate is 3.04 kg ± 30 g.

The mass of a Rigofill inspect baseplate is 4.43 kg ± 40 g.

The mass of a Rigofill inspect block is 19.62 kg ± 270 g.

The mass of a Rigofill inspect half-block is 12.72 kg ± 160 g.

The mass of a Rigofill ST element is 9.36 kg ± 120 g.

The mass of a Rigofill ST baseplate is 4.20 kg ± 30 g.

The mass of a Rigofill ST block is 18.72 kg ± 240 g.

The mass of a half-block is 13.56 kg ± 150 g.

3.14 Useful volume of the block

The useful volume is

- 400 litres for the Rigofill inspect block
- 211 litres for the Rigofill inspect half-block
- 406 litres for the Rigofill ST block
- 212 litres for the Rigofill ST half-block

Values resulting from overall dimensions.

3.15 Mechanical characteristics

3.151 Short-term mechanical characteristics

3.1511 Rigofill inspect

3.1.5.1.1.1 Determination of unconstrained compressive strength

Unconstrained compressive strength is determined in all 3 directions (x, y, z) in accordance with Standard XP P 16374 for Rigofill inspect blocks using the following plan:

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The short-term characteristics are as follows:

Characteristics	Specifications		Test parameters
	Minimum breaking load	Deformation at maximum load	Test speed 0.5 KN/m².s T=23° ± 2° Packaging 24 h Age of blocks 24 h
- X for one of the two lateral faces (800 x 660 mm)	150.0 kN/m²	≤ 5.0 %	
- Y for one of the two lateral faces (800 x 660 mm)	150.0 kN/m²		
- Z for the upper face (800 x 800 mm)	420.0 kN/m²		

Remarks:

- The unconstrained compressive strength reflects the consistency of manufacture of the products, and is not sufficient for establishing the structure's mechanical design dimensions.
- Reference should be made to § 6 for the justification of the mechanical properties during the usage phase.

3.1.5.1.1.2 Determination of vertical compressive strength combined with lateral stresses.

Characteristics	Specifications	Test parameters
Applied lateral stress 20-40 Kpa	495 kN/m²	vertical force 5 mm/min.
Applied lateral stress 40-80 Kpa	500 kN/m²	

3.1.5.1.1.3 Determination of unconstrained compressive strength of two stacked blocks

Standard tests have been carried out for two stacked block levels.

The breaking load for vertical compression (for a test speed of 0.5 kPa/s) is higher than or equal to 384 kPa for two stacked inspect blocks.

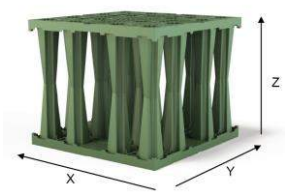
3.1.5.1.1.4 Determination of unconstrained compressive strength with effect of a gradient

Standard tests show that a 1% subgrade gradient has no impact on the short-term mechanical resistance in the vertical direction of the blocks.

3.1512 Rigofill ST

3.1.5.1.2.1 Determination of unconstrained compressive strength

Unconstrained compressive strength is determined in all 3 directions (x, y, z) in accordance with Standard XP P 16374 for Rigofill ST blocks using the following plan:



The short-term characteristics are as follows:

Characteristics	Specifications		Test parameters
	Minimum breaking load	Deformation at maximum load	Test speed 0.5 KN/m².s T=23° ± 2° Packaging 24 h Age of blocks 24 h
- X and Y for one of the four lateral faces (800 x 660 mm)	108 kN/m²	≤ 5%	
- Z for the upper face (800 x 800 mm)	391 kN/m²		

Remarks:

- The unconstrained compressive strength reflects the consistency of manufacture of the products, and is not sufficient for establishing the structure's mechanical design dimensions.
- Reference should be made to § 6 for the justification of the mechanical properties during the usage phase.

3.1.5.1.2.2 Determination of unconstrained compressive strength of two stacked blocks

Standard tests have been carried out for two stacked block levels.

The breaking load for vertical compression (for a test speed of 0.5 kPa/s) is higher than or equal to 391 kPa for two stacked ST blocks.

3.1.5.1.2.3 Determination of unconstrained compressive strength with effect of a gradient

Standard tests show that a 1% subgrade gradient has no impact on the short-term mechanical resistance in the vertical direction of the blocks.

3.152 Long-term characteristics

The design of Rigofill blocks was devised by simulation, using the finite element method, and taking account of the material's long-term properties.

The long-term mechanical properties are based on a series of long-term uniaxial compression tests undertaken over a period from 4000 h (vertical direction) to over 10,000 hours (horizontal).

These tests involve applying various vertical and horizontal static loads equal to a decreasing percentage of the maximum unconstrained compressive force in order to determine the total deformation value as well as the maximum admissible stress at 50 years.

Maximum deformation after 50 years is 5.0 %.

3.1521 Rigofill inspect

3.1.5.2.1.1 Allowable long-term vertical load

The vertical load which must be taken into account for mechanical dimensioning (value of the extrapolated maximum vertical pressure which would lead to breakage after 50 years of service) is 148 kN/m².

3.1.5.2.1.2 Allowable long-term horizontal load

The horizontal load which must be taken into account for mechanical dimensioning (value of the extrapolated maximum horizontal pressure which would lead to breakage after 50 years of service) is 52.5 kN/m².

3.1522 Rigofill ST

3.1.5.2.2.1 Allowable long-term vertical load

The vertical load which must be taken into account for mechanical dimensioning (value of the extrapolated maximum vertical pressure which would lead to breakage after 50 years of service) is 126 kN/m².

3.1.5.2.2.2 Allowable long-term horizontal load

The horizontal load which must be taken into account for mechanical dimensioning (value of the extrapolated maximum horizontal pressure which would lead to breakage after 50 years of service) is 45 kN/m².

3.153 Justification of mechanical properties under a highway:

The expected platform level (PF) for the installation of a highway is defined on the basis of the class of traffic expected for the highway. It depends on the thickness and type of materials used, as defined in the Setra-LCPC documents.

The values below (given for information only) give the maximum overlap for a particular material according to the expected class of bearing capacity, on the basis of tests conducted in a laboratory:

Case of flexible highways

- ≥ 15 cm of 0/32 sand for a bearing capacity of PF1 quality.
- ≥ 50 cm of 0/32 sand for a bearing capacity of PF2 quality.
- ≥ 65 cm of 0/32 sand for a bearing capacity of PF3 quality.

Case of rigid highways

- ≥ 15 cm of 0/32 sand and minimum 15 cm of concrete for a bearing capacity of PF3 quality.

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Other cases

Thickness and type of materials dependent on the expected bearing capacity, as defined in Backfilling of trenches and repair of highways (LCPC, SETRA: 1994, section VI).

3.2 Quadro-control inspection unit

3.21 Base element and cone

3.211 Appearance, finish

The inner and outer surfaces of the Quadro-control inspection units are smooth and free of fine cracking. The base element and its cone are black in colour.

3.212 Dimensions

The blocks' overall dimensions are 800 x 800 mm (see figures 4 a, b and c).

The minimum average thickness is 7 mm.

3.213 Mechanical properties

3.2131 Short-term

The Quadro-control inspection unit resists a vertical force of 85 kN when measured under the conditions of Standard XP P 16374.

3.2132 Long-term

The long-term mechanical properties of these elements were determined by finite element analysis and testing over a period of 3400 hours, enabling the mechanical properties of the structure after 50 years to be extrapolated. On the basis of this test, the long-term resistance of the Quadro-control inspection unit is 117 kN/m².

Integrating the Quadro-control inspection unit in a structure consisting of Rigofill inspect blocks does not affect the structure's mechanical properties.

3.22 Extension pipe

3.221 Appearance, finish

The inner and outer surfaces of the rise of Quadro-control inspection units are smooth and free of fine cracking. Extension pipes are of grey or black colour internally and of black colour externally.

3.222 Dimensions

The extension pipe consists of a corrugated tube of DN/ID 500 (See figure 5). It is delivered with a seal which must be used between the extension pipe and the aperture of the distribution slab (*See Figure 6*)

3.223 Mechanical properties

The annular rigidity of the extension pipe, measured according to Standard NF EN ISO 9969, is 4 kN/m².

3.23 Distribution slab

3.231 Dimensions

See figure 7, appended hereto.

3.232 Compressive strength

The compressive strength of the distribution ring is higher than 300 KN.

3.233 Anchoring

The required minimum capacity ($F_{min.}$) for anchoring in concrete is determined according to the following procedure:

Where:

P: Weight of the product, daN

n: Number of useful lifting points (n = 2)

k: Safety coefficient for concrete: k = 2.5

e: Slinging coefficient (in general: e = 1.16, corresponding to an angle at the peak of the slings of 60°)

d: Dynamic coefficient d = 2, corresponding to lifting and transport over flat to very slightly uneven land

$$F_{min.} = \frac{P}{n} ked$$

i.e., in the case of lifting with two useful points:

$$F_{min.} = 2.9\ P$$

The test equipment is designed to apply a tearing force to the inserts sunk in the products.

A standard test, undertaken on all the anchoring loops, is conducted to breakage for a horizontal handling configuration.

Breakage (of the anchor or of the concrete) must not occur for a load lower than the required minimum resistance

$F_{min.} = 2.9\ P$ i.e. 2.9 x 384 = 1115 daN

4. Marking

The marking of the Rigofill inspect and ST blocks complies with requirements associated with the Technical Appraisal and with the QB marking references.

5. Packaging, handling, storage

5.1 Packaging

Rigofill inspect blocks are packaged (without pallet) as 4 full blocks or 8 half-blocks. The blocks are hooped using 2 polypropylene strips.

ST elements are packaged in packets of 2 rows of 17 elements, hooped by polypropylene strips on wood bases.

5.2 Handling

Loading and unloading of the packaged blocks do not pose any particular difficulties, and will preferably be undertaken using a forklift. Parts must under no circumstances be discarded or fall during loading: they must be transported with care.

In the case of Rigofill inspect, care will be taken to take up the load (with the fork of the forklift, or by slinging) in the inspection channels of the lower blocks of the packaging.

In the case of Rigofill ST, care will be taken to take up the load at the bottom of the package.

The hooping must be removed preferably just before installation, and outside the excavation trench.

5.3 Storage

Packaged blocks must be stored on a flat and stable surface, free of any objects which might damage the products. To prevent risks of accident, no more than 4 packages should be stacked in the manufacturing site, and no more than 2 in any other location.

Before installation a check will be made that the blocks and or half-blocks are not damaged; any observed damage will mean that the element in question must not be used.

The maximum storage period outside is one year.

In the event of a risk of a storm the packages will be secured, and will not be stacked.

Sensitivity to impact of plastics increases in freezing temperatures, and account must be taken of this during transport and storage.

6. Preliminary study and dimensioning

The information supplied must enable the geological and hydrological environment to be characterised (in particular the EH level of the water in all cases, and permeability in the case of filtration tanks, where EH is the high water level equal to the amplitude of a ten-year flood for the site), the conditions of use of the structure, the construction conditions (available site, excavation method, specific constraints, etc.), and the operating conditions (live loads, permanent loads, occasional temporary loads, etc.).

It should be emphasised that the information shown in said technical design studies are elements to assist with the design. They must allow the project manager to establish the design dimensions and to carry out the validations that they are responsible for.

6.1 Volumes of the structure

The volume of the tank is determined by the project manager.

6.11 Excavation volumes

The excavation volume is determined by the project manager in accordance with the specifications of the Technical Guide "Ultra Light Cellular Structures (ULCS) for rainwater management" (§5.2).

6.12 Usable volume of the structure

The usable storage volume is determined by the project manager in accordance with the specifications of the Technical Guide "Ultra Light Cellular Structures (ULCS) for rainwater management".

The usable volume of the structure must take into account:

- The useful volumes of the basic blocks,
- The effluent water flow (The height between the bottom of the tank and the effluent discharge level is 40 mm).
- The gradient, if applicable, of the subgrade (generally 0.5%).

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- The vent's discharge level (or upper point of the tank).

At this point layout of the blocks and accessories required for installing the tank must be made.

6.2 Mechanical properties

The tank can be used under a highway, a car park, a pavement, a shoulder and green spaces, provided the minimum overlap heights are:

- 0.80 m under live loads (BC convoy type),
- 0.60 m under a highway with light traffic (PTAC [authorised gross weight] of 3.5 T),
- 0.50 m under a pavement or shoulder,
- 0.30 m under green spaces.

In the case of ordinary structures within the meaning of the technical guide "Ultra Light Cellular Structures (ULCS) for rainwater management", the structure's mechanical properties are justified by the project manager according to the specifications of the guide (section 4).

The global safety coefficient chosen for dimensioning will be:

- 2 for Rigofill inspect corresponding to a γA of 1.35 and a γM of 1.5.
- 2.5 for Rigofill ST corresponding to a γA of 1.65 and a γM of 1.5.
- The most unfavourable safety coefficient for construction using both products.

When the structure is built under a highway the dynamic effects will be taken into account according to the conditions of section 70.

The calculation note must include:

- the height and nature of the fill according to the defined density,
- the type of traffic,
- the structure's dimensions,
- The presence of a water table, if applicable,
- the long-term resistance and deformations of the blocks, according to the density of the fill and the pressure coefficient.

7. Installation

The following operations are implemented in accordance with the minimum specifications of the Technical Guide "Ultra Light Cellular Structures for rainwater management" (IFSTTAR-2011).

- Excavation and preparation of the subgrade,
- Characteristics and use of geo-textile/water-tightness device,
- Lateral fill,
- Initial fill and capping layer.

These specifications are completed by an installation guide specific to Rigofill inspect and ST blocks submitted to CSTB.

Special points:

- Always follow the direction of installation of the inspection channels, and check the positioning of the manholes or inspection units (in accordance with the layout (label affixed to the inspection units),
- Lock the positioning of the blocks using connectors to prevent movements. Blocks must be held in place using connectors, with the connection locations positioned in the middle of the upper edge of each block.
- Rigofill inspect and Rigofill ST blocks can be arranged juxtaposed, but cannot be stacked in mixed stacks.
- Remark: stacking two half-blocks on one another does not equal the height of a block: elements must be assembled in layers of the same type.

8. Access to the structure

Access can be through manholes or inspection units (*cf. Figure 4b*) external to the structure or integrated in the structure in the case of Quadro-control inspection units.

It is essential for there to be a minimum of one access at the base of the structure.

Concerning ventilation, a minimum of one tunnel must be connected to the manhole or to the inspection unit. Manholes or inspection units must be fitted with ventilated covers.

9. Upkeep and maintenance

General conditions for maintenance and operation of the structures are carried out in accordance with the technical guide "Ultra Light Cellular Structures for rainwater management" (ISTTAR-2011).

It is recommended to undertake a periodic inspection of the structure and of the connected elements to determine the maintenance frequency which is appropriate for the structure's specific environment. When a climatic, accidental or other event results in an operation to inspect and/or maintain the rain network, when the tank is a component of this network it must also be inspected. Any waste must be evacuated.

If needed, the inspection channels of Rigofill blocks may be high-pressure cleaned (up to 120 bar and 250 L/min). Having a pre-treatment system upstream can reduce the frequency of maintenance operations.

10. Method of commercialisation

Rigofill blocks and their accessories are marketed through a network of distributors.

11. Internal inspections

11.1 Raw material checks

A certificate of conformity (type 3.1 in terms of Standard NF EN 10204) with the materials characteristics of section 2.1 is provided by the supplier(s) for each batch (corresponding to a delivery).

The laboratory checks relate to the melt index, density and thermal stability.

Approval of the materials by FRÄNKISCHE ROHRWERKE is given on the basis:

- of the characteristics as defined in § 2 and § 3.15,
- of verification of the products' long-term properties.

11.2 Checks on the manufacturing process

Production parameters are the subject of specific procedures.

11.3 Checks on finished products

The checks made on the finished products are as follows:

11.31 Rigofill inspect and ST

Nature of the checks	Frequency	Sampling
Weight	Every 4 h	1 element
Dimensional	Every 24 h	1 block
Assembly	inspect: Continuous assembly ST: Check at the start of production, and then once every 24 h	1 block
Appearance	Continuous Recording once every 4 h	All blocks
Compression strength	Once per 24 h	1 block

Statistical analysis is carried out on the results of tests carried out on raw materials and finished products (compressive strength).

11.32 Quadro-control

Nature of the checks	Frequency	Sampling
Weight	Check at the start of production, once per week	1 inspection unit
Dimensional		
Appearance	Continuous	All inspection units
Compression strength	Once per month	1 inspection unit

12. Certification

12.1 Quality system

The quality system in place in the production facilities is ISO 9001 (2015 version) certified.

12.2 Certification

Rigofill inspect and ST blocks are QB mark certified. This shows that the consistency and results of internal checks for each manufacturing site are satisfactory.

Products which hold a valid certificate can be identified by the presence of the QB logo on the products.

The certified characteristics are as follows:

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- Dimensional characteristics (see § 3.2),
- Determination of the unconstrained compressive strength (vertical direction) of a block (see § 3.51).

As part of QB Certification the CSTB periodically audits the manufacturing sites to examine the established quality system and takes samples to conduct the following tests in the mark's laboratory:

- an inspect block and an ST block (dimensional, mechanical resistance, OIT and melt index).
- an inspection unit and an extension pipe (dimensional, short-term vertical mechanical resistance, annular rigidity of the extension pipe).

The results of this monitoring are examined by the mark's Committee.

B. Experimental results

The following tests were conducted on the Rigofill inspect and ST blocks:

- dimensional characteristics,
- material characteristics,
- mechanical characteristics.

These characteristics are covered by the CAPE AT 10-175, CAPE AT 11-024 and CAPE 19-9967 test reports.

The long-term properties of Rigofill inspect blocks are covered by the internal report of 09/10/12 of the company FRÄNKISCHE ROHRWERKE.

The long-term properties of Rigofill ST blocks are covered by test report PB 5.2/17-351-1 of 15/05/2019 produced by the laboratory MPFA.

The long-term properties of the Quadro-control unit were covered by the internal report of 23/10/2013 of the company FRÄNKISCHE ROHRWERKE.

The geotechnical properties of the layers surmounting the Rigofill inspect blocks were the subject of a justification produced by GROPIUS INSTITUT DESSAU (22-9-2003) "Geotechnical investigation of an installation"

C. References

C1. Health and Environmental Data (1)

Rigofill inspect and ST blocks are not subject to an Environmental Statement (ES).

The purpose of ES data is for calculation of environmental impacts of structures in which the products (or processes) in question are likely to be incorporated.

C2. Other references

Volumes of over 500,000 m^3 of Rigofill inspect blocks, and of over 10,000 m^3 of ST blocks, have been installed in Europe. A list of 200 French references has been submitted to CSTB.

More than 19,000 Quadro-control inspection units incorporated in structures consisting of Rigofill inspect blocks have been manufactured since 2005.

(1) Not examined by the Specialised Group within this Appraisal.

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Tables and figures of the Technical File

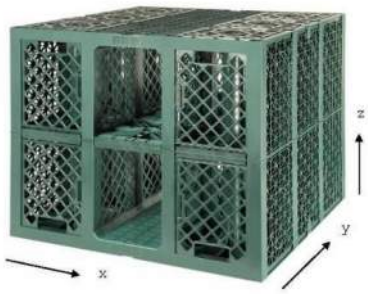

Figure 1 a– Rigofill inspect block

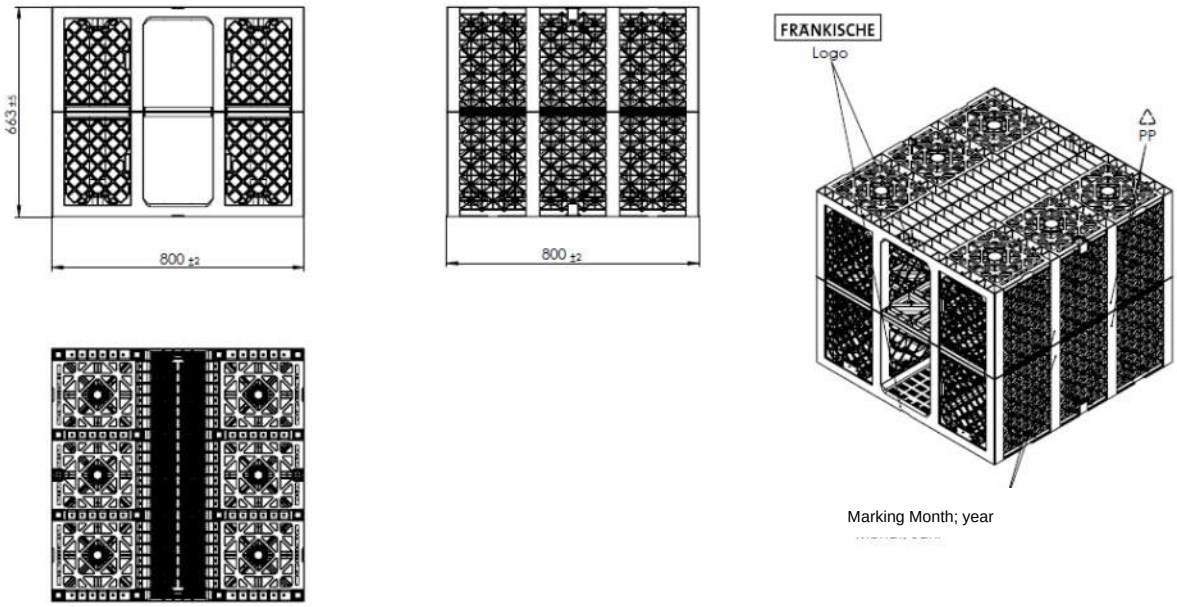

Figure 1 b– Dimensional characteristics of the Rigofill inspect block

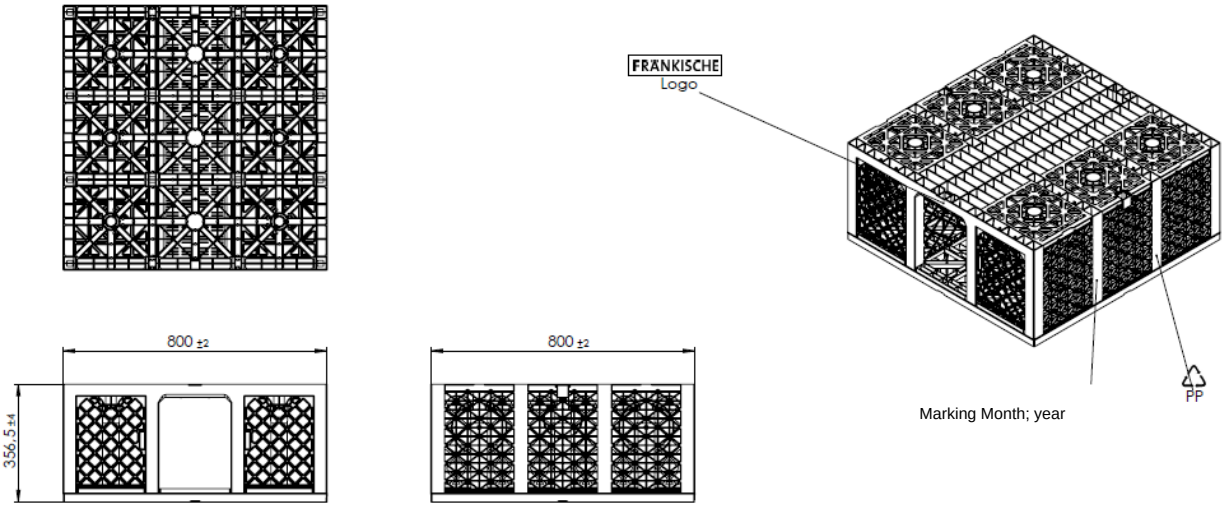

Figure 1 C– Dimensional characteristics of the Rigofill inspect half-block

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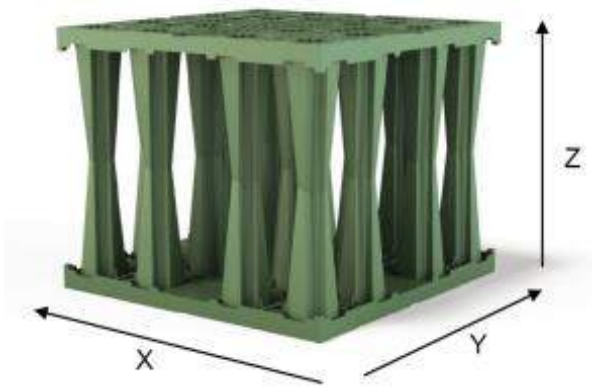

Figure 1d– Rigofill ST block

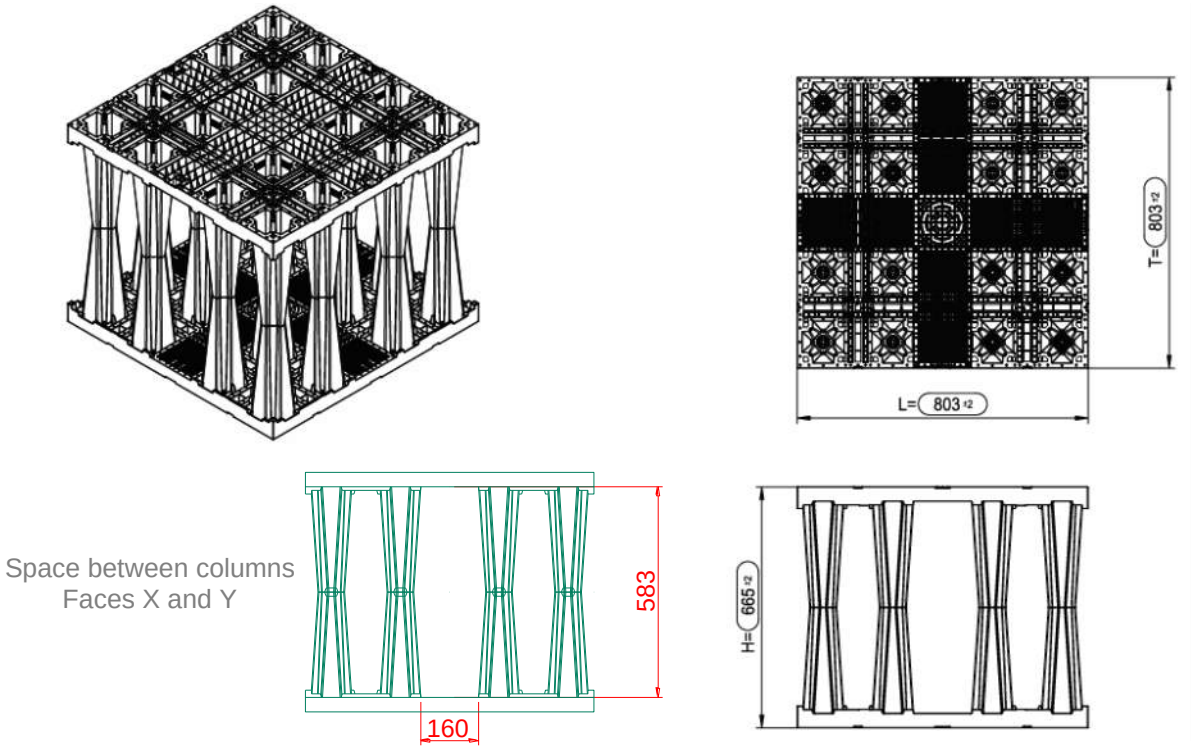

Figure 1e– Dimensional characteristics of the Rigofill ST block

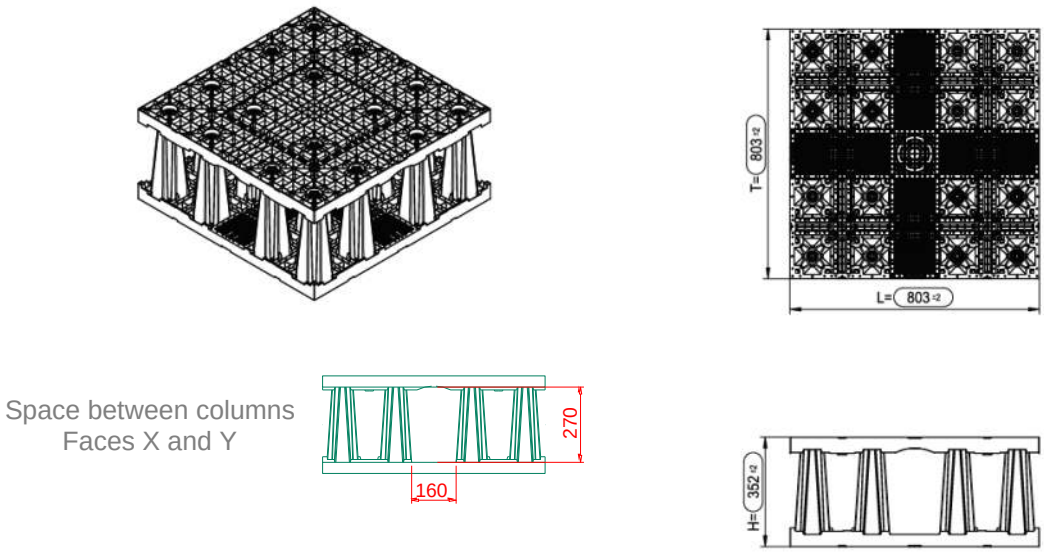

Figure 1f– Dimensional characteristics of the Rigofill ST half-block

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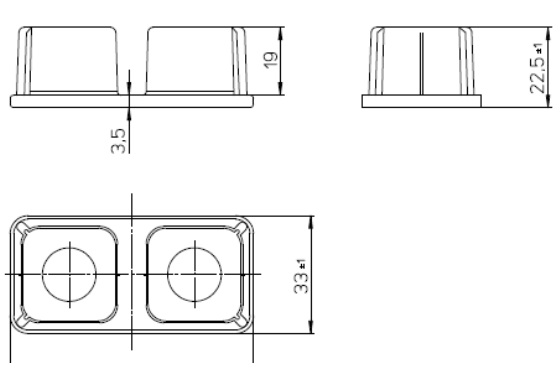

Figure 2 a – Single-layer connectors

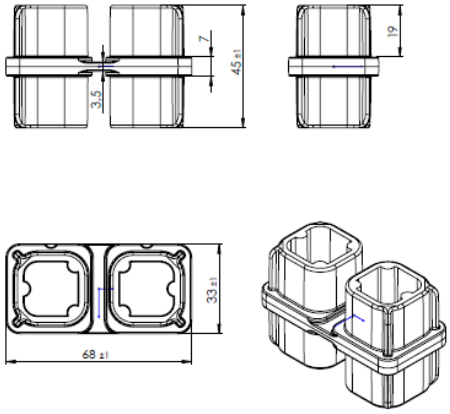

Figure 2 b – Multi-layer connectors

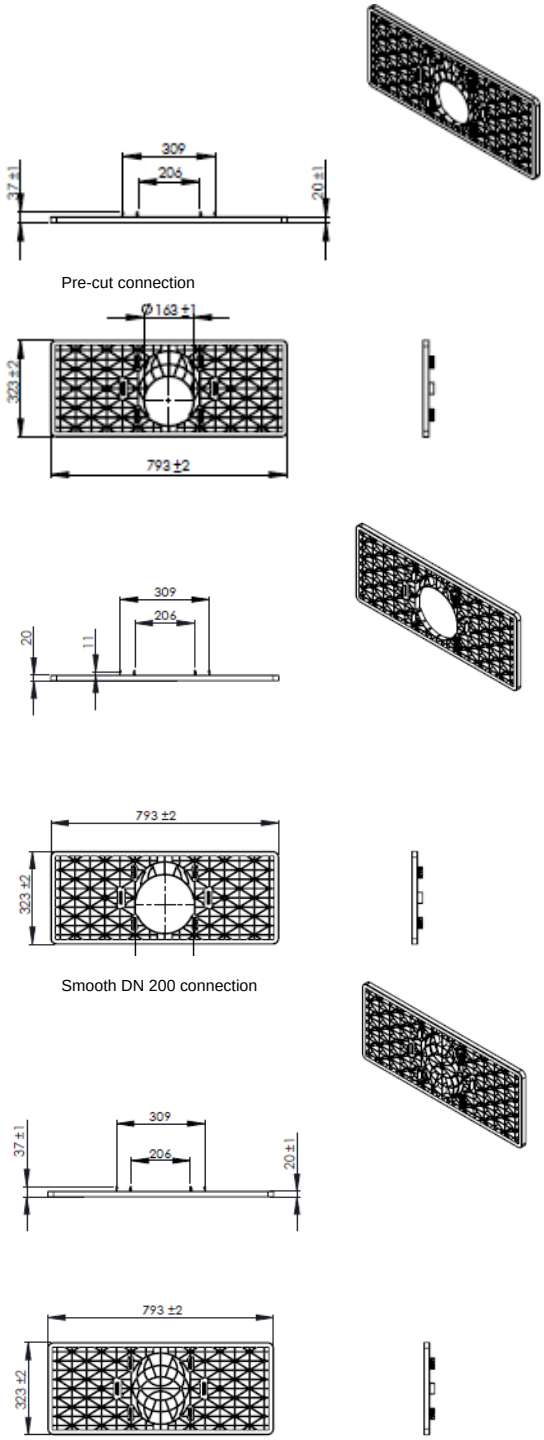

Figure 3a: End plate and perforated end plate aperture DN 150 or DN 200 for Rigofill inspect

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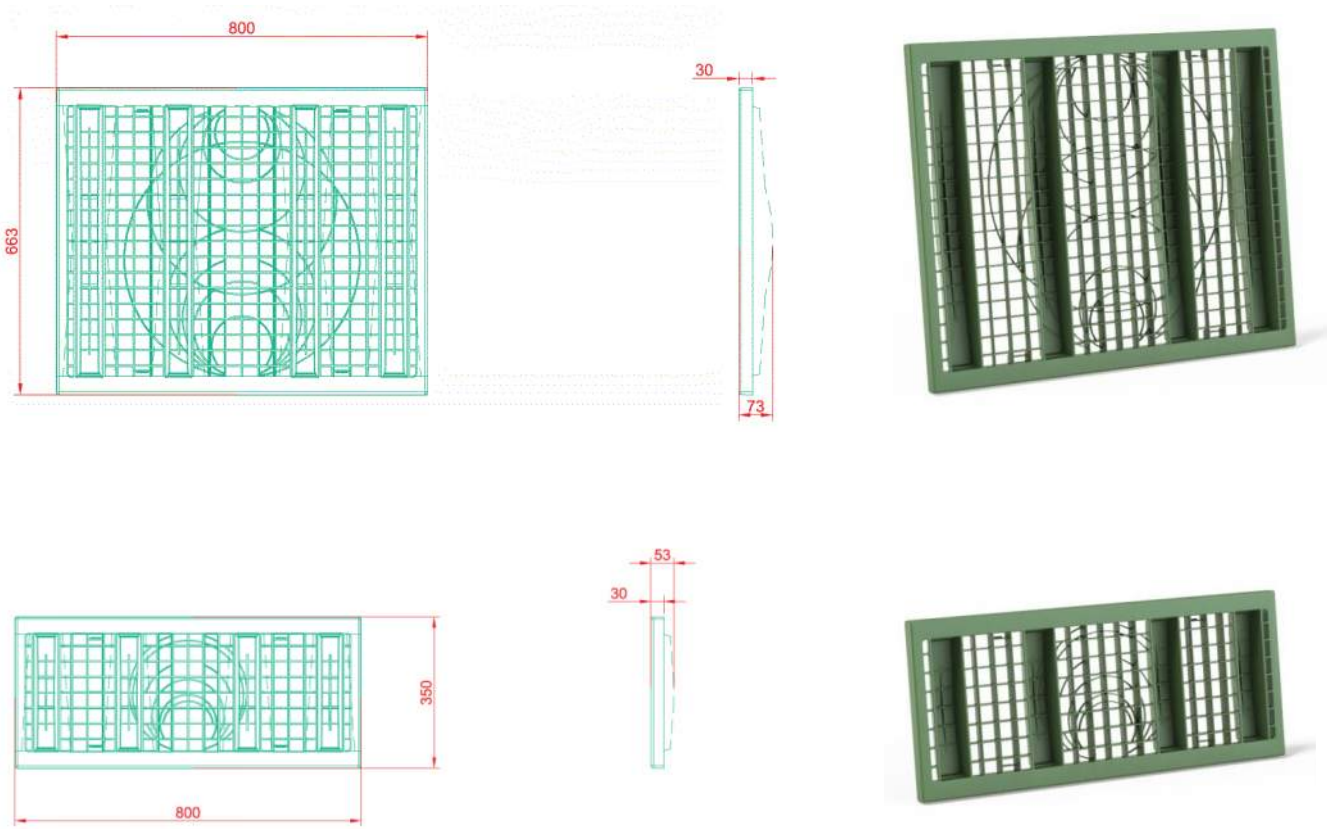

Figure 3b: Lateral face for Rigofill ST block and half-block

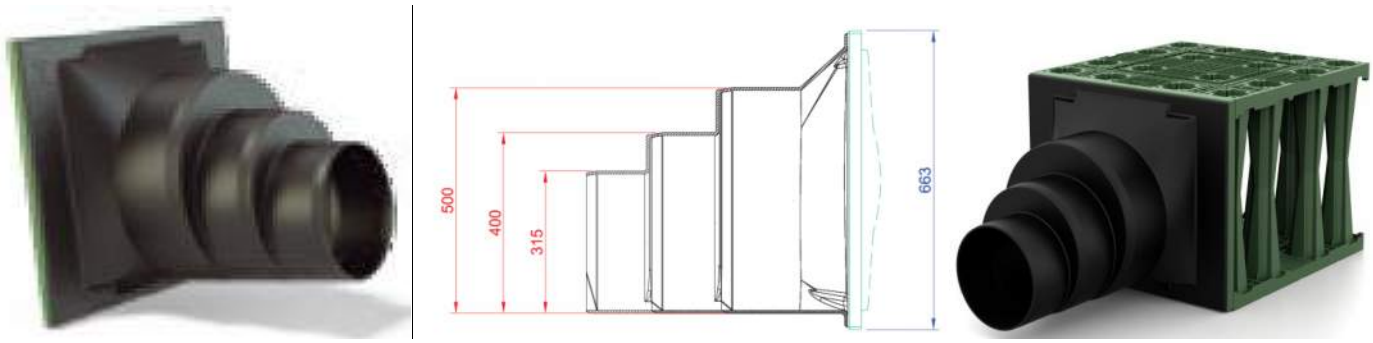

Figure 3c: Channel connection face for Rigofill ST block

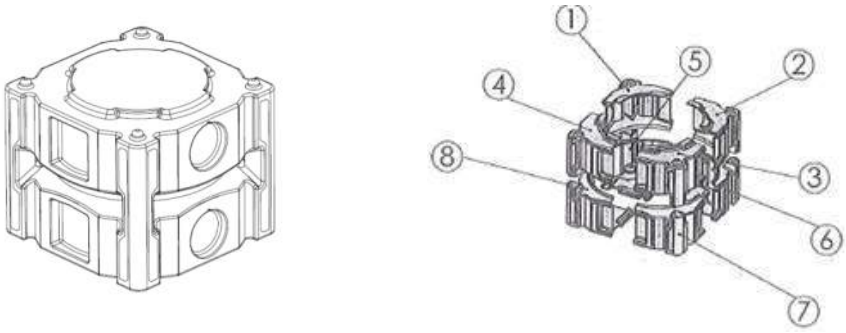

Figure 4: Quadro-control inspection unit and representation of measurement points for minimum average wall thickness

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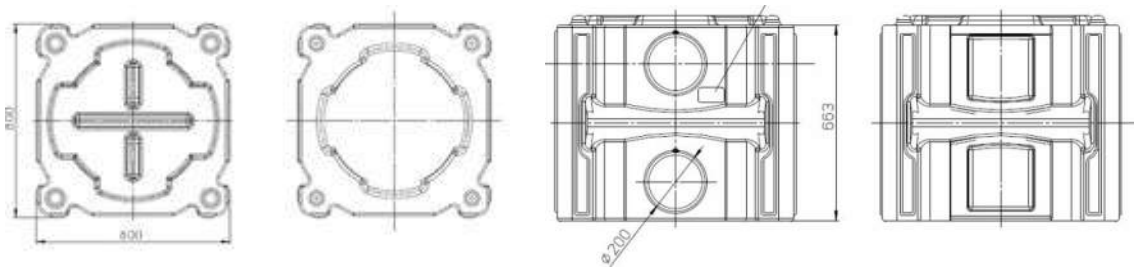

Figure 4a – Quadro-control inspection unit for whole block

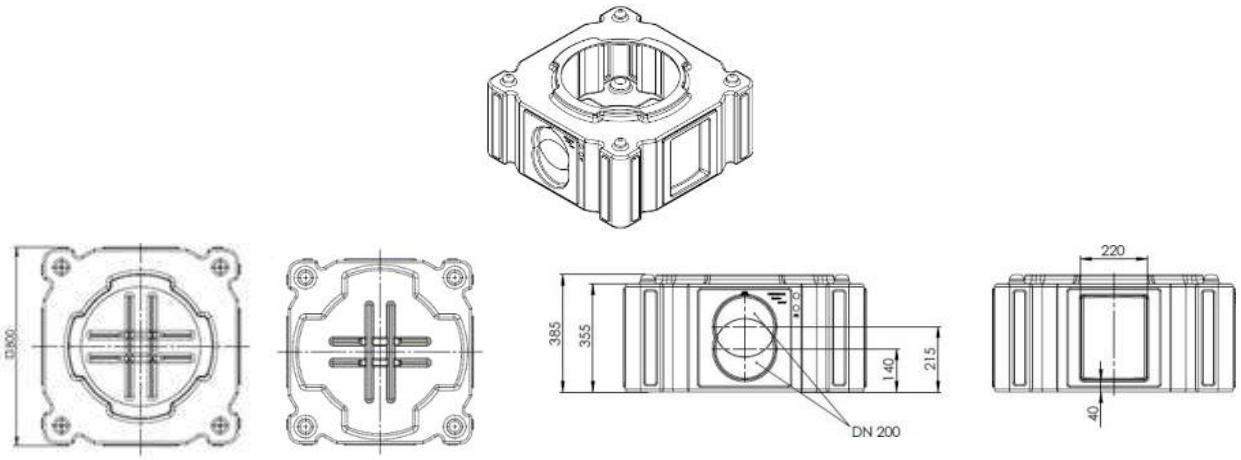

Figure 4b – Quadro-control inspection unit for half-block

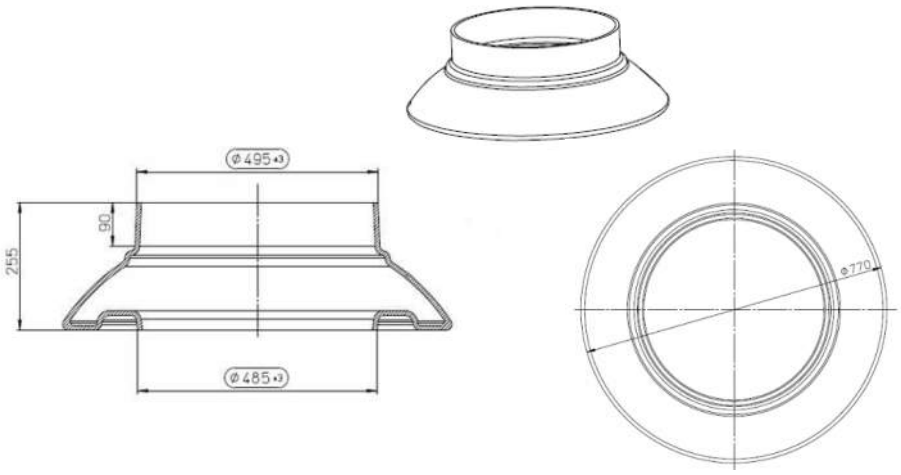

Figure 4c – Quadro-control inspection unit: cone for the extension pipe

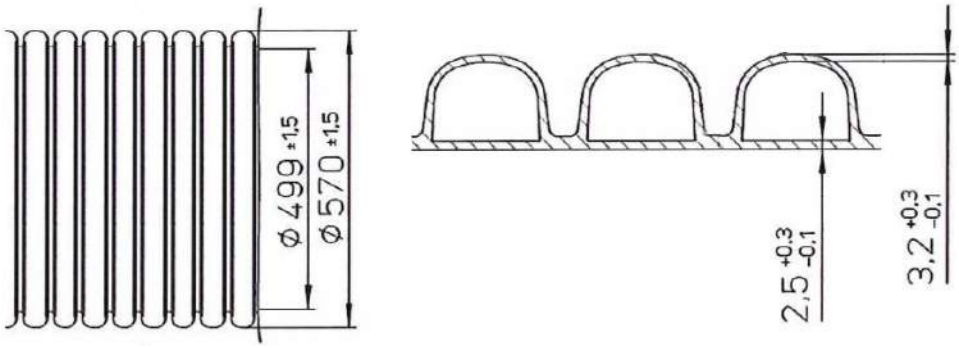

Figure 5 – Cross-section view of the extension pipe

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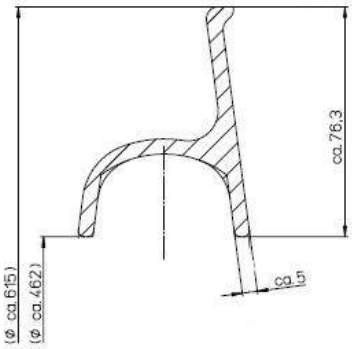


Figure 6 – Cross-section view of the extension pipe – distribution slab

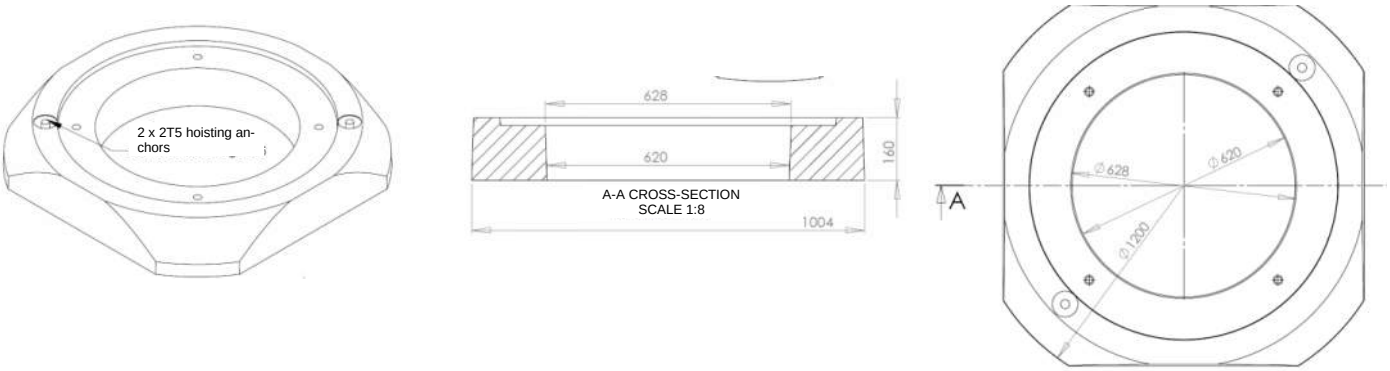
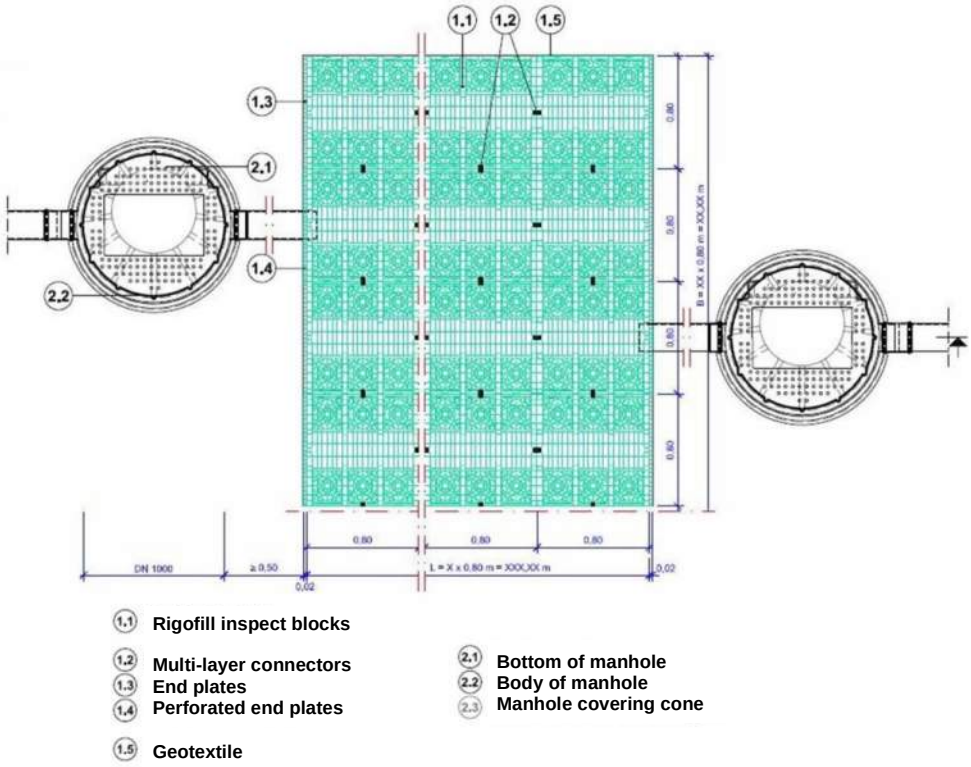


Figure 7 – Plan view and cross-section view of the distribution slab



7a – View from the top of a tank built with Rigofill inspect (external manholes)

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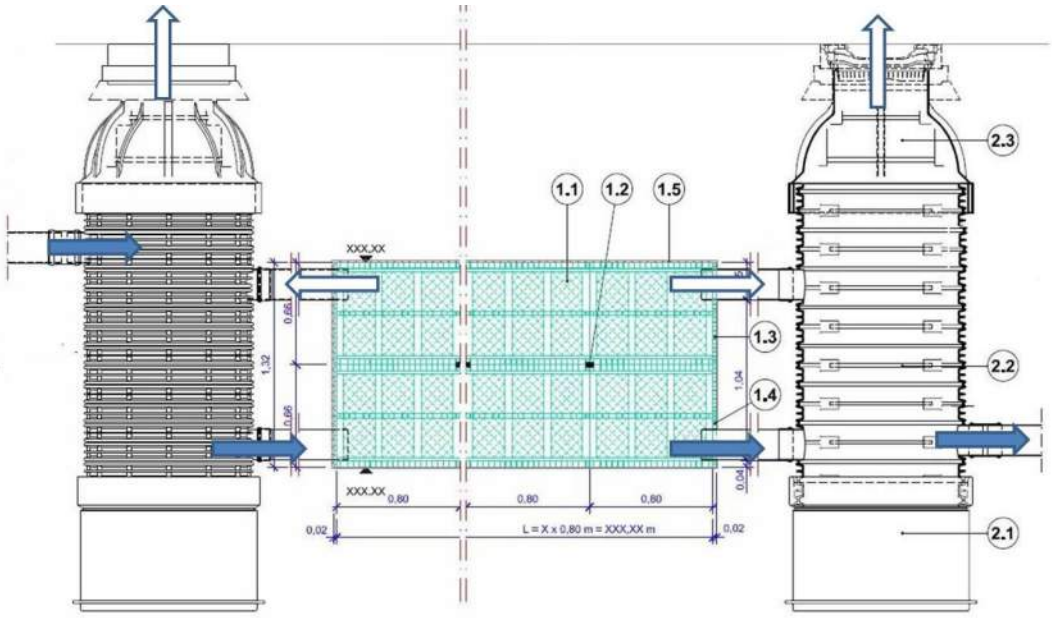

Key:

- (1.1) Rigofill inspect blocks
- (1.2) Multi-layer connectors
- (1.3) End plates
- (1.4) Perforated end plates
- (1.5) Geotextile
- (2.1) Bottom of manhole
- (2.2) Body of manhole
- (2.3) Manhole covering cone
- Water flow
- Air flow

Figure 7b – Functional cross-section of a tank built with Rigofill inspect (external manholes)

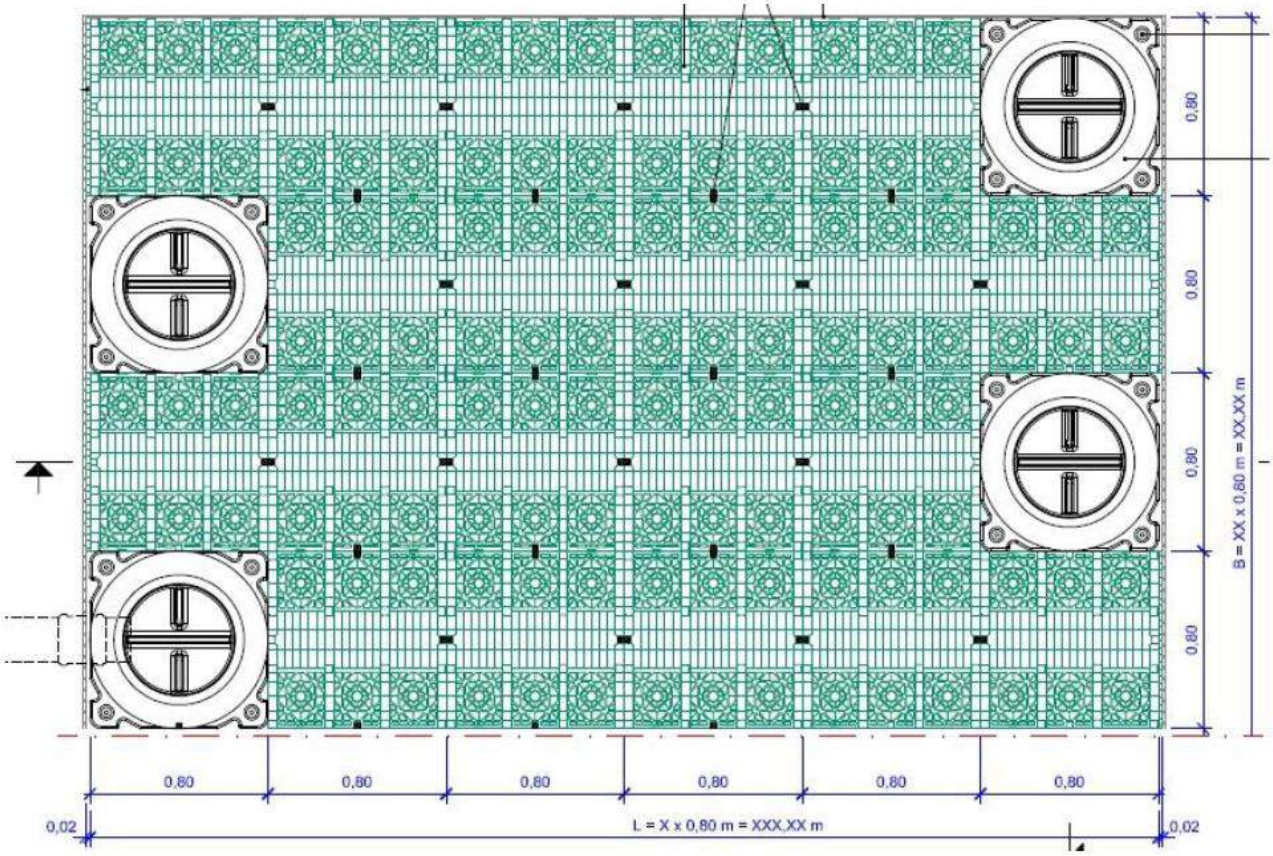

Figure 8a – Top view of a tank built with Rigofill inspect and integrated inspection unit

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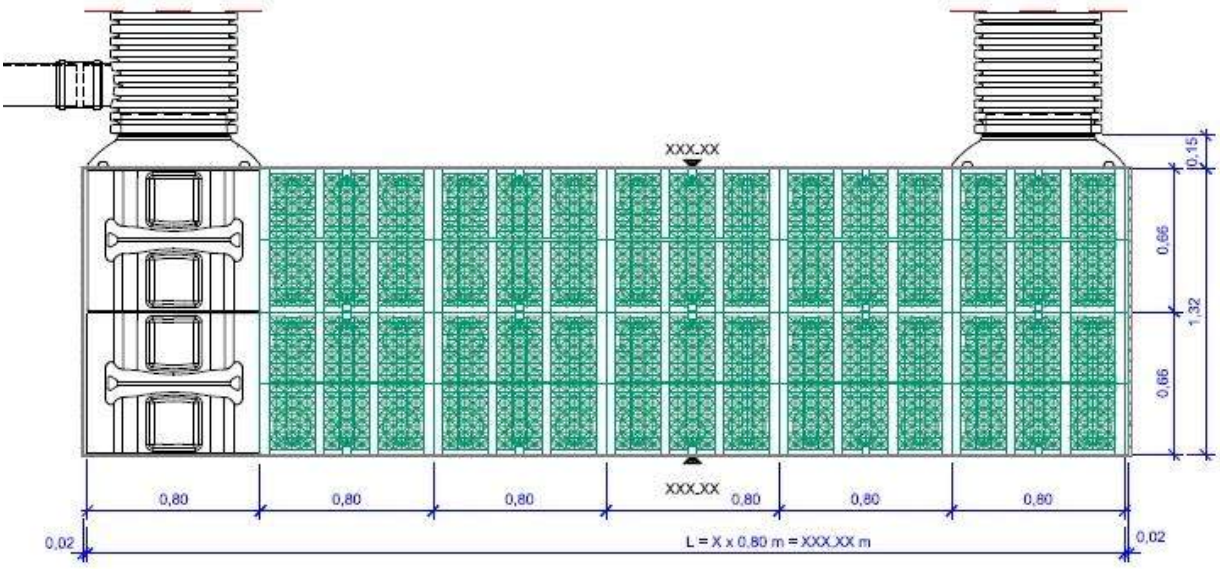
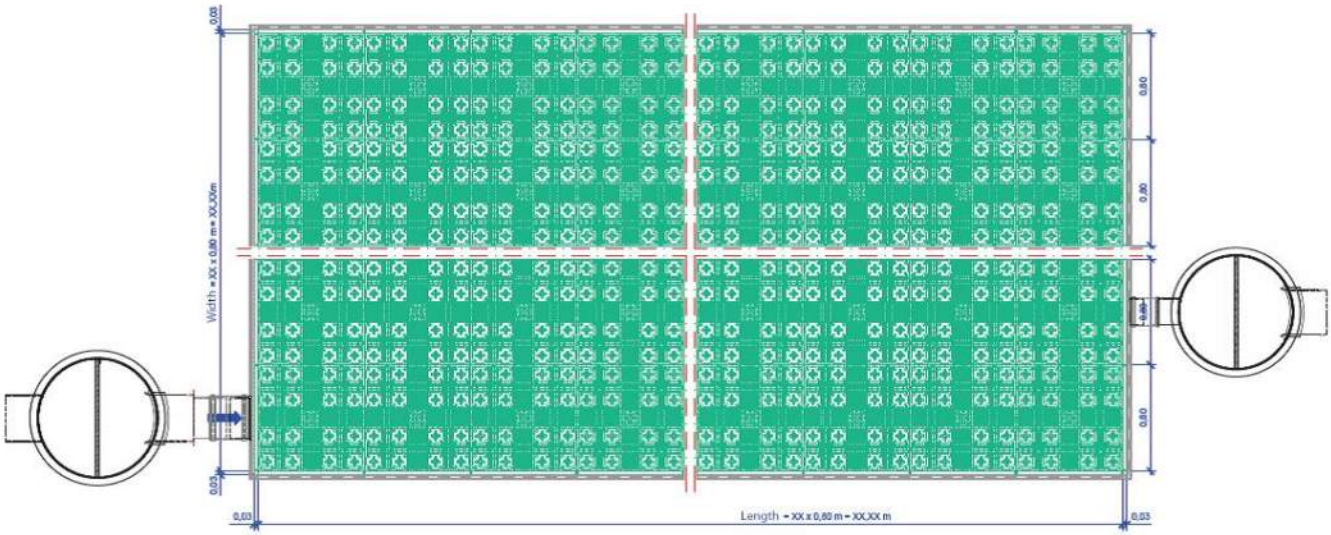


Figure 8b – Functional cross-section of a tank built with Rigofill inspect and integrated inspection unit



9a – View from the top of a tank built with Rigofill ST (external manholes)

Figure 9b – Functional cross-section of a tank built with Rigofill ST (external manholes)

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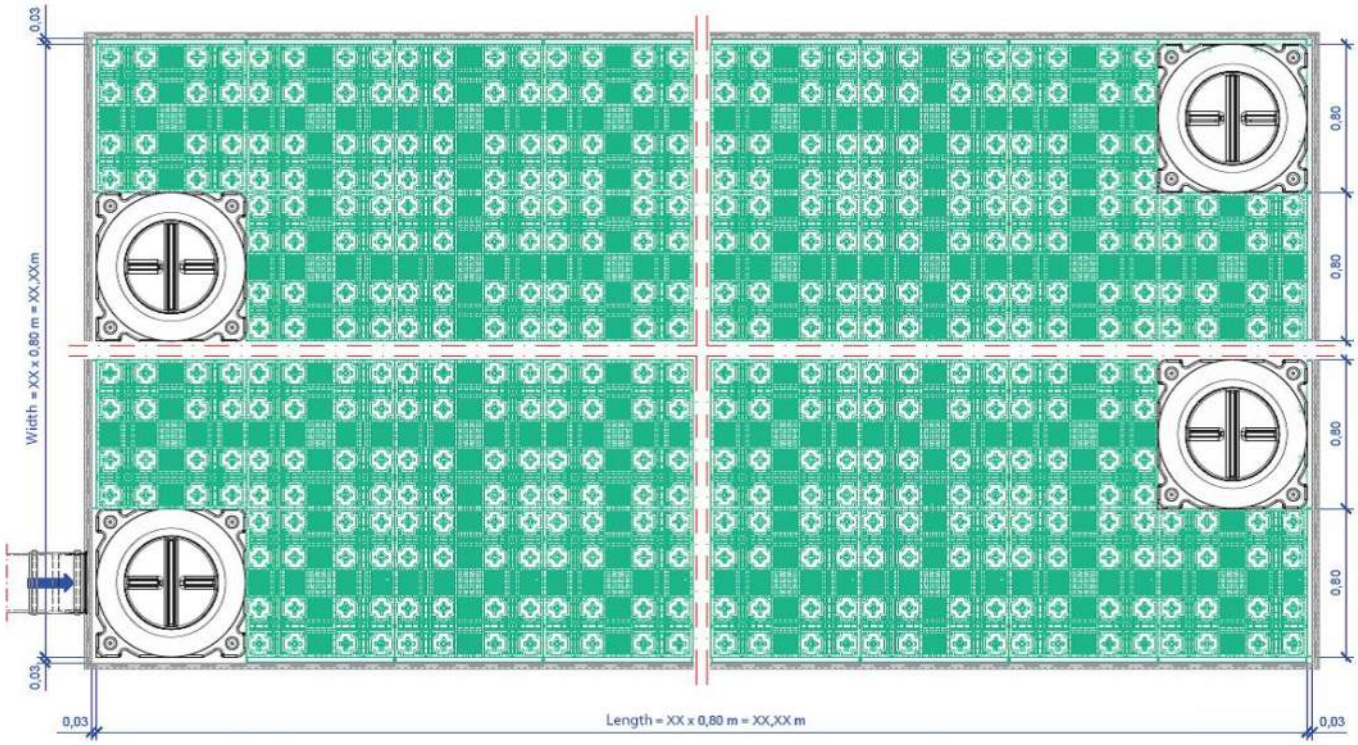

Figure 10a – Top view of a tank built with Rigofill ST and integrated inspection unit

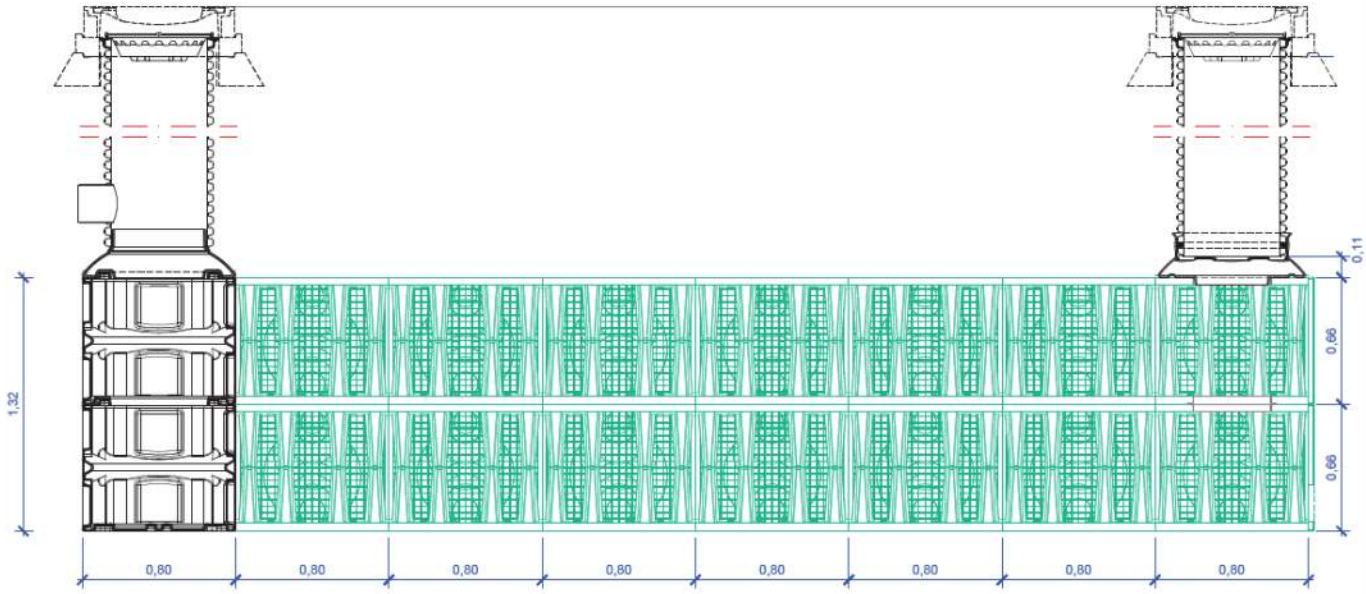

Figure 10b – Functional cross-section of a tank built with Rigofill inspect and integrated inspection unit

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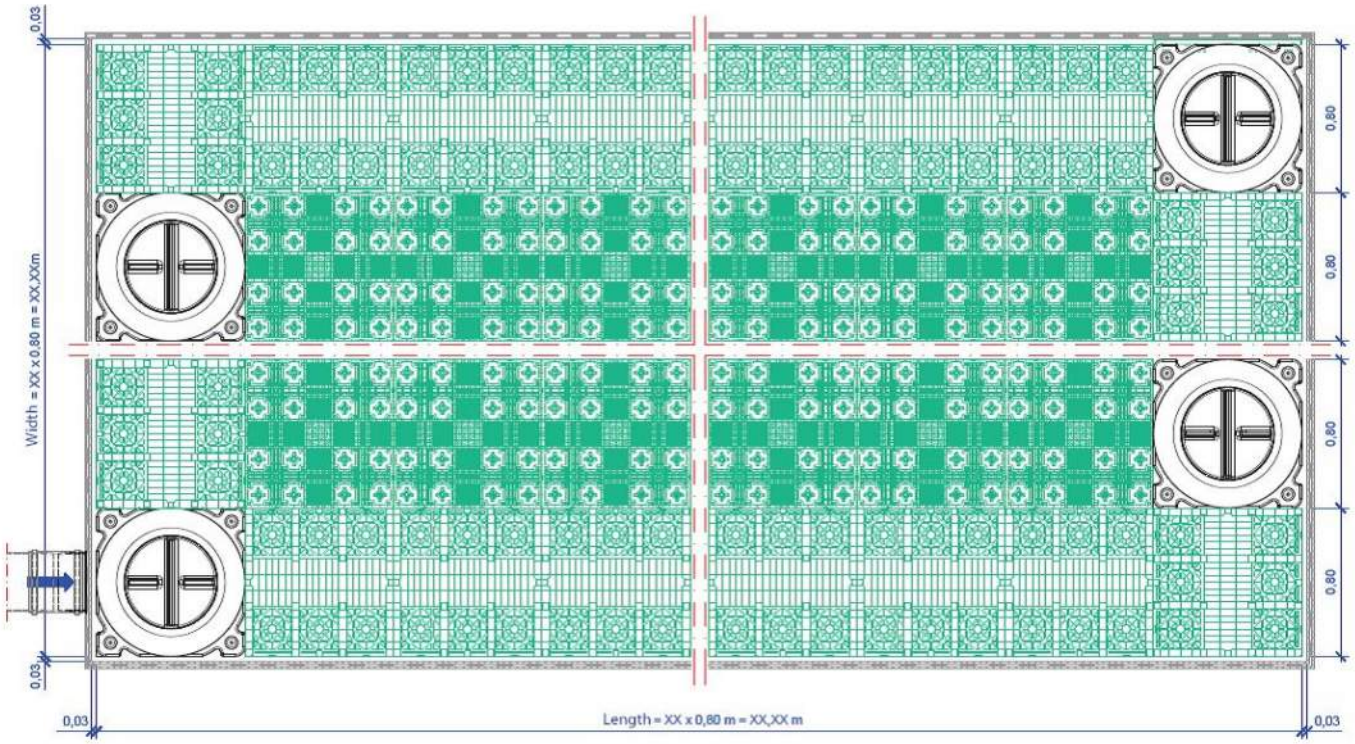

Figure 11a – Top view of a tank built with a mix of Rigofill inspect and ST with integrated inspection unit

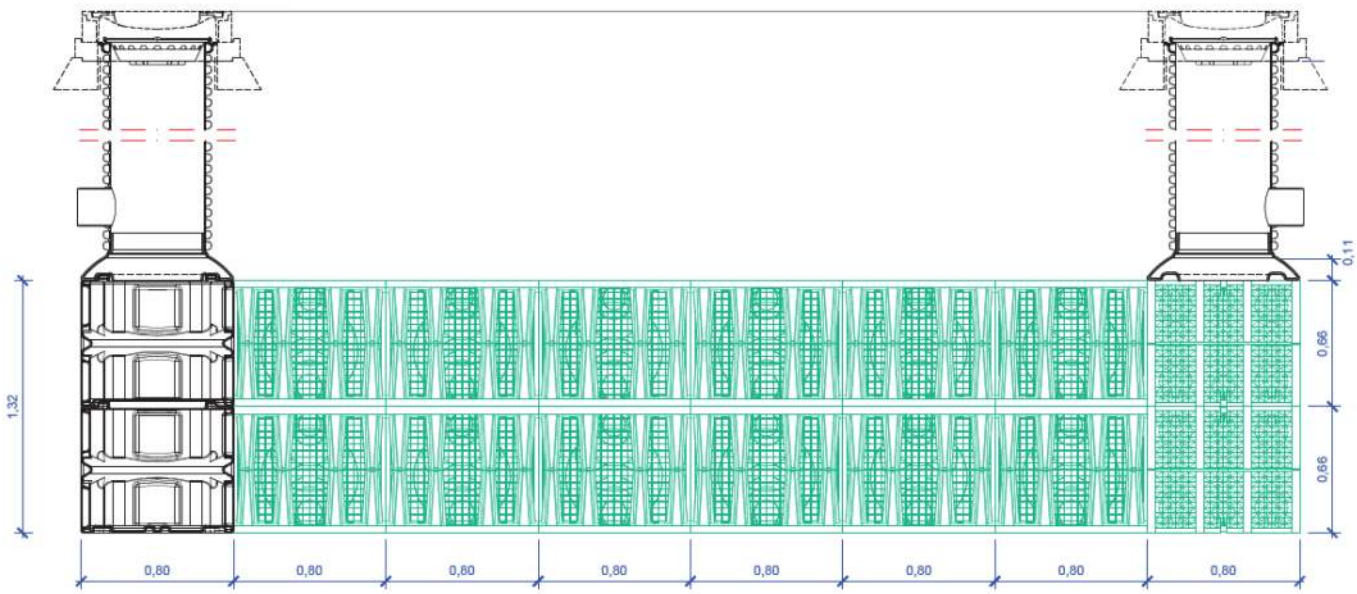

Figure 11b – Functional cross-section of a tank built with a mix of Rigofill inspect and ST with integrated inspection unit

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Tribal Caledon North

Caledon, Ontario

STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500 OR APPROVED EQUAL.
2. CHAMBERS SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORT PANELS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
4. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
5. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOADS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
7. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. THE CHAMBER MANUFACTURER SHALL SUBMIT THE FOLLOWING UPON REQUEST TO THE SITE DESIGN ENGINEER FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE:
   a. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY AASHTO FOR THERMOPLASTIC PIPE.
   b. A STRUCTURAL EVALUATION SEALED BY A REGISTERED PROFESSIONAL ENGINEER THAT DEMONSTRATES THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET. THE 50 YEAR CREEP MODULUS DATA SPECIFIED IN ASTM F2418 MUST BE USED AS PART OF THE AASHTO STRUCTURAL EVALUATION TO VERIFY LONG-TERM PERFORMANCE.
   c. STRUCTURAL CROSS SECTION DETAIL ON WHICH THE STRUCTURAL EVALUATION IS BASED.
8. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTITIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS.

   STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4-2" (20-50 mm) MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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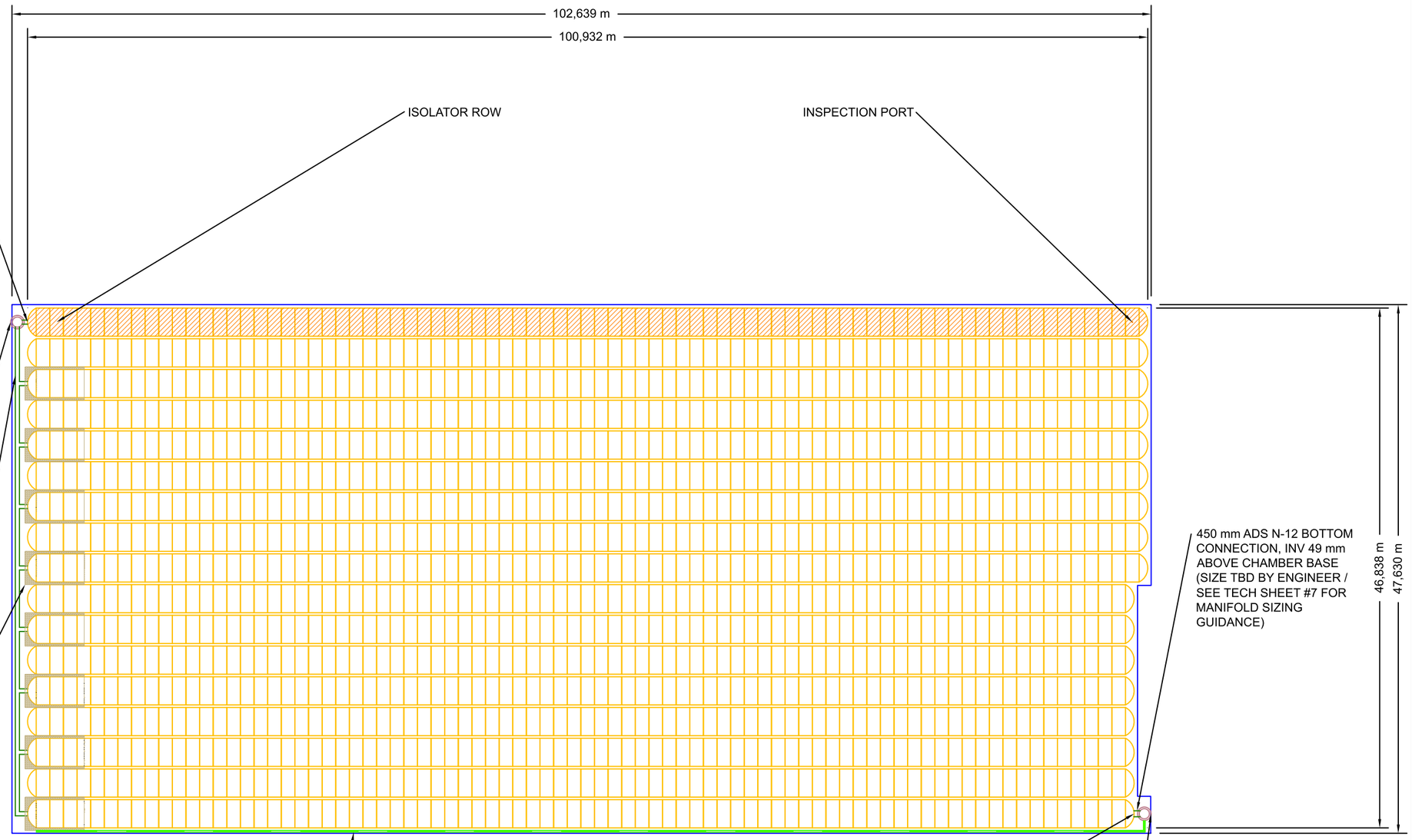
CONCEPTUAL LAYOUT

(1369) STORMTECH MC-4500 CHAMBERS
(34) STORMTECH MC-4500 END CAPS
INSTALLED WITH 305 mm COVER STONE, 229 mm BASE STONE, 40% STONE VOID
INSTALLED SYSTEM VOLUME: 6503 m³
AREA OF SYSTEM: 4865 **m²**
PERIMETER OF SYSTEM: 303 **m**

COMPUTER GENERATED CONCEPTUAL LAYOUT - NOT FOR CONSTRUCTION



Tribal Caledon North
Caledon, Ontario

DATE: 02/19/2021 | DRAWN: JC
PROJECT #: Tool | CHECKED: ---

REV	DRW	CHK	DESCRIPTION

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HILLIARD, OH 43026
1-800-733-7473

NOT TO SCALE

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

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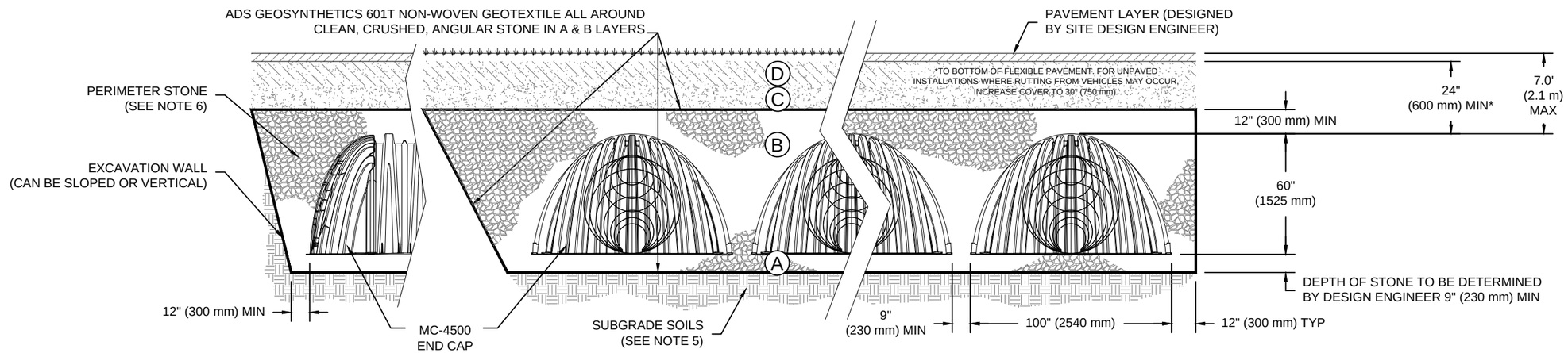
ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE, NOMINAL SIZE DISTRIBUTION BETWEEN 3/4-2 INCH (20-50 mm)	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. [2 3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.



NOTES:

1. MC-4500 CHAMBERS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F2418 "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. "ACCEPTABLE FILL MATERIALS" TABLE ABOVE PROVIDES MATERIAL LOCATIONS, DESCRIPTIONS, GRADATIONS, AND COMPACTION REQUIREMENTS FOR FOUNDATION, EMBEDMENT, AND FILL MATERIALS.
4. THE "SITE DESIGN ENGINEER" REFERS TO THE ENGINEER RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE STORMTECH CHAMBERS FOR THIS PROJECT.
5. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
6. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
7. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

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Caledon, Ontario

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PROJECT #: Tool | CHECKED: ---

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860-529-8188 | 888-892-2694 | WWW.STORMTECH.COM

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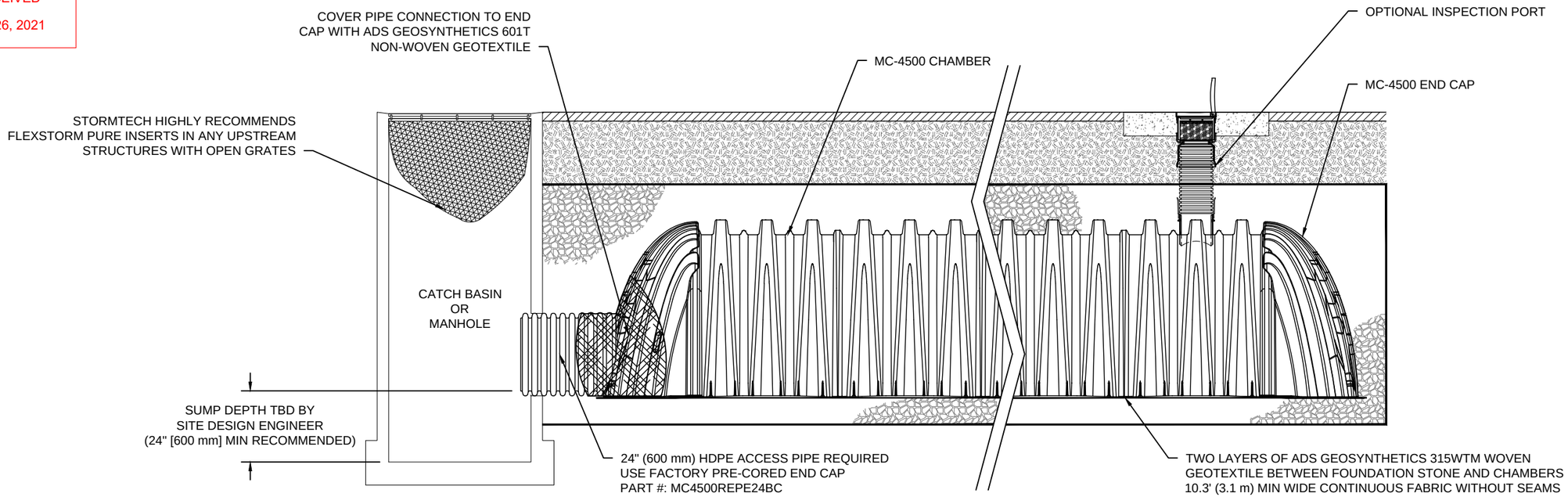


MC-4500 ISOLATOR ROW DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

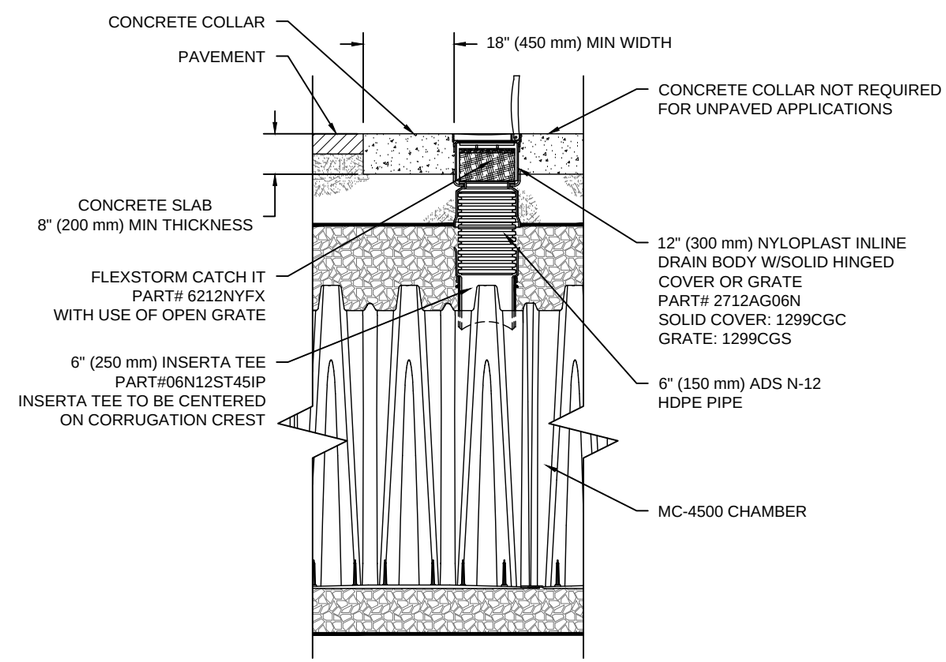
STEP 2) CLEAN OUT ISOLATOR ROW USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



MC-4500 6" INSPECTION PORT DETAIL
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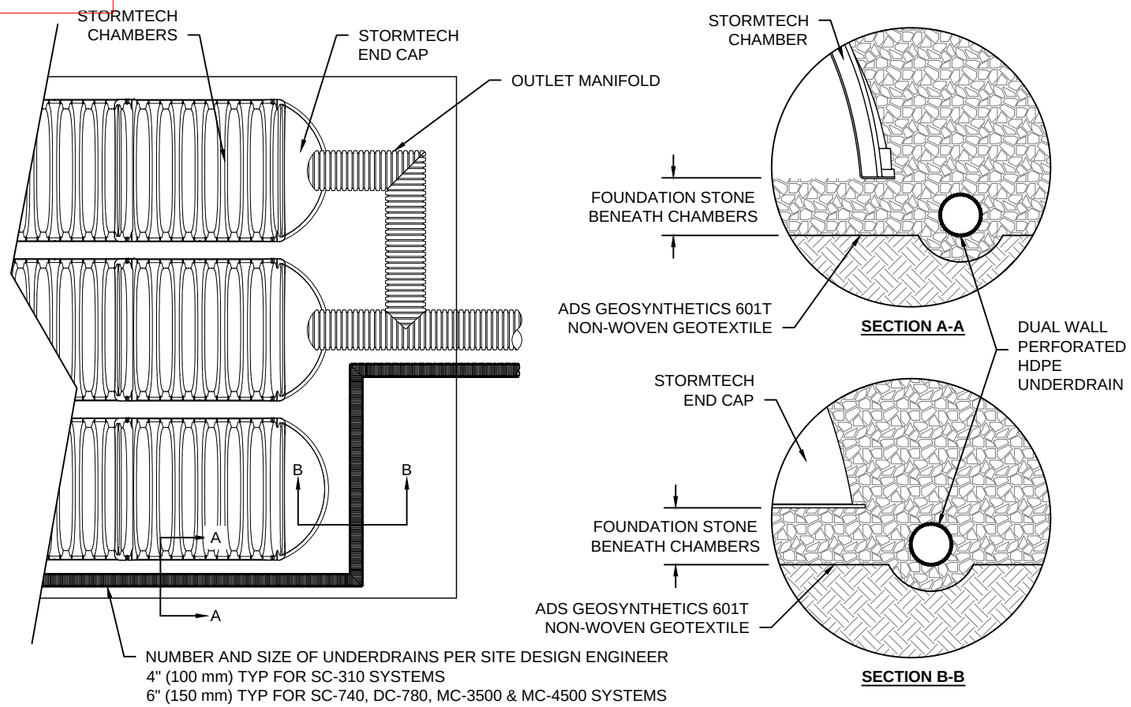

INSERTA TEE DETAIL

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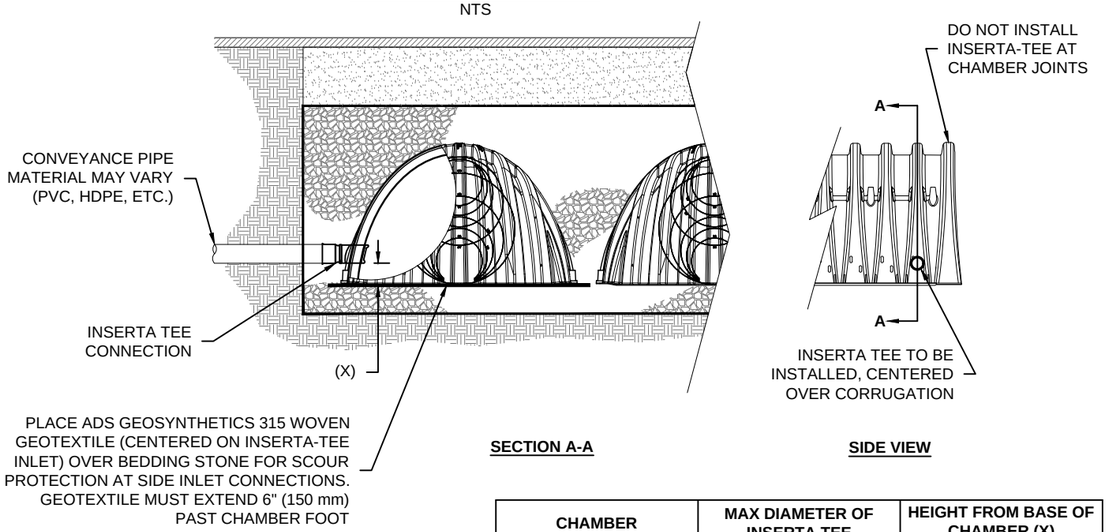

NOTE:
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS.
CONTACT STORMTECH FOR MORE INFORMATION.

CHAMBER	MAX DIAMETER OF INSERTA TEE	HEIGHT FROM BASE OF CHAMBER (X)
SC-310	6" (150 mm)	4" (100 mm)
SC-740	10" (250 mm)	4" (100 mm)
DC-780	10" (250 mm)	4" (100 mm)
MC-3500	12" (300 mm)	6" (150 mm)
MC-4500	12" (300 mm)	8" (200 mm)
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 35, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON		

MC-4500 TECHNICAL SPECIFICATION

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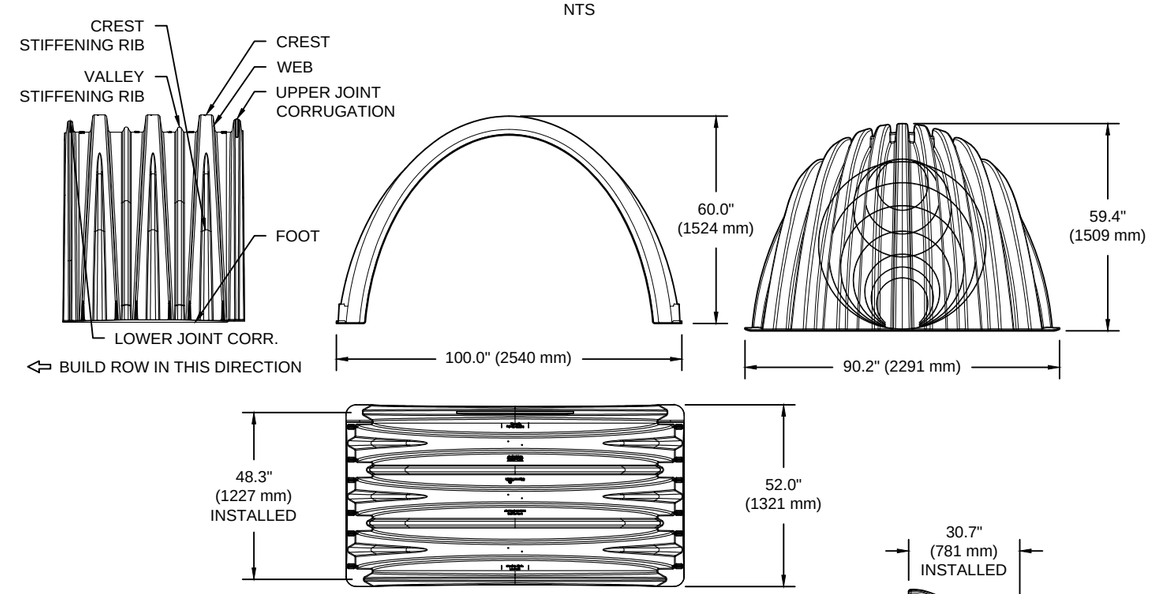


NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT	130.0 lbs.	(59.0 kg)

NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	90.2" X 59.4" X 30.7"	(2291 mm X 1509 mm X 781 mm)
END CAP STORAGE	35.7 CUBIC FEET	(1.01 m³)
MINIMUM INSTALLED STORAGE*	108.7 CUBIC FEET	(3.08 m³)
WEIGHT	135.0 lbs.	(61.2 kg)

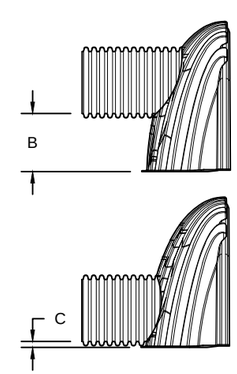
*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"

PART #	STUB	B	C
MC4500REPE06T	6" (150 mm)	42.54" (1.081 m)	---
MC4500REPE06B		---	0.86" (22 mm)
MC4500REPE08T	8" (200 mm)	40.50" (1.029 m)	---
MC4500REPE08B		---	1.01" (26 mm)
MC4500REPE10T	10" (250 mm)	38.37" (975 mm)	---
MC4500REPE10B		---	1.33" (34 mm)
MC4500REPE12T	12" (300 mm)	35.69" (907 mm)	---
MC4500REPE12B		---	1.55" (39 mm)
MC4500REPE15T	15" (375 mm)	32.72" (831 mm)	---
MC4500REPE15B		---	1.70" (43 mm)
MC4500REPE18TC	18" (450 mm)	29.36" (746 mm)	---
MC4500REPE18BC		---	1.97" (50 mm)
MC4500REPE24TC	24" (600 mm)	23.05" (585 mm)	---
MC4500REPE24BC		---	2.26" (57 mm)
MC4500REPE30BC	30" (750 mm)	---	2.95" (75 mm)
MC4500REPE36BC	36" (900 mm)	---	3.25" (83 mm)
MC4500REPE42BC	42" (1050 mm)	---	3.55" (90 mm)

NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PRECORED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS.
CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm)
THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHTEST POSSIBLE FOR THE PIPE SIZE.



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MC-SERIES END CAP INSERTION DETAIL

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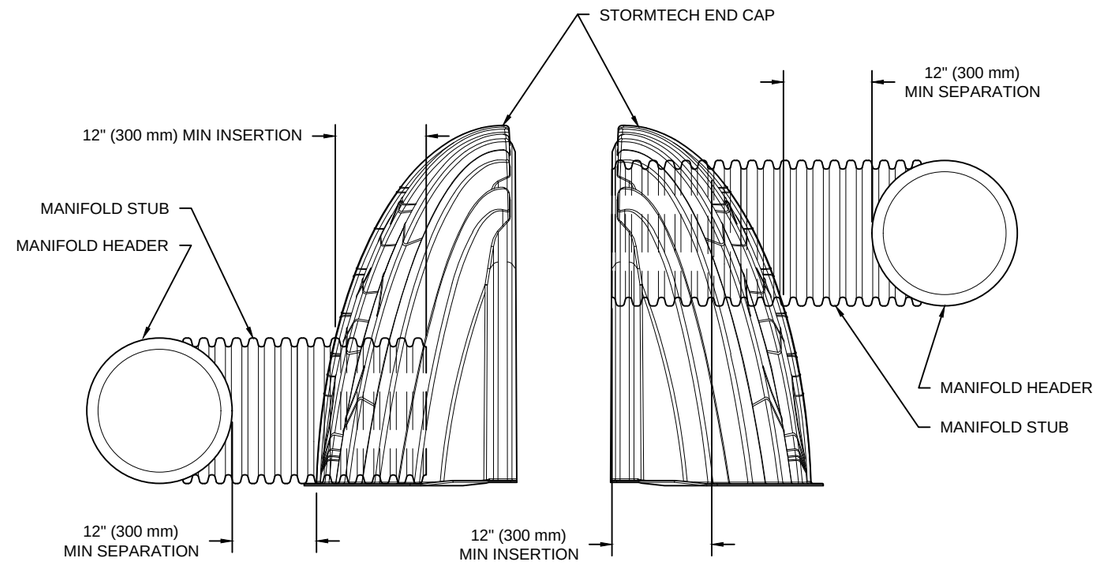

NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

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StormTech® Isolator® Row Plus

The StormTech Isolator Row Plus is an enhancement to our proven water quality treatment system. This updated system is both a NJCAT and ETV verified water quality treatment device that can be incorporated into any system layout.

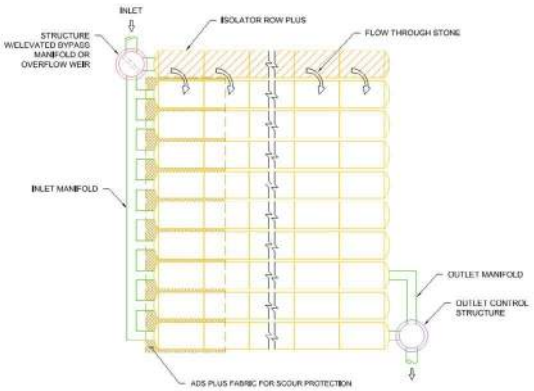
Features

- Isolator Row Plus is now ETV verified. As a Manufactured Treatment Device it achieves over 81% TSS removal per the ISO 14034:2016 ETV standard and the Canadian Environmental Technology Verification Process.
- A patented Flamp™ (Flared End Ramp) provides a smooth transition from pipe invert to fabric bottom. The FLAMP is attached to the inlet pipe inside the chamber end cap and improves chamber function over time by distributing sediment and debris that would otherwise collect at the inlet. It also serves to improve the fluid and solid flow back into the inlet pipe during maintenance and cleaning.
- Proprietary ADS Plus fabric maintains durability and sediment removal while allowing for higher water quality flow rates. A single layer of ADS Plus fabric is placed between the angular base stone and the Isolator Row Plus chambers.

Technology Descriptions

The Isolator Row Plus is designed to capture the "first flush" runoff and offers the versatility to be sized on a volume or a flow basis. Considered an LID (low impact development) technology, the Isolator Row Plus can be part of the treatment train design for water quality. An upstream manhole not only provides access to the Isolator Row Plus but includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row Plus bypass through a manifold to the other chambers. This creates a differential between the Isolator Row Plus row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row Plus. Stormwater is then either infiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

Schematic of the StormTech Isolator Row PLUS System



Summary of Verified Claims[1]

Maximum Treatment Flow Rate (MTFR) (L/s/m²)	2.8
Effective Filtration Treatment Area (m²)	5.06
Test Sediment Size (microns)	1-1000
Mean Particle Concentration (mg/L)	200
TSS Removal Efficiency	81%

[1] Verification of StormTech SC-740 Isolator Row PLUS test results in accordance with the ISO 14034:2016 ETV standard. The full Verification Statement for the StormTech SC-740 Isolator Row PLUS can be downloaded from the VerifiGlobal website

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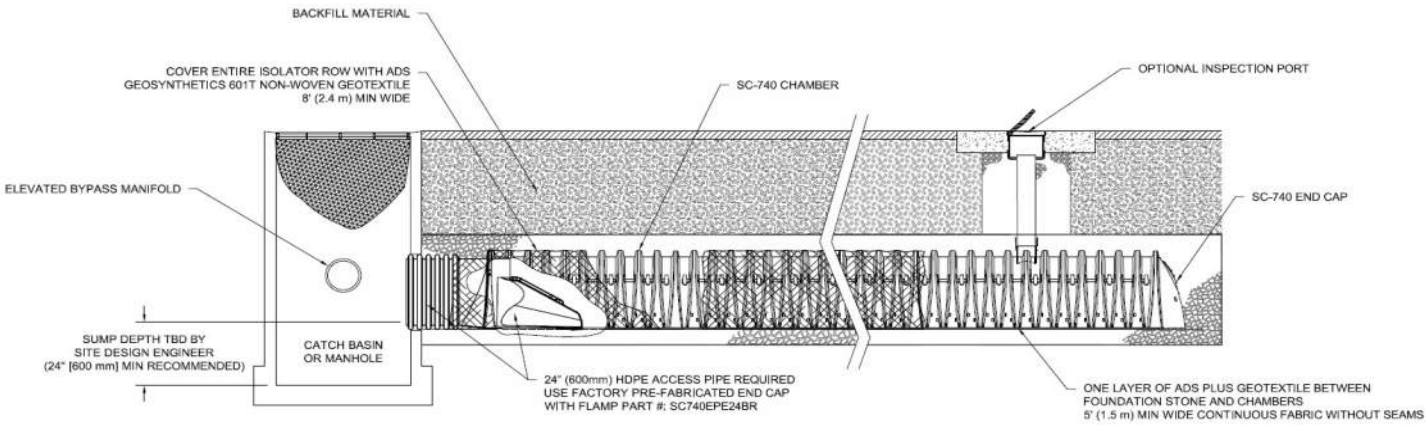
StormTech Isolator Row Plus (not to scale)
Note: Non-woven fabric is only required over the chambers for the SC-310 and SC-740 chamber models.



Maintenance

The Isolator Row Plus was designed to reduce the cost of periodic maintenance. By "isolating" sediment to just one row of the StormTech system, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. Maintenance is accomplished with the JetVac process. The JetVac® process utilizes a high-pressure water nozzle to propel itself down the Isolator Row Plus while scouring and suspending sediment. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency.

	Chamber Storage	Chamber Footprint	Treatment Rate
SC-160LP	0.42 m^3 (15.0 cf)	1.06 m^2 (11.45 sf)	3.11 L/s (0.11 cfs)
SC-310	0.88 m^3 (31.0 cf)	1.64 m^2 (17.7 sf)	4.53 L/s (0.16 cfs)
SC-740	2.12 m^3 (74.9 cf)	2.58 m^2 (27.8 sf)	7.36 L/s (0.26 cfs)
DC-780	2.22 m^3 (78.4 cf)	2.58 m^2 (27.8 sf)	7.36 L/s (0.26 cfs)
MC-3500	4.96 m^3 (175.0 cf)	3.99 m^2 (42.9 sf)	11.32 L/s (0.40 cfs)
MC-4500	4.60 m^3 (162.6 cf)	2.80 m^2 (30.1 sf)	7.93 L/s (0.28 cfs)

Installation

Installation of the stormwater treatment unit(s) shall be preformed per manufacture's installation instructions. Such instructions can be obtained by calling Advanced Drainage systems at 888-367-7473 or by logging on to www.ads-pipe.com or www.stormtech.com.

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Verification Statement

StormTech Isolator® Row PLUS
Registration number: (V-2020-10-01)
Date of issue: (2020-October-27)

Technology type	Stormwater Filtration Device	
Application	Stormwater filtration technology to remove sediments, nutrients, heavy metals, and organic contaminants from stormwater runoff	
Company	StormTech, LLC.	
Address	520 Cromwell Avenue, Rocky Hill, CT 06067 USA	**Phone** +1-888-892-2694
Website	www.stormtech.com	
E-mail	info@stormtech.com	

Verified Performance Claims

The StormTech Isolator® Row PLUS technology was tested at the Mid-Atlantic Storm Water Research Center (MASWRC), under the supervision of Boggs Environmental Consultants, Inc. The performance test results for two overlapping StormTech Isolator® Row PLUS chambers (commercial unit model SC-740) were verified by Good Harbour Laboratories Inc. (GHL), following the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. Based on the laboratory testing conducted, the verified performance claims are as follows:

Total Suspended Solids (TSS) Removal Efficiency - The StormTech Isolator® Row PLUS achieved 82% ± 1% removal efficiency of suspended sediment concentration (SCC) at a 95% confidence level.

Average Loading Rate - Based on the reported flow rate data and the effective sedimentation and filtration treatment area of the test unit, the average loading rate of the test unit was 4.15 ± 0.03 GPM/ft^2 at a 95% confidence level.

Maximum Treatment Flow Rate (MTFR) - Although the MTFR varies among the StormTech Isolator® Row PLUS model sizes and the number of chambers, the design surface loading rate remains the same (4.13 gpm/ ft^2 of treatment surface area). The test unit consisted of two overlapping StormTech SC-740 chambers with a nominal MTFR of 225 GPM (0.501 CFS) and an effective filtration treatment area (EFTA) of approximately 54.5 ft^2.

Detention Time and Volume - The StormTech Isolator Row PLUS detention time and wet volume varies with model size. The unit tested had a wet volume of approximately 65.1 ft^3 and a detention time of 2.2 minutes.

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Maximum Sediment Storage Depth and Volume - The sediment storage volume and depth vary according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the maximum sediment storage volume is 2.3 ft^3 at a sediment depth of 0.5 inches.

Effective Sedimentation/Filtration Treatment Areas - The Effective Sedimentation Area (ESA) and the Effective Filtration Treatment Area (EFTA) increase as the size of the system increases. For the two overlapping StormTech SC-740 chambers tested, the ESA and the ratio of ESA/EFTA were 54.5 ft^2 and 1.0, respectively.

Sediment Mass Load Capacity - The sediment mass load capacity varies according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the mass loading capture was 158.4 lbs ± 0.8 lbs (2.91 ±0.01 lbs/ ft^2) following a total sediment loading of 195.2 lbs.

Technology Application

The StormTech "Isolator® Row PLUS" is a stormwater treatment technology designed for use under parking lots, roadways and heavy earth loads while providing a superior and durable structural system. The technology comprises a row of chambers covered in a non-woven geotextile fabric with a single layer of proprietary woven fabric at the bottom that serves as a filter strip, providing surface area for infiltration and runoff reduction with enhanced suspended solids and pollutant removal. The following features make the Isolator® Row PLUS effective as a water quality solution:

- Enhanced infiltration Surface Area
- Runoff Volume Reduction
- Peak Flow Reduction
- Sediment/Pollutant Removal
- Internal Water Storage (IWS)
- Water Temperature Cooling (Thermal Buffer).

Technology Description

The Isolator® Row PLUS (shown in Figures 1 and 2) is the first row of StormTech chambers that is surrounded with filter fabric and connected to a closely located manhole for easy access. The Isolator® Row PLUS provides for settling and filtration of sediment as stormwater rises in the chamber and ultimately passes through the filter fabric. The open-bottom chambers allow stormwater to flow out of the chambers, while sediment is captured in the Isolator® Row PLUS.

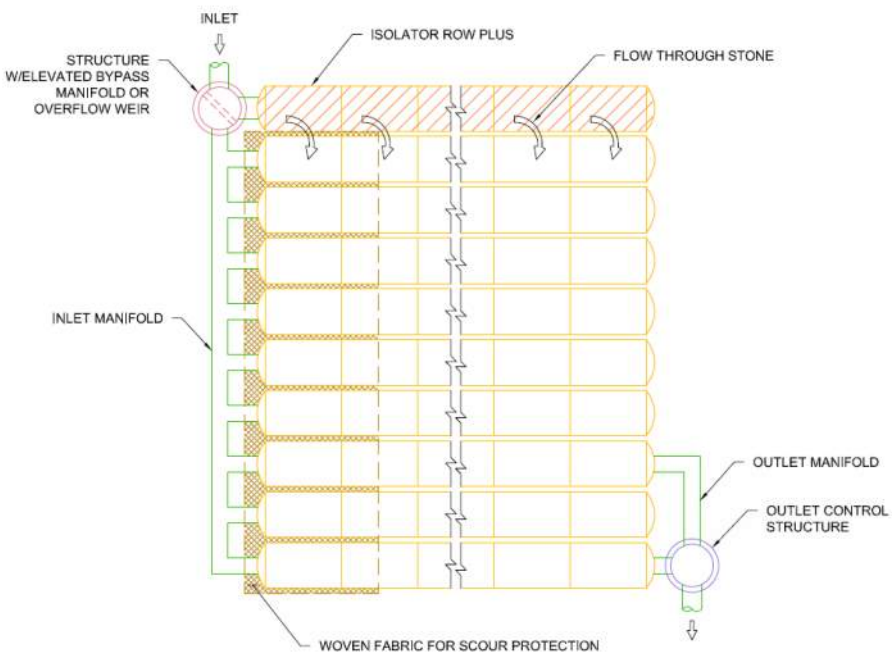

Figure 1: Schematic of the StormTech Isolator® Row PLUS System

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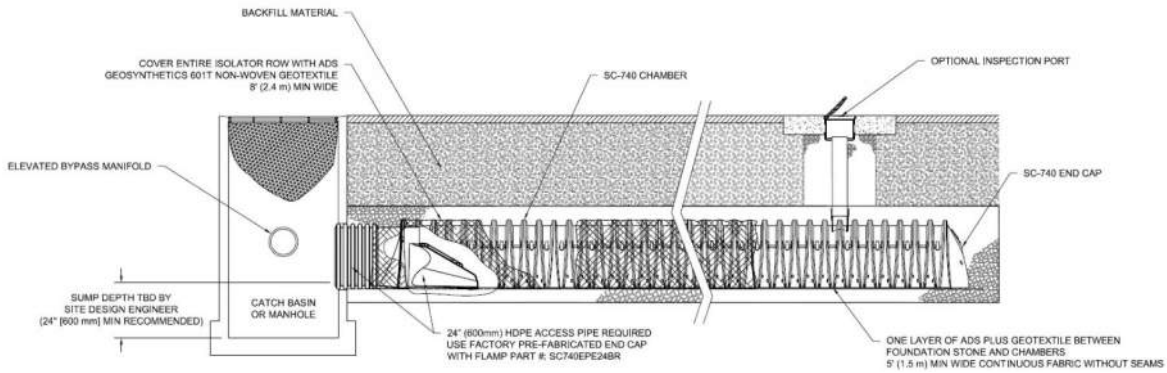

Figure 2: Isolator® Row PLUS Detail

A single layer of proprietary Advanced Drainage Systems (ADS) PLUS fabric is placed between the angular base stone and the Isolator Row PLUS chamber. The geotextile provides the means for stormwater filtration and provides a durable surface for maintenance operations. A 6 oz. non-woven fabric is placed over the chambers.

The Isolator® Row PLUS is designed to capture the “first flush” and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole not only provides access to the Isolator® Row PLUS but includes a high low/concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator® Row PLUS bypass through a manifold to the other chambers. This is achieved with either a high-flow weir or an elevated manifold. This creates a differential between the Isolator® Row PLUS and the manifold, thus allowing for settlement time in the Isolator® Row PLUS. After Stormwater flows through the Isolator® Row PLUS and into the rest of the StormTech chamber system it is either infiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

StormTech developed and owns the Isolator® Row PLUS technology and has filed a number of patent applications relating to the Isolator® Row PLUS system.[1]

Description of Test Procedure for the StormTech Isolator® Row PLUS

In January 2020, two overlapping StormTech SC-740 Isolator® Row PLUS commercial size chambers were installed at the Mid-Atlantic Storm Water Research Center (MASWRC, a subsidiary of BaySaver), in Mount Airy, Maryland, to evaluate the performance of the Isolator® Row PLUS system for Total Suspended Solid (TSS) removal (Figure 3) All testing and data collection procedures were supervised by Boggs Environmental Consultants, Inc. (BEC), who was hired by ADS for third party oversight, and were in accordance with the *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device (January 2013)*.

Prior to the start of testing, a Quality Assurance Project Plan (QAPP), revision dated January 09, 2020, was submitted and approved by the New Jersey Corporation for Advanced Technology (NJCAT), c/o Center for Environmental Systems, Stevens Institute of Technology, Castle Point on Hudson, Hoboken, NJ 07030.

[1] (U.S. Provisional Application No. 62/753,050, filed October 30, 2018; U.S. Non-Provisional Application No. 16/670,628, filed October 31, 2019; International Application No. PCT/US2019/059283, filed October 31, 2019; U.S. Application No. 16/938,482, filed July 24, 2020; U.S. Application No. 16/938,657, filed July 24, 2020; PCT International Application No. PCT/US2020/043543, filed July 24, 2020; PCT International Application No. PCT/US2020/043557, filed July 24, 2020.

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Figure 3: StormTech "Isolator® Row PLUS" Test Set-up at MASWRC

Verification Results

The verification process for the StormTech Isolator® Row PLUS technology was conducted by GHL in accordance with the VerifiGlobal Verification Plan for the StormTech "Isolator® Row PLUS" Technology – 2020-09-09. The technology performance claims verified by GHL are summarized at the front of this Verification Statement and in Table 6 on Page 8 under the heading "Verification Summary".

Particle size distribution analysis was performed by ECS Mid-Atlantic, LLC of Frederick, MD in accordance with ASTM D422-63(2007). ECS is accredited by the American Association of State Highways and Transportation Officials (AASHTO).

ASTM D422-63(2007) is a sieve and hydrometer method where the larger particles, > 75 microns, are measured using a standard sieve stack while the smaller particles are measured based on their settling time using a hydrometer.

The PSD meets the requirements of NJDEP, which is generally accepted as representative of the type of particle sizes an OGS would be designed to treat. Actual PSD is site and rainfall event specific, so it was necessary to choose a standard PSD to make testing and comparison manageable.

Table 1 shows the NJDEP PSD specification. Table 2 and Figure 4 show the incoming material PSD as determined by ECS Mid-Atlantic and confirmed by the verifier.

Table 1: NJDEP PSD Specification

Particle Size (µm)	NJDEP Minimum Specification
1000	98
500	93
250	88
150	73
100	58
75	48
50	43
20	33
8	18
5	8
2	3
d_{50}	< 75 µm

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Table 2 – Particle Size Distribution (PSD) of Test Sediment

Mesh (mm)	US Sieve Size	Sample ID		
		PSD A	PSD B	PSD C
		Percent Finer		
9.525	0.375	100.0	100.0	100.0
4.750	#4	100.0	100.0	100.0
4.000	#5	100.0	100.0	100.0
2.360	#8	100.0	100.0	100.0
2.000	#10	100.0	100.0	100.0
1.180	#16	100.0	100.0	100.0
1.000	#18	100.0	100.0	100.0
0.500	#35	100.0	100.0	100.0
0.425	#40	93.3	93.0	93.6
0.250	#60	90.3	89.8	90.2
0.150	#100	79.3	78.1	78.1
0.125	#120	73.6	71.7	71.7
0.106	#140	68.4	65.2	64.8
0.090	#170	60.2	58.3	57.5
0.075	#200	52.0	50.9	50.3
0.053	#270	48.0	48.3	47.8
0.045	Hydrometer	46.6	46.7	46.7
0.032		42.8	42.9	41.0
0.021		37.1	37.2	35.3
0.0125		25.7	25.7	25.8
0.0090		20.1	20.1	19.2
0.0064		16.3	16.4	14.5
0.0032		8.8	8.7	7.8
0.0014		3.8	3.7	3.8

The suspended sediment concentration analysis was completed by Fredericktowne Labs Inc., Meyersville, MD. Fredericktown Labs is accredited by the Maryland Department of Environment as Maryland Certified Water Quality Laboratory. The analysis procedure was ASTM D3977-97, Suspended Sediment Concentration. The sampling procedure and submission of samples to the test lab were overseen by the independent observer, Boggs Environmental Consultants, Inc.

All test data and calculations were detailed in the report “NJCAT TECHNOLOGY VERIFICATION Isolator® Row PLUS StormTech, LLC”, July 2020, which was submitted to and verified by the New Jersey Corporation for Advanced Technology (NJCAT).

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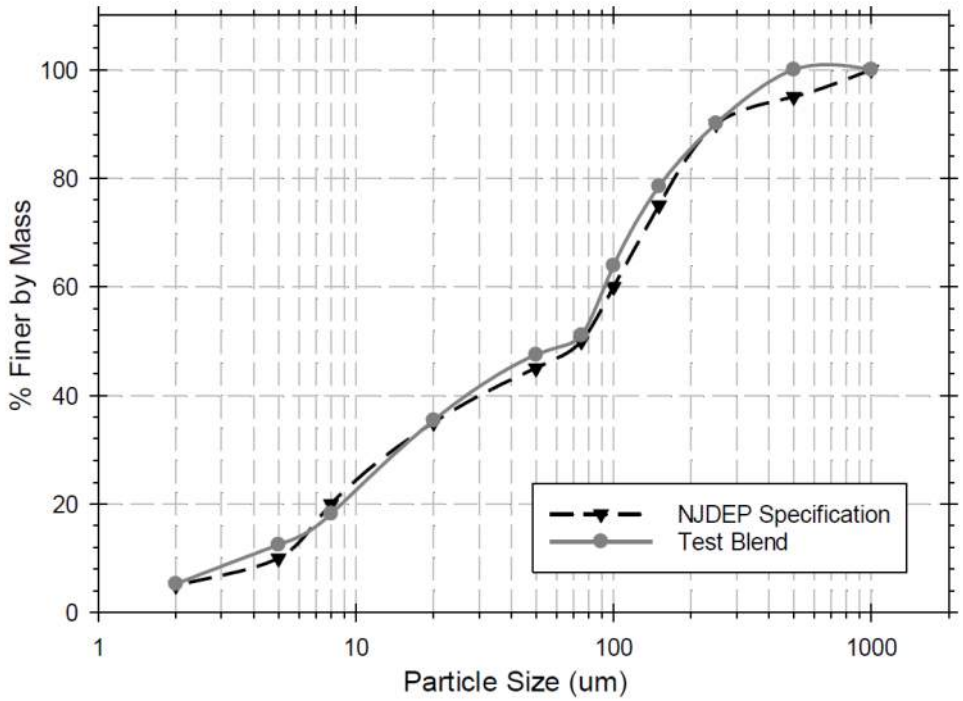

Figure 4– Particle Size Distribution (PSD)

The data in Table 3 (Flow Rate and Temperature) and Table 4 (Removal Efficiency) form the basis for the verified technology performance claim, specifically, flow rate, sediment captured and removal efficiency.

Table 3: Flow Rate and Temperature Summary

Run	Max Flow (gpm)	Min Flow (gpm)	Average Flow (gpm)	Flow COV	Flow Compliance (COV< 0.1)	Maximum Temperature (Fahrenheit)	NJDEP Temperature Compliance (< 80 F)
1	232.8	223.9	226.3	0.0078	Y	48.2	Y
2	228.9	218.6	220.8	0.0104	Y	51.5	Y
3	229.4	220.0	227.2	0.0094	Y	44.7	Y
4	230.2	218.7	223.2	0.0138	Y	40.5	Y
5	228.7	216.9	222.2	0.0103	Y	44.7	Y
6	227.6	217.0	224.2	0.0115	Y	46.7	Y
7	229.7	221.9	226.4	0.0092	Y	44.6	Y
8	230.3	222.2	226.8	0.0089	Y	43.5	Y
9	233.2	218.4	225.6	0.0136	Y	45.5	Y
10	232.2	219.7	228.4	0.0126	Y	44.7	Y
11	226.9	219.2	224.1	0.0088	Y	52.4	Y
12	232.2	222.1	226.9	0.0107	Y	48.5	Y
13	234.7	221.2	226.1	0.0109	Y	48.5	Y
14	231.9	223.4	228.7	0.0103	Y	45.6	Y
15	236.8	224.1	231.4	0.0131	Y	52.2	Y
16	232.5	221.3	229.0	0.0137	Y	47.8	Y

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Table 4: Removal Efficiency Results

Run	Average Influent TSS (mg/L)	Influent Water Volume (gal)	Adjusted Average Effluent TSS (mg/L)	Effluent Water Volume (gal)	Adjusted Average Drain Down TSS (mg/L)	Drain Down Water Volume (gal)	Single Run Removal Efficiency (%)	Mass of Captured Sediment (g)	Cumulative Removal Efficiency (%)
1	203	7166	46	6881	34	285	77.8	4282	77.8
2	199	6993	32	6639	27	354	84.0	4415	80.8
3	207	7197	37	6793	27	403	82.6	4654	81.4
4	217	7068	33	6635	29	433	84.9	4923	82.3
5	215	7037	39	6593	29	444	82.2	4705	82.3
6	207	7097	40	6643	31	454	81.2	4504	82.1
7	198	7169	37	6693	30	476	81.6	4386	82.0
8	201	7184	37	6716	32	468	81.6	4473	82.0
9	205	7147	38	6675	30	472	81.8	4539	82.0
10	203	7235	38	6759	31	476	81.4	4523	81.9
11	208	7096	38	6624	30	472	81.8	4567	81.9
12	209	7185	41	6709	30	476	80.7	4584	81.8
13	198	7162	41	6680	32	482	79.7	4277	81.6
14	200	7242	43	6757	34	485	78.8	4318	81.4
15	196	7329	41	6842	32	487	79.5	4320	81.3
16	202	7254	44	6769	31	485	78.9	4384	81.2
Avg.	**204.2**	**7160**	**39**	**6713**	**31**	**447**	**81.2**	**4491**	**N/A**
Cumulative Mass Removed (g)							**71854**		
Cumulative Mass Removed (lb)							**158.4**		
Total Mass Loaded (lb)							**195.2**		
Cumulative Removal Efficiency (%)							**81.2**		

Quality Assurance

Performance verification of the StormTech Isolator® Row PLUS technology was performed in accordance with the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. This included reviewing all data sheets and calculated values, as well as overall management of the test system, quality control and data integrity.

Additional information on quality control measures taken can be found in section 5 of the QAPP for StormTech Isolator Row New Jersey Department of Environmental Protection Testing, Rev. 1/9/2020.

Specific QA/QC measures reviewed by the verifier are summarized in Table 5 below.

Table 5. Validation of QA/QC Procedures

QC Parameter	Acceptance Criteria
Independence of observer	Confirmed in letter from Boggs Environmental Consultants, Inc. to NJCAT
Consistency of procedure	Daily logs confirm proper procedure
Existence of QAPP	Confirmed. "QAPP For StormTech Isolator Row New Jersey Department of Environmental Protection Testing", Rev. 1/9/2020)
Use of appropriate sample analysis method – ASTM D3799	Confirmed by method reference on lab reports from Fredericktowne Labs Inc.
Test method appropriate for the technology	Used industry stakeholder approved protocol: *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids*

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	Removal by a Filtration Manufactured Treatment Device (January 2013)
Test parameters stayed within required limits	Confirmed in report "NJCAT TECHNOLOGY VERIFICATION Isolator® Row PLUS StormTech, LLC", July 2020
Third party verified data	All testing was observed and reviewed by Boggs Environmental Consultants, Inc.

Variance

Performance claims regarding structural load limitations were not verified as they are outside the scope of the performance testing that was conducted in accordance with the 'Quality Assurance Project Plan (QAPP) for StormTech Isolator Row, New Jersey Department of Environmental Protection Testing', revision dated January 09, 2020.

Verification Summary

The StormTech "Isolator® Row PLUS" is a stormwater treatment technology designed for use under parking lots, roadways and heavy earth loads while providing a superior and durable structural system. The technology comprises a row of chambers wrapped in woven geotextile fabric with two layers at the bottom that serve as a filter strip, providing surface area for infiltration and runoff reduction with enhanced suspended solids and pollutant removal.

The StormTech Isolator® Row PLUS technology was tested at the Mid-Atlantic Storm Water Research Center (MASWRC), under the supervision of Boggs Environmental Consultants, Inc. The performance test results for two overlapping StormTech Isolator® Row PLUS chambers (commercial unit model SC-740) were verified by Good Harbour Laboratories Inc. (GHL), following the requirements of ISO 14034:2016 and the VerifiGlobal Performance Verification Protocol. Table 6 summarizes the verification results in relation to the technology performance parameters that were identified in the Verification Plan to determine the efficacy of the StormTech Isolator® Row PLUS technology.

Table 6 - Summary of Verification Results Against Performance Parameters

Parameters	Verified Claims	Accuracy
Total Suspended Solids (TSS) Removal Efficiency	Based on the laboratory testing conducted, the StormTech Isolator® Row PLUS achieved an average 82% removal efficiency of SSC	± 1% (95% confidence level)
Average Loading Rate	Based on the laboratory testing parameters, the StormTech Isolator® Row PLUS maintained a loading rate of 4.15 GPM/sf	±0.03 GPM/sf (95% confidence level)
Maximum Treatment Flow Rate (MTFR)	Although the MTFR varies among the StormTech Isolator® Row PLUS model sizes and the number of chambers, the design surface loading rate remains the same (4.13 GPM/ft^2 of treatment surface area). The test unit consisted of two overlapping StormTech SC-740 chambers with a nominal MTFR of 225 GPM (0.501 CFS) and an effective filtration treatment area (EFTA) of approximately 54.5 ft^2.	± 1.4 GPM (95% confidence level)
Detention Time and Volume	Detention time and wet volume varies with model size. The unit tested had a wet volume of approximately 65.1 ft^3 (based on	N/A

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	physical measurement) and a detention time of 2.2 minutes.	
Maximum Sediment Storage Depth and Volume	The sediment storage volume and depth vary according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the maximum sediment storage volume is 2.3 ft^3 at a sediment depth of 0.5 inches.	N/A
Effective Sedimentation/ Filtration Treatment Area	The effective sedimentation and filtration treatment area increases as the size of the chamber increases. Under the tested conditions using 2 overlapping chambers, the treatment area was 54.5 ft^2	The sedimentation /filtration area was determined from the actual physical dimensions of the test unit*
Sediment Mass Load Capacity	The sediment mass load capacity varies according to the StormTech Isolator® Row PLUS model sizes and system configuration. For the two overlapping StormTech SC-740 chambers tested, the mass loading capture was 158.4 lbs (2.91 lbs/ ft^2) following a total sediment loading of 195.2 lbs	± 0.8 lbs (±0.01 lbs/ft^2) (95% confidence level)

*Note: These numbers are determined based on physical measurement or a dimensional drawing, which is standard practice. Highly accurate measurements are not practical.

In conclusion, the StormTech Isolator® Row PLUS is a viable technology that can be used to remove contaminants from stormwater runoff via filtration. This technology has proven effective at removing suspended sediment from stormwater through in-lab testing using an industry recognized laboratory protocol.

By extension of sediment removal, this technology should also remove particle bound nutrients, heavy metals, and a wide variety of organic contaminants. Performance is a function of pollutant properties, hydraulic retention time, filter media, pre-treatment, and flow rate, such that proper design of the system is critical to achieving the desired results.

What is ISO 14034?

The purpose of environmental technology verification is to provide a credible and impartial account of the performance of environmental technologies. Environmental technology verification is based on a number of principles to ensure that verifications are performed and reported accurately, clearly, unambiguously and objectively. The International Organization for Standardization (ISO) standard for environmental technology verification (ETV) is ISO 14034, which was published in November 2016.

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Benefits of ETV

ETV contributes to protection and conservation of the environment by promoting and facilitating market uptake of innovative environmental technologies, especially those that perform better than relevant alternatives. ETV is particularly applicable to those environmental technologies whose innovative features or performance cannot be fully assessed using existing standards. Through the provision of objective evidence, ETV provides an independent and impartial confirmation of the performance of an environmental technology based on reliable test data. ETV aims to strengthen the credibility of new, innovative technologies by supporting informed decision-making among interested parties.

For more information on the StormTech "Isolator® Row PLUS" technology, contact:	For more information on VerifiGlobal, contact:
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Signed for StormTech: *Original signed by:* *Greg Spires* Greg Spires, P.E. General Manager	Signed for VerifiGlobal: *Original signed by:* *Thomas Bruun* Thomas Bruun, Managing Director *Original signed by:* *John Neate* John Neate, Managing Director

NOTICE: Verifications are based on an evaluation of technology performance under specific, predetermined operational conditions and parameters and the appropriate quality assurance procedures. VerifiGlobal and the Verification Expert, Good Harbour Laboratories, make no expressed or implied warranties as to the performance of the technology and do not certify that a technology will always operate as verified. The end user is solely responsible for complying with any and all applicable regulatory requirements. Mention of commercial product names does not imply endorsement.

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