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CONSULTING ENGINEERS & PLANNERS

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# FUNCTIONAL SERVICING
# &
# STORMWATER MANAGEMENT REPORT

# FOR

# PLAZA 6 INC.

# 21 UNIT TOWNHOUSE DEVELOPMENT

# 666-682 LIVERPOOL ROAD

# CITY OF PICKERING

**PROJECT NO. 124123**

**DATE: May 2025**

D.G. BIDDLE & ASSOCIATES
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Date: May 6th, 2025

Plaza 6 Inc.
23 Automatic Road, Brampton, ON L6S 4K6
Brian Moss & Associates Ltd.
bmoss@sympatio.ca

Attention: Mr. Brian Moss

**Re: Functional Servicing and Stormwater Management Report**
**21 Unit Townhouse Infill Project**
**666-682 Liverpool Road, Pickering ON**
**Our File: 124123**

Dear Mr. Brian Moss:

In support of the application for the Official Plan Amendment, and Zoning-Bylaw Amendment application on the above referenced property, we respectfully submit the following Functional Servicing and Stormwater Management Report.

This report is intended to be reviewed by the City of Pickering and Regional Municipality of Durham to confirm that the necessary infrastructure is available to service the subject lands. It will also discuss how stormwater runoff for the development will be managed prior to its discharge to the municipal right of way.

Please contact our office at your convenience, should you have any questions or require additional information on the enclosed report.

Yours Truly,
D.G. Biddle & Associates Limited

Benjamin Yan, B. Eng
Junior Designer
Civil Group

Colin Flamminio, P. Eng.
Intermediate Engineer
Civil Group

LICENSED PROFESSIONAL ENGINEER
C. J. FLAMMINIO
100544401
MAY 6/2025
PROVINCE OF ONTARIO

CJF/BKY/bky
X:\Staff\Job Files\124000\124123 Liverpool Site Plan\124123 Reports

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2. SCHEDULE 2:
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   - -Stage-Storage Calculations
   - -Infiltration Gallery Sizing
   - -Treatment Train
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   - -Isolator Row Plus Product Sheet
   - -Isolator Row Plus ETV
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   - -Catch Basin Sheild ETV
3. SCHEDULE 3: -Visual Otthymo 6.2 Output

# 1.0 INTRODUCTION

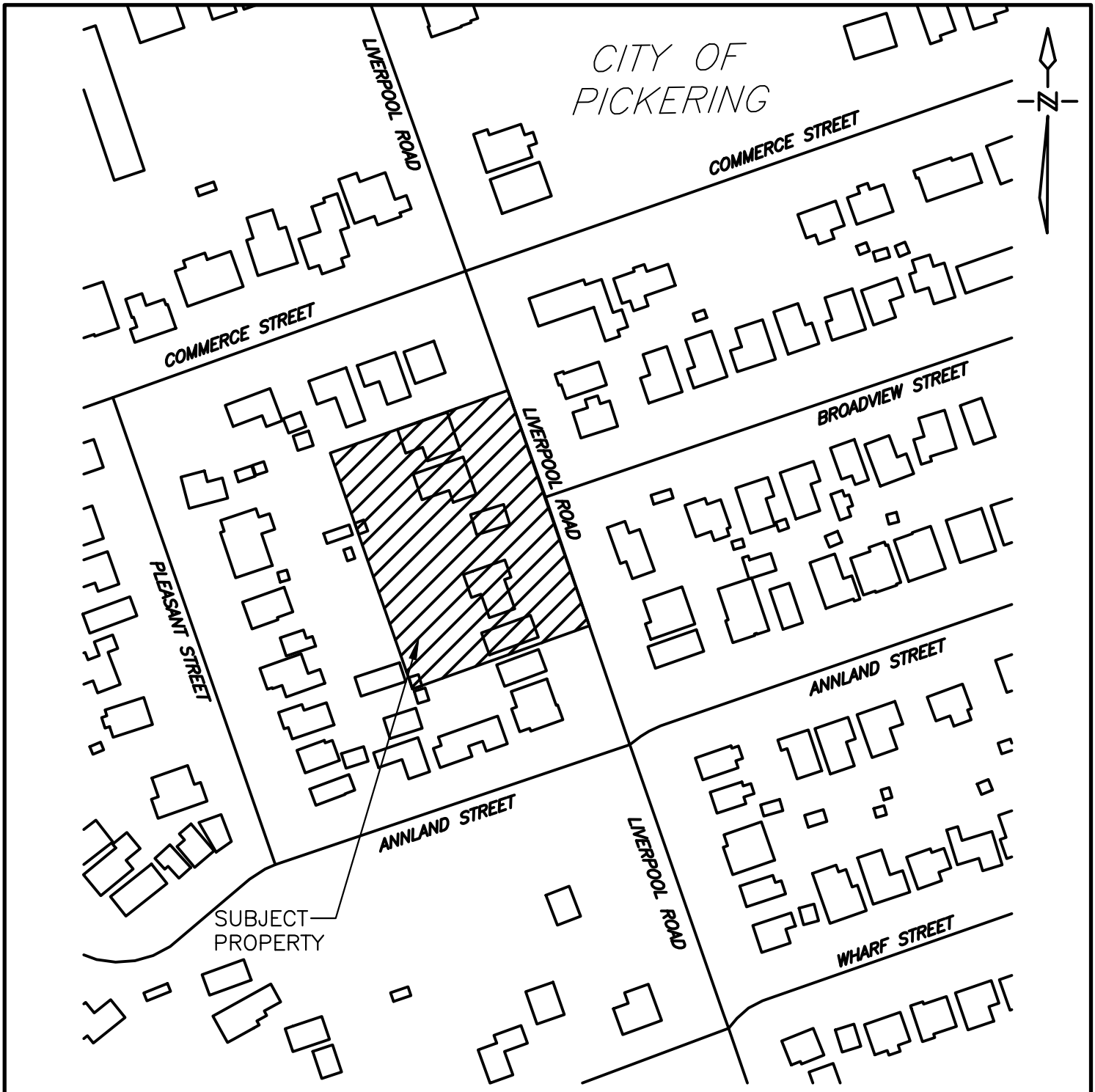
D.G. Biddle & Associates Limited has been retained to prepare the following Functional Servicing and Stormwater Management Report in support of the proposed development of 666, 668, 672, 678, and 682 Liverpool Road in the City of Pickering, Regional Municipality of Durham.

**1.1 Purpose:** In support of the Official Plan Amendment, and Zoning-Bylaw applications, this Functional Servicing and Stormwater Management Report has been prepared for the proposed 21-unit townhouse development. The report was prepared to review the infrastructure requirements to ensure that adequate infrastructure exists to service the proposed development as well as to ensure the development has no adverse impact on the receiving drainage systems. This report will address sanitary sewer servicing, domestic and fire servicing, and storm water drainage works required to facilitate the proposed development including permanent stormwater quantity and quality controls.

**1.2 Site Location and Description:** The study area includes an assembly of properties municipally addressed 666, 668, 672, 678, and 682 Liverpool Road in the City of Pickering, the Regional Municipality of Durham. The site is bounded on the north, west, and south by existing residential lots, and on the east by Liverpool Road. A Site Location Plan, **Figure 1**, illustrates the site in relation to the surrounding areas. The development will have a total site area of 0.396ha.

In its existing condition the site consists of 5 separate residential properties with existing dwellings which are intended to be demolished. The properties generally slope from the north-west towards the south-east. Stormwater is intercepted by two municipal storm sewer systems on Liverpool Road, one which outlets to Broadview Street and the other which outlets to Annland Street. Additionally, a small portion of drainage outlets to the south-west of the site and drains to the existing residential properties. The pre-development drainage conditions can be found in drawing **SD-1.** Further details regarding the pre-development drainage areas will be discussed in **Section 4.0.**

The proposed development will consist of 21 townhouse units and an associated asphalt drive aisle with access to Liverpool Road.




666–682 LIVER POOL ROAD, PICKERING ON FOR: BRIAN MOSS & ASSOCIATES LTD.

# SITE LOCATION PLAN

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

96 King Street East
Oshawa, Ontario, L1H 1B6
Phone: 905-576-8500
info@dgbiddle.com
dgbiddle.com

PROJECT NO. 124123

DRAWING NO. FIGURE 1

| SCALE: | N.T.S. | DRAWN BY: | B.K.Y. |
|---|---|---|---|
| DATE: | MAY 2025 | CHECKED BY: | C.J.F. |

## 2.0 SANITARY SEWERAGE

**2.1 Existing Sanitary Sewer Servicing:** There is an existing 250mm sanitary sewer of unknown material within Liverpool Road which flows from north to south.

At the time of reporting, the location and alignment of the existing sanitary sewer laterals to the existing dwellings at 666-682 Liverpool Road are not noted on the provided record drawings.

**2.2 Proposed Sanitary Sewer Scheme**: Sanitary effluent from the development will be conveyed to the existing 250mm Regional sanitary sewers by connection to the existing sanitary maintenance hole in Liverpool Road. The proposed sanitary sewer has been sized in accordance with the Region of Durham design criteria with consideration to minimum/maximum grades and velocities. The minimum internal sewer diameter will be 200mm. An inspection manhole will be provided 1.50m inside the property line.

Individual 100mm PVC sanitary service laterals will be provided to each unit from the internal sanitary sewer system.

All existing sanitary service connections from the main sanitary sewer and the existing dwellings are to be disconnected at the main and capped with water-tight plugs. As noted above, the location of the existing sanitary laterals is unknown. The service laterals should be located by the contractor at the time of construction to ensure they are plugged and abandoned as necessary.

All sanitary servicing is to be installed as per Region of Durham Standards and the Ontario Building Code. A Sanitary Sewer Design sheet has been appended to this report under **Schedule 1**. Refer to the Site Servicing Plan, **SS-1**, for the proposed sanitary sewer system layout.

## 3.0 WATER DISTRIBUTION SYSTEM

**3.1 Existing Water System Location:** There is an existing 200mm C.I. (Cast Iron) watermain located within Liverpool Road.

At the time of this report, considering the information available via record drawings, five existing water service connections have been identified from the existing water main within Liverpool Road, connecting to the existing dwellings within the property limits.

**3.2 Proposed Watermain System:** It is proposed to connect into the existing 200mm cast iron watermain in Liverpool Road with a 100mm/150mm tapping sleeve and valve connections. A 100mm domestic water service line and a 150mm fire line are proposed to enter the proposed combined water meter and backflow prevention building located south off Block B. The proposed water service connections are illustrated on the Site Servicing Plan, **SS-1**, attached at the end of this report.

All existing water service connections are to be disconnected at the main and capped with brass plugs as instructed by the Region of Durham.

A private hydrant has been proposed on the property to facilitate fire protection for the townhouse blocks.

## 4.0 STORMWATER DRAINAGE

**4.1** **Existing System:** Under existing conditions, the subject properties are not serviced with a connection to a municipal storm sewer and generally convey drainage from north-west to south-east via overland flow towards existing sewer systems along Liverpool Road. The existing systems in Liverpool Road feature catch basins intercepting drainage to the storm sewers on Broadview Street and Annland Street, which convey drainage to the east and ultimately outlet to Lake Ontario. Both sewers are 300mm concrete pipe.

As indicated in **Section 1.2**, under pre-development conditions, runoff from the site is tributary to three separate outlets, described as follows:

The north-east section (0.047ha) of the property drains towards Liverpool Road where it is intercepted by an existing catch basin fronting 672 Liverpool Rd and conveyed to the Broadview Street sewer system. An additional off-site area (0.021ha) will flow to the Broadview sewers through the site from the existing properties located to the north.

A large portion of the site (0.291ha) drains towards Liverpool Road where it is intercepted by the Annland Street sewer system downstream of the development. A portion of this area drains to a front yard catch basin on Liverpool Road at the projection of the lot-line fronting house numbers 666 and 668 Liverpool Road. An additional off-site area (0.046ha) will flow to the Annland Street sewer system through the site from the existing properties located to the north.

A small area of the south-west portion of the site (0.058ha) will outlet to an existing low point to the south-west of the property and flow overland to Annland Street after passing through the neighbouring properties.

The tributary areas for the pre-development conditions can be found illustrated on the Pre-Development Storm Drainage Plan, **SD-1,** appended to this report.

**4.2** **Proposed System:** Stormwater runoff will be managed using a conventional storm drainage system consisting of positive drainage surfaces intercepted by a minor storm sewer system (catch basins). The minor storm system will be connected to the existing front-yard catch basin located in front of House #'s 666 and 668 and ultimately conveyed downstream to the Annland Street sewers.

The proposed stormwater system will convey drainage from the drive aisle, landscaped areas, and rooftops to an underground stormwater arch storage system located beneath the drive aisle near the entrance in the east section of the property. Stormwater flows will be attenuated using a plate-orifice system upstream of the proposed outlet.

Drainage from the subject site will be conveyed overland to the Broadview Street sewers and by direct connection to the Annland Street storm sewer systems within Liverpool Road. As per pre-development conditions, a small portion of drainage will remain uncontrolled in the south-west corner of the property. Off-site drainage tributary to both the Broadview and Annland Street sewers will be managed by the proposed stormwater conveyance systems. Consideration has been given to uncontrolled and off-site drainage in the stormwater quantity control modelling detailed under **Section 4.3**.

A major overland flow route has been provided through the drive aisle to direct drainage to Liverpool Road without encroaching into adjacent private property.

Details on the proposed catch basin locations, internal stormwater conveyance system, and stormwater attenuation has been illustrated on the Site Servicing Plan, drawing **SS-1**, appended to this report.

The internal storm sewers have been designed to capture and convey the 5-year return frequency event as per City of Pickering standards. Sewers downstream of the front yard catch basin outlet have been reviewed under post-development conditions to ensure they have capacity to convey drainage. Refer to the Post- Development Storm Sewer Design Sheet provided in **Schedule 1**.

**4.3** **Stormwater Quantity:** In accordance with the direction provided by the City of Pickering, post-development peak flows for the 2-year to the 100-year return frequency storm events will be limited to the 5-year pre-development flow rate (Yarnell's 5-year storm). An underground arch storage system combined with surface storage and a plate orifice will be used upstream of the outlet to attenuate post-development flows for all storm events up to and including the 100-year storm event to match pre-development conditions.

The City of Pickering has provided site specific parameters pertaining to the site to determine the 5-year pre-development flows from the property. The pre-development flows were calculated using a maximum runoff coefficient, C, of 0.45 and the "old" IDF curve (Yarnell's 5-year storm) provided by the City of Pickering and appended under **Schedule 1**. The MTO Drainage Management Manual suggests that for watersheds with a runoff coefficient, C, greater than 0.40, the Bransby Williams formula is accepted. As the calculated runoff coefficients for pre-development conditions were determined to be greater than 0.40, the time of concentration was calculated using the Bransby Williams method. Since the site has three outlets, three separate allowable release rates were calculated using the pre-development site parameters.

The 5-year pre-development flow was calculated using the rational method, please refer to the Site Parameters Spreadsheet and the Pre-Development Storm Design Sheet attached to **Schedule 1** for further details regarding the allowable post-development release rates for the Broadview Street, Annland Street, and Sout-West outlets. **Table 1**, below, describes the pre-development flow rates for the respective outlets.

**Table 1: Pre-Development Allowable Release Rates**

| Outlet | Pre-Development Allowable Release Rate (l/s) |
|---|---|
| Broadview Street | 9.98 |
| Annland Street | 49.58 |
| South-West | 5.22 |

In order to ensure the proposed development has no adverse impact on the receiving storm sewer network, and ultimately the downstream watercourse, post-development peak flows for the 2-100 year rainfall events must be attenuated at or below the allowable levels as described in **Table 1**.

Under post-development drainage conditions, most of the drainage tributary to the Annland Street outlet will be captured by the on-site drainage system and attenuated prior to discharge downstream. A small portion of the drainage tributary to the Annland Street sewers will flow unattenuated to the proposed outlet. The remaining site areas tributary to Broadview Street and the South-West will drain uncontrolled, overland, to their respective outlets. Uncontrolled drainage and off-site drainage areas have been accounted for in the site flow modelling.

The post-development drainage conditions have been clearly quantified and defined in the Post-Development Storm Drainage Plan, **SD-2**, as well as in the Site Parameters Chart found in **Schedule 1**.

As previously mentioned, the internal storm sewer network will ultimately drain to an underground arch storage system located under the drive aisle near the entrance of the site, located near the east side of the property. The arch storage system is proposed to include 18 interconnected StormTech SC-800 units with capacity to retain a total water volume of 37.87$m^3$. The underground storage is modelled in conjunction with underground pipe and structure storage, as well as surface ponding equalling a total of 105.77$m^3$ site storage for stormwater retention. Orifice controls shall include a 115mm orifice with a centreline elevation of 80.37 for flow attenuation.

The STANDHYD Sub-Routine in the computer model VISUAL OTTHYMO 6.2 was used to simulate the composite surfaces of the site with their respective site imperviousness and calculate post-development peak flows from the property. Peak flows were computed using both a 1-hour and 12-hour Atmospheric Environment Science (AES) design storms for the 2-year to 100-year rainfall events. Under post-development conditions, the ROUTE RESERVOIR Sub-Routine was used to simulate the performance of the stormwater retention system and 115mm plate orifice attenuation device. The underground storage volume calculations and stage-storage-discharge relationship are attached in **Schedule 2**.

Tabulated below is a comparison of the attenuated post-development peak flows to the maximum permitted flow. Maximum flow-rates were determined to be derived from the 1-hour, 100-year AES storm event and therefore produced the highest peak flows during simulations. Peak flow-rates for the site produced by the 1HR AES Storm are tabulated below.

**TABLE 2: PEAK FLOWS FROM 1-HR, 100-YR AES STORM EVENT**

| OUTLET | PRE-DEVELOPMENT PEAK FLOWS (L/s) | POST DEVELOPMENT PEAK FLOWS (L/s) | STORAGE REQUIRED ($m^3$) | STORAGE PROVIDED ($m^3$) |
|---|---|---|---|---|
| **BROADVIEW** | 9.98 | 9.00 | - | - |
| **ANNLAND** | 49.58 | 47.00 | 103.00 | 105.77 |
| **SOUTH-WEST** | 5.22 | 1.00 | - | - |

As the preceding table illustrates, post-development peak flows will be attenuated at or below the allowable levels for the 2 through 100-year return frequency events. Additionally, the required storage volume of 103 $m^3$ is less than the available storage volume of 105.77 $m^3$, therefore the proposed quantity controls will be adequate and no adverse impacts to the receiving drainage network are anticipated.

For the layout and details on the abovementioned system, refer to the Site Servicing Plan, Site Grading Plan, Pre-Development Drainage Scheme and Post-Development Drainage Scheme, drawings **124123 SS-1/SS-2, SG-1, SD-1, and SD-2**, respectively, appended to this report. The storage volume calculations, stage-storage-discharge relationship, and detailed Visual OTTHYMO output data are also found appended to this report.

**4.4 Stormwater Quality:** The City of Pickering and Central Lake Ontario Conservation Authority Stormwater Management Guidelines, stormwater discharge from the site will be required to be treated for an “Enhanced” level of quality control (minimum 80% TSS removal), in line with Ministry of Environment, Conservation, and Parks (MECP) guidelines.

Stormwater Quality Controls will be provided through the use of a StormTech Isolator Row Plus system proposed within the StormTech SC-800 system as well as the use of Catch Basin Shields on CBMH-9 and CBMH-3.

Modelling of the StormTech Isolator Row Plus systems and the Catch Basin Sheilds through Environmental Technology Verification (ETV) Canada have exhibited average TSS removal rates of approximately 81% and 50% respectively, providing necessary

capture required for 'Enhanced' water quality treatment per MECP guidelines. Supporting documentation has been appended to this report under **Schedule 2**.

For further details on the layout of the Isolator Row Plus and Catch Basin Shield, refer to the Site Servicing Plan, drawings **124123-SS-1**, appended.

**4.5** **Stream Erosion/Volume Control:** In accordance with City of Pickering Guidelines, the volume control target for the development site is to capture and infiltrate 5mm of runoff across the site impervious areas. As such, the site proposal is to capture runoff within an infiltration reservoir below the proposed Stormtech system.

Typically, infiltration reservoirs are required to maintain 1.0m vertical separation above the seasonally high groundwater table as per the Low Impact Development Stormwater Management Planning and Design Guide by the Toronto and Region Conservation Authority (TRCA) and Credit Valley Conservation (CVC).

In consultation with the City of Pickering, it has been agreed that, upon a detailed review of the geotechnical/hydrogeological report, the City is willing to lower the clearance required between the seasonally high groundwater table and bottom of the proposed infiltration gallery to 0.50m. In accordance with the Geotechnical Site Investigation (Gemtech, March 2025), the measured high groundwater table for the site is approximately 2.20m below existing grade. The existing elevation in the vicinity of the feature is approximately 81.65, resulting in a groundwater table elevation of approximately 79.45. The underside of the infiltration feature is proposed at an elevation of 79.97, providing 0.52m above the existing groundwater elevation.

In addition, the building construction proposed on the subject property is slab-on-grade construction which will not require foundation drains. The south side of the infiltration gallery (adjacent to Block A) will be lined with an impermeable linear due to the proximity to the building foundation.

The proposed infiltration system can capture and infiltrate up to 14.16$m^3$ of stormwater runoff, which is greater than the 14.13$m^3$ required by 5mm storm event across the total site impervious area. All stormwater runoff that is infiltrated will either be from rooftops, which is considered clean, or from site runoff which is pre-treated by the catch basin shields and Isolator Row Plus treatment train. Infiltration volume and reservoir design calculations have been appended under **Schedule 2**

## 5.0 CONCLUSIONS

The preceding report identifies the Functional Servicing and Stormwater management requirements for the development proposal. The investigations into these requirements have resulted in the following conclusions for the development proposal:

- A 200mm sanitary sewer will be extended from the existing 250mm sanitary sewer under Liverpool Road;
- A 150mm fire line and a 100mm domestic water service will be extended from the existing 200mm C.I. watermain under Liverpool Road to provide fire and domestic water servicing;
- A 300mm storm service will be extended from the existing front yard catch basin tributary to Annland Street sewer system;
- The quantity control proposal for the development is to attenuate all post-development peak flows to the 5-year pre-development levels. Quantity control will be in the form of the underground arch storage system, surface ponding, and orifice inlet controls;
- Enhanced stormwater quality is to be provided in the form of the Stormtech Isolator Row Plus and Catch Basin Shields;
- Foundation drainage connections are not required as the proposed buildings are slab-on-grade construction;
- The site will provide 5mm of runoff capture in the proposed infiltration LID features;

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# SCHEDULE 1

## SANITARY SEWER DESIGN SHEET

## CITY OF PICKERING 'OLD' IDF CRITERIA (YARNELL'S 5 YEAR STORM)

## PRE-DEVELOPMENT STORM SEWER DESIGN SHEET

## POST-DEVELOPMENT STORM SEWER DESIGN SHEET

## SITE PARAMETERS

# SANITARY SEWER DESIGN SHEET



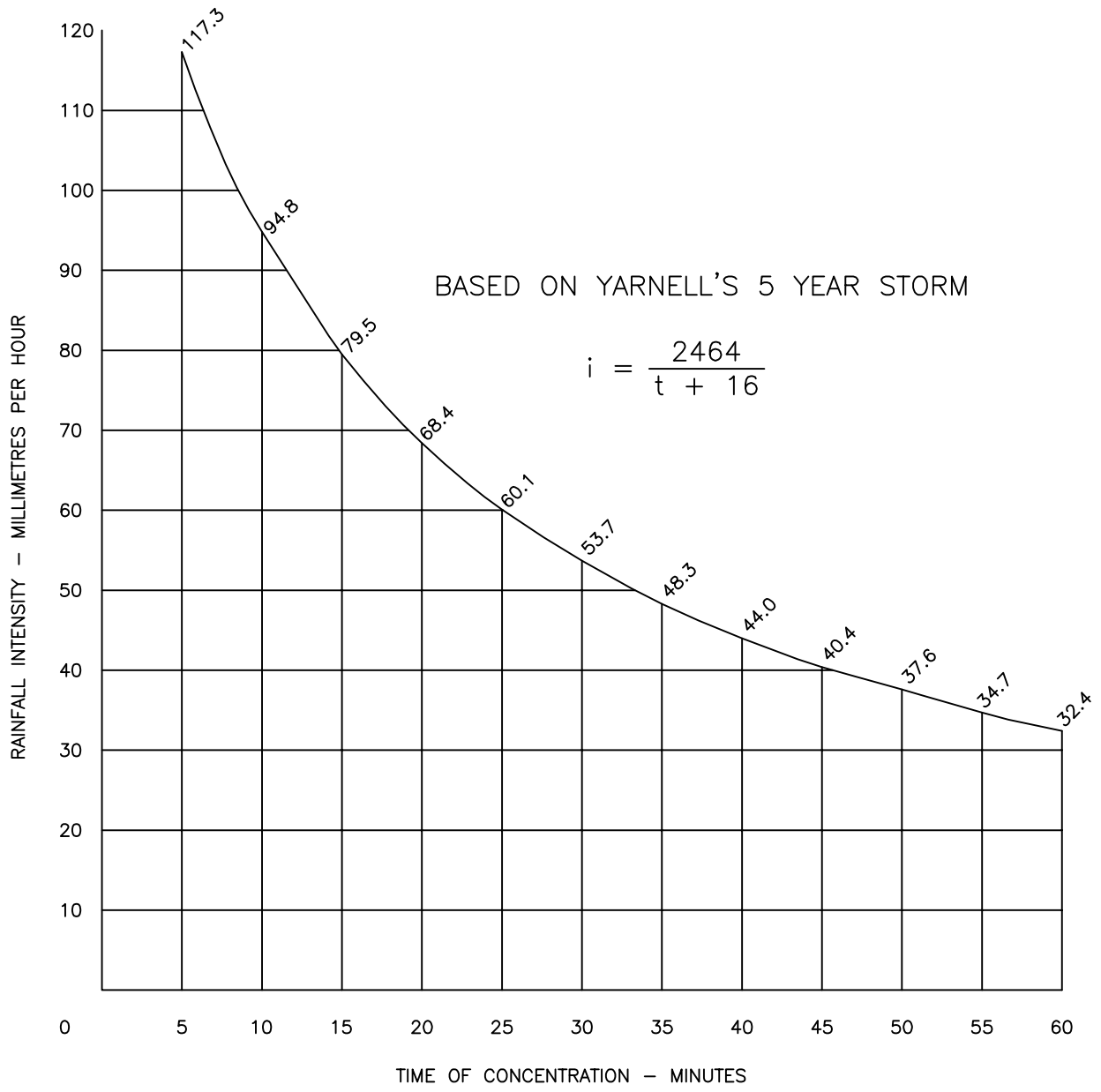
## D.G.BIDDLE & ASSOCIATES LTD.

consulting engineers

**MUNICIPALITY** City of Pickering
**PROJECT** 666, 668, 672, 678, and 682 Liverpool Road
**PROJECT #** #####

**DESIGN BY** BKY
**CHK'D BY** CJF
**DATE** Mar-25

| | | RESIDENTIAL | | | | | | COMMERCIAL | | | INDUSTRIAL | INSTITUT'N | FLOW (l/s) | | | | | | PIPE DATA | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FROM MH | TO MH | GROSS AREA (ha) | DEN-SITY | POPU-LATION | PFF | TOTAL POPU-LATION | TOTAL AREA (ha) | LOT AREA (ha) | FLOOR SPACE INDEX | FLOOR AREA (ha) | LOT AREA (ha) | LOT AREA (ha) | RES INFIL 0.26 | SEWAGE 0.0042 | COMM 2.08 | INDUS 1.04 | INST 1.30 | TOTAL FLOW l/s | SIZE mm | GRADE % | CAPACITY l/s | VELOCITY m/s |
| | | | | | | | | | 0.50 | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| **MH-4** | **MH-3** | 0.078 | 3.00 | 33 | 3.80 | 33 | 0.078 | | | | | | 0.02 | 0.53 | 0.00 | 0.00 | 0.00 | 0.55 | 200 | 1.00 | 34.21 | 1.06 |
| **MH 2** | **MH-3** | 0.070 | 3.00 | 30 | 3.80 | 30 | 0.070 | | | | | | 0.02 | 0.48 | 0.00 | 0.00 | 0.00 | 0.50 | 200 | 1.00 | 34.21 | 1.06 |
| | | | | | | | | | | | | | | | | | | | | | | |
| MH-3 | MH-1 | - | 3.00 | 30 | 3.80 | 63 | 0.148 | | | | | | 0.04 | 1.01 | 0.00 | 0.00 | 0.00 | 1.04 | 200 | 1.00 | 34.21 | 1.06 |
| | | | | | | | | | | | | | | | | | | | | | | |
| MH-1 | *EX SEWER* | - | 3.00 | 30 | 3.80 | 63 | 0.148 | | | | | | 0.04 | 1.01 | 0.00 | 0.00 | 0.00 | 1.04 | 200 | 2.00 | 48.39 | 1.49 |




| Mins. | i | Mins. | i | Mins. | i | Mins. | i | Mins. | i |
|---|---|---|---|---|---|---|---|---|---|
| 0–5 | 117.3 | 16 | 77.0 | 27 | 57.3 | 38 | 45.6 | 49 | 37.9 |
| 6 | 112.0 | 17 | 74.7 | 28 | 56.0 | 39 | 44.8 | 50 | 37.3 |
| 7 | 107.1 | 18 | 72.5 | 29 | 54.8 | 40 | 44.0 | 51 | 36.8 |
| 8 | 102.7 | 19 | 70.4 | 30 | 53.6 | 41 | 43.2 | 52 | 36.2 |
| 9 | 98.6 | 20 | 68.4 | 31 | 52.4 | 42 | 42.5 | 53 | 35.7 |
| 10 | 94.8 | 21 | 66.6 | 32 | 51.3 | 43 | 41.8 | 54 | 35.2 |
| 11 | 91.3 | 22 | 64.8 | 33 | 50.3 | 44 | 41.1 | 55 | 34.7 |
| 12 | 88.0 | 23 | 63.2 | 34 | 49.3 | 45 | 40.4 | 56 | 34.2 |
| 13 | 85.0 | 24 | 61.6 | 35 | 48.3 | 46 | 39.7 | 57 | 33.8 |
| 14 | 82.1 | 25 | 60.1 | 36 | 47.4 | 47 | 39.1 | 58 | 33.3 |
| 15 | 79.5 | 26 | 58.7 | 37 | 46.5 | 48 | 38.5 | 59 | 32.9 |

City of Pickering — Planning & Development Department

| | | |
|---|---|---|
| DRAWN P. NEUMAN | RAINFALL INTENSITY CURVE FOR DESIGN OF STORM SEWERS | REVISION NO. |
| APPROVED S. A. VOKES | | DATE |
| DATE JANUARY 1993 | | P–502 |

# PRE-DEVELOPMENT STORM SEWER DESIGN SHEET



## D.G.BIDDLE & ASSOCIATES LTD.

consulting engineers

**MUNICPALITY** CITY OF PICKERING
**PROJECT** 666-682 LIVERPOOL ROAD
**PROJECT #** 124123

**DESIGN BY** B.K.Y.
**CHK'D BY** C.J.F.
**DATE** Mar-25

**CRITERIA**
n 0.013
STORM 5-YR
YARNELL
R= 2464/(t+16)

**RUN OFF CO-EFFICIENTS**
PARK I=0.25
SINGLE,SEMI I=0.70
TOWNHOUSES I=0.90
APARTMENTS I=0.85
PAVED AREAS I=0.95

| LOCATION | | | DRAINAGE DATA | | | | RATIONAL DESIGN | | | PIPE DATA | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | FROM MH | TO MH | AREA (ha) | I Ca=1 | AxI | ACCUM AxI | T.C min | R mm/hr | FLOW L/sec | SIZE mm | GRADE % | CAPACITY L/sec | VELOCITY m/s | LENGTH m | TIME min | TOTAL TIME | % LOAD |
| | | | | | | | | | | | | | | | | | |
| **PRE-DEVELOPMENT** | | | | | | | | | | | | | | | | | |
| **R=** | | | | | | | | | | | | | | | | | |
| **ANNLAND** | SITE | *EX CB* | 0.337 | 0.450 | 0.152 | 0.152 | 5.00 | 117.33 | 49.58 | | | | | | | | |
| **BROADVIEW** | SITE | *EX CB* | 0.068 | 0.450 | 0.031 | 0.031 | 5.27 | 115.84 | 9.98 | | | | | | | | |
| **SOUTH-WEST** | SITE | *SOUTH-WEST* | 0.058 | 0.270 | 0.016 | 0.016 | 5.00 | 117.33 | 5.22 | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

*Based on “Old” 5-year IDF Criteria provided by the City of Pickering (Yarnell's 5-Year)
**T.C. calculated based on Bransby-Williams method. For details please refer to Site Parameters Chart.
***For T.C. values that were calculated to be less than 5mins, a minimum T.C. value of 5mins was used instead.

# POST-DEVELOPMENT STORM SEWER DESIGN SHEET



## D.G.BIDDLE & ASSOCIATES LTD.

consulting engineers

**MUNICPALITY** CITY OF PICKERING
**PROJECT** 666-682 LIVERPOOL ROAD
**PROJECT #** 124123

**DESIGN BY** B.K.Y.
**CHK'D BY** C.J.F.
**DATE** May-25

| CRITERIA | | RUN OFF CO-EFFICIENTS | |
|---|---|---|---|
| n | 0.013 | PARK | I=0.25 |
| STORM | 5-YR (1hr) | SINGLE,SEMI | I=0.70 |
| A | 1082.901 | TOWNHOUSES | I=0.90 |
| B | 6.007 | APARTMENTS | I=0.85 |
| C | 0.845 | PAVED AREAS | I=0.95 |

| LOCATION | | | DRAINAGE DATA | | | | RATIONAL DESIGN | | | PIPE DATA | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STREET | FROM MH | TO MH | AREA (ha) | I Ca=1 | AxI | ACCUM AxI | T.C min | R mm/hr | FLOW L/sec | SIZE mm | GRADE % | CAPACITY L/sec | VELOCITY m/s | LENGTH m | TIME min | TOTAL TIME | % LOAD | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK A ROOF | STM CBMH-4 | 0.021 | 0.950 | 0.020 | 0.020 | 10.00 | 103.98 | 5.77 | 150 | 1.00 | 15.89 | 0.87 | 21.51 | 0.41 | 10.41 | 36.30 | |
| | STM CB-5 | STM CBMH-4 | 0.016 | 0.910 | 0.015 | 0.035 | 10.00 | 103.98 | 9.98 | 300 | 0.50 | 71.33 | 0.98 | 19.61 | 0.33 | 10.33 | 13.99 | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK D ROOF | STM CBMH-3 | 0.017 | 0.950 | 0.016 | 0.016 | 10.00 | 103.98 | 4.67 | 150 | 1.00 | 15.89 | 0.87 | 31.97 | 0.61 | 10.61 | 29.39 | |
| | STM CBMH-4 | STM CBMH-3 | 0.022 | 0.920 | 0.020 | 0.071 | 10.61 | 100.74 | 19.86 | 300 | 0.50 | 71.33 | 0.98 | 18.49 | 0.32 | 10.93 | 27.84 | |
| | | | | | | | | | | | | | | | | | | |
| | STM CB-9 | STM CBMH-8 | 0.045 | 0.580 | 0.026 | 0.026 | 10.00 | 103.98 | 7.54 | 300 | 0.50 | 71.33 | 0.98 | 22.47 | 0.38 | 10.38 | 10.58 | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK D ROOF | STM CBMH-8 | 0.017 | 0.950 | 0.016 | 0.016 | 10.00 | 103.98 | 4.67 | 150 | 1.00 | 15.89 | 0.87 | 37.68 | 0.72 | 10.72 | 29.39 | |
| | | | | | | | | | | | | | | | | | | |
| | STM CBMH-8 | STM CBMH-3 | 0.035 | 0.730 | 0.026 | 0.068 | 10.72 | 100.18 | 18.88 | 300 | 0.50 | 71.33 | 0.98 | 21.54 | 0.37 | 11.09 | 26.47 | |
| | | | | | | | | | | | | | | | | | | |
| | OFFSITE NORTH | STM CB-6 | 0.046 | 0.450 | 0.021 | 0.021 | 10.00 | 103.98 | 5.98 | - | - | - | - | - | - | - | - | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK C ROOF | STM CBMH-7 | 0.021 | 0.950 | 0.020 | 0.020 | 10.00 | 103.98 | 5.77 | 150 | 1.00 | 15.89 | 0.87 | 21.29 | 0.41 | 10.41 | 36.30 | |
| | STM CB-6 | STM CBMH-7 | 0.020 | 0.950 | 0.019 | 0.060 | 10.00 | 103.98 | 17.24 | 300 | 0.50 | 71.33 | 0.98 | 14.81 | 0.25 | 10.25 | 24.17 | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK B ROOF | STM CBMH-3 | 0.014 | 0.950 | 0.013 | 0.013 | 10.00 | 103.98 | 3.84 | 150 | 1.00 | 15.89 | 0.87 | 27.76 | 0.53 | 10.53 | 24.20 | |
| | STM CBMH-7 | STM CBMH-3 | 0.019 | 0.950 | 0.018 | 0.091 | 10.53 | 101.15 | 25.59 | 300 | 0.50 | 71.33 | 0.98 | 16.42 | 0.28 | 10.81 | 35.87 | |
| | | | | | | | | | | | | | | | | | | |
| | STM CBMH-3 | STORMTECH | 0.032 | 0.840 | 0.027 | 0.257 | 11.09 | 98.36 | 70.16 | 300 | 0.50 | 71.33 | 0.98 | 2.77 | 0.05 | 11.14 | 98.36 | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK A ROOF | STORMTECH | 0.021 | 0.950 | 0.020 | 0.020 | 10.00 | 103.98 | 5.77 | 150 | 1.00 | 15.89 | 0.87 | 39.05 | 0.75 | 10.75 | 36.30 | |
| | | | | | | | | | | | | | | | | | | |
| | 1/2 BLK B ROOF | STORMTECH | 0.014 | 0.950 | 0.013 | 0.013 | 10.00 | 103.98 | 3.84 | 150 | 1.00 | 15.89 | 0.87 | 39.05 | 0.75 | 10.75 | 24.20 | |
| | | | | | | | | | | | | | | | | | | |
| | STORMTECH | STM MH-2 | - | - | - | 0.290 | 11.14 | 98.13 | 79.06 | 375 | 0.50 | 129.33 | 1.13 | 1.01 | 0.01 | 11.15 | 61.14 | |
| | STM MH-2 | STM MH-1 | - | - | - | **0.099** | 11.15 | 98.06 | **27.00** | 300 | 0.50 | 71.33 | 0.98 | 30.98 | 0.53 | 11.68 | 37.85 | 1 |
| | | | | | | | | | | | | | | | | | | |
| | STM CB-11 | STM MH-10 | 0.019 | 0.250 | 0.005 | 0.005 | 10.00 | 103.98 | 1.37 | 200 | 0.50 | 24.19 | 0.75 | 44.35 | 0.99 | 10.99 | 5.68 | |
| | STM MH-10 | STM MH-1 | - | - | - | 0.005 | 10.99 | 98.83 | 1.31 | 200 | 0.50 | 24.19 | 0.75 | 9.52 | 0.21 | 11.20 | 5.39 | |
| | | | | | | | | | | | | | | | | | | |
| | STM MH-1 | *EX FYCB* | - | - | - | 0.104 | 11.68 | 95.58 | 27.58 | 300 | 0.50 | 71.33 | 0.98 | 5.86 | 0.10 | 11.78 | 38.67 | |
| | | | | | | | | | | | | | | | | | | |
| **ANNLAND - EXISTING SEWER CAPACITY ANALYSIS** | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| | *SITE UNCONTROLLED* | *EX CB* | *0.034* | *0.440* | *0.015* | *0.015* | - | - | - | - | - | - | - | - | - | - | - | |
| | *EX FYCB* | *EX CB* | *0.015* | *0.450* | *0.007* | *0.126* | *11.78* | *95.12* | *33.19* | *200* | *1.07* | *35.39* | *1.09* | *29.87* | *0.46* | *12.23* | *93.78* | |
| | *EX CB* | *EX MH* | *0.091* | *0.670* | *0.061* | *0.186* | *12.23* | *93.11* | *48.27* | *200* | *2.50* | *54.10* | *1.67* | *11.60* | *0.12* | *12.35* | *89.23* | |
| | | | | | | | | | | | | | | | | | | |

[1] **FLOWRATE BETWEEN STM MH-2 TO STM MH-1 ADJUSTED USING EQUIVALENT AI METHOD (AI=0.07705) TO THE 5-YR ORIFICE FLOWRATE OF 27 L/S - REFER TO FIGURE 2 - HYMO OUTPUT - (NODE #103)**

## SITE PARAMETERS CHART

666-682 Liverpool Rd, City of Pickering, ON

Future Residential Development

Project Number: 124123

Date: Mar-25

| Name | Node | Hydrograph Type | CN Value | Area (ha) | Length (m) | Sw (%) | Run Off Coefficient | IA (mm) | XIMP (%) | TIMP | tc, calc (min) | tc, design (min) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| **Pre-development** | | | | **0.463** | | | | | | | | |
| Area Tributary to Broadview St | **3+4** | STANDHYDE | 85 | 0.068 | 14.16 | 3.46 | 0.45 | 0.031 | 28.57 | | 5.27 | 5.27 |
| Area Tributary to Annland St | **5+2** | STANDHYDE | 85 | 0.337 | 79.66 | 1.67 | 0.45 | 0.152 | 28.57 | | 4.57 | 5.00 |
| Area Tributary to South-West of Site | **1** | STANDHYDE | 85 | 0.058 | 28.00 | 3.11 | 0.27 | 0.016 | 2.86 | | 1.69 | 5.00 |
| | | | | | | | | | | | | |
| **Post-Development** | | | | **0.463** | | | | | | | | |
| On-Site, Controlled, Attenuated to Annland | **1** | STANDHYDE | 85 | 0.016 | N/A | N/A | 0.91 | 0.015 | 94.29 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **2** | STANDHYDE | 85 | 0.022 | N/A | N/A | 0.92 | 0.020 | 95.71 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **3** | STANDHYDE | 85 | 0.032 | N/A | N/A | 0.84 | 0.027 | 84.29 | | - | 5.00 |
| On-Site, Uncontrolled, Unattenuated to South-West | **4** | STANDHYDE | 85 | 0.008 | N/A | N/A | 0.25 | 0.002 | 0.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **5** | STANDHYDE | 85 | 0.035 | N/A | N/A | 0.73 | 0.026 | 68.57 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **6** | STANDHYDE | 85 | 0.045 | N/A | N/A | 0.58 | 0.026 | 47.14 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **7** | STANDHYDE | 85 | 0.019 | N/A | N/A | 0.95 | 0.018 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **8** | STANDHYDE | 85 | 0.020 | N/A | N/A | 0.71 | 0.014 | 65.71 | | - | 5.00 |
| Off-Site, Controlled, Attenuated to Annland | **9** | STANDHYDE | 85 | 0.046 | N/A | N/A | 0.45 | 0.021 | 28.57 | | - | 5.00 |
| Off-Site, Uncontrolled, Unattenuated to Broadview | **10** | STANDHYDE | 85 | 0.021 | N/A | N/A | 0.45 | 0.009 | 28.57 | | - | 5.27 |
| Off-Site, Uncontrolled, Unattenuated to Broadview | **11** | STANDHYDE | 85 | 0.019 | N/A | N/A | 0.43 | 0.008 | 25.71 | | - | 5.27 |
| Off-Site, Uncontrolled, Unattenuated to Broadview | **12** | STANDHYDE | 85 | 0.002 | N/A | N/A | 0.95 | 0.002 | 100.00 | | - | 5.27 |
| On-Site, Uncontrolled, Unattenuated to Annland | **13** | STANDHYDE | 85 | 0.034 | N/A | N/A | 0.44 | 0.015 | 27.14 | | - | 5.00 |
| On-Site, Controlled, Unattenuated to Annland | **14** | STANDHYDE | 85 | 0.019 | N/A | N/A | 0.25 | 0.005 | 0.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **15** | STANDHYDE | 85 | 0.014 | N/A | N/A | 0.95 | 0.013 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **16** | STANDHYDE | 85 | 0.017 | N/A | N/A | 0.95 | 0.016 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **17** | STANDHYDE | 85 | 0.017 | N/A | N/A | 0.95 | 0.016 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **18** | STANDHYDE | 85 | 0.021 | N/A | N/A | 0.95 | 0.020 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **19** | STANDHYDE | 85 | 0.014 | N/A | N/A | 0.95 | 0.013 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **20** | STANDHYDE | 85 | 0.021 | N/A | N/A | 0.95 | 0.020 | 100.00 | | - | 5.00 |
| On-Site, Controlled, Attenuated to Annland | **21** | STANDHYDE | 85 | 0.021 | N/A | N/A | 0.95 | 0.020 | 100.00 | | - | 5.00 |

*1. The corresponding plans which refer to correct nodes for the Pre-Development and Post-Development conditions are SD-1 and SD-2 respectivley*

*2. Off-Site drainage from North was assumed to be accepted*

*3. For tc calculated less than 5 mins, a tc of 5 minutes was used instead during calculations*

tc calculated with the Bransby Williams Formula tc= ((0.057*L)/(Sw^0.2)*(A^0.1))

Imperviousness = (C - 0.25)/0.7

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CONSULTING ENGINEERS & PLANNERS

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# SCHEDULE 2

## UNDERGROUND STORAGE VOLUME CALCULATIONS

## STAGE-STORAGE CALCULATIONS

## INFILTRATION GALLERY SIZING

## TREATMENT TRAIN

## STORMTECH SC-800 PRODUCT SHEET

## ISOLATOR ROW PLUS PRODUCT SHEET

## ISOLATOR ROW PLUS ETV

## CATCH BASIN SHEILD DESIGN CHART

## CATCH BASIN SHEILD ETV

Underground Storage System

Underground Storage through Stormtech SC-800 System
(Product Info attached)

System Info

| | | |
|---|---|---|
| Max Storage per unit | 1.43 | m3 |
| Stone Inv: | 79.87 | m |
| Struct. Inv: | 80.37 | m |
| Stone Obv: | 81.51 | m |
| # Units: | 18.00 | |

Incremental Storage

| Elevation | Depth | Chamber Storage | Stone Storage | Total Volume | Total Volume | Total Volume Less Base Stone |
|---|---|---|---|---|---|---|
| (m) | (m) | (m3) | (m3) | (1 unit) (m3) | (m3) | (m3) |
| 79.87 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 80.37 | 0.50 | 0.00 | 0.19 | 0.19 | 3.46 | 0.00 |
| 80.42 | 0.55 | 0.13 | 0.21 | 0.33 | 5.96 | 2.50 |
| 80.47 | 0.60 | 0.25 | 0.22 | 0.47 | 8.42 | 4.97 |
| 80.52 | 0.65 | 0.37 | 0.24 | 0.60 | 10.87 | 7.42 |
| 80.57 | 0.70 | 0.49 | 0.25 | 0.74 | 13.30 | 9.85 |
| 80.62 | 0.75 | 0.60 | 0.27 | 0.87 | 15.66 | 12.20 |
| 80.68 | 0.80 | 0.71 | 0.29 | 1.00 | 18.00 | 14.54 |
| 80.73 | 0.86 | 0.82 | 0.31 | 1.13 | 20.30 | 16.85 |
| 80.78 | 0.91 | 0.92 | 0.34 | 1.25 | 22.54 | 19.08 |
| 80.83 | 0.96 | 1.01 | 0.36 | 1.37 | 24.73 | 21.28 |
| 80.88 | 1.01 | 1.10 | 0.39 | 1.49 | 26.86 | 23.40 |
| 80.93 | 1.06 | 1.19 | 0.42 | 1.61 | 28.91 | 25.45 |
| 80.98 | 1.11 | 1.26 | 0.45 | 1.72 | 30.87 | 27.41 |
| 81.03 | 1.16 | 1.33 | 0.49 | 1.82 | 32.72 | 29.27 |
| 81.08 | 1.21 | 1.38 | 0.53 | 1.91 | 34.45 | 31.00 |
| 81.13 | 1.26 | 1.42 | 0.58 | 2.00 | 35.98 | 32.53 |
| 81.21 | 1.34 | 1.43 | 0.67 | 2.10 | 37.87 | 34.42 |
| 81.26 | 1.39 | 1.43 | 0.74 | 2.17 | 39.02 | 35.57 |
| 81.31 | 1.44 | 1.43 | 0.80 | 2.23 | 40.18 | 36.72 |
| 81.36 | 1.49 | 1.43 | 0.86 | 2.30 | 41.33 | 37.87 |

**666-682 Liverpool Rd, Pickering ON**
**Project No. 124123**
2025-03-24

**Storm Tech System Storage/Discharge**

| | | | | | | | Plate Orifice | |
|---|---|---|---|---|---|---|---|---|
| Elevation | Delta H (mm) | Depth (mm) | Stormtech Cumulative Storage ($m^3$) | Cumulative Structure and Pipe Storage ($m^3$) | Surface Storage ($m^3$) | **Total Storage ($m^3$)** | Head (m) | **Discharge ($m^3/s$)** |
| 80.37 | 0 | 0 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.000000 |
| 80.47 | 102 | 102 | 4.97 | 1.47 | 0.00 | 6.44 | 0.10 | 0.009110 |
| 80.57 | 102 | 204 | 9.85 | 2.95 | 0.00 | 12.79 | 0.20 | 0.012884 |
| 80.68 | 101 | 305 | 14.54 | 4.41 | 0.00 | 18.95 | 0.30 | 0.015753 |
| 80.78 | 102 | 407 | 19.08 | 5.88 | 0.00 | 24.96 | 0.41 | 0.018198 |
| 80.88 | 101 | 508 | 23.40 | 7.34 | 0.00 | 30.74 | 0.51 | 0.020331 |
| 80.98 | 102 | 610 | 27.41 | 8.82 | 0.00 | 36.23 | 0.61 | 0.022279 |
| 81.08 | 102 | 712 | 31.00 | 10.29 | 0.00 | 41.29 | 0.71 | 0.024069 |
| 81.21 | 127 | 839 | 34.42 | 12.13 | 0.00 | 46.54 | 0.84 | 0.026128 |
| 81.31 | 101 | 940 | 36.72 | 13.59 | 0.00 | 50.31 | 0.94 | 0.027656 |
| 81.36 | 51 | 991 | 37.87 | 13.88 | 0.00 | 51.75 | 0.99 | 0.028396 |
| 81.47 | 110 | 1101 | 37.87 | 14.50 | 0.00 | 52.37 | 1.10 | 0.029931 |
| 81.58 | 110 | 1211 | 37.87 | 15.12 | 0.00 | 52.99 | 1.21 | 0.031391 |
| 81.69 | 110 | 1321 | 37.87 | 15.74 | 0.00 | 53.61 | 1.32 | 0.032785 |
| 81.80 | 109 | 1430 | 37.87 | 16.36 | 0.00 | 54.23 | 1.43 | 0.034111 |
| 81.85 | 50 | 1480 | 37.87 | 16.64 | 0.03 | 54.54 | 1.48 | 0.034702 |
| 81.90 | 50 | 1530 | 37.87 | 16.92 | 0.16 | 54.96 | 1.53 | 0.035284 |
| 81.95 | 50 | 1580 | 37.87 | 17.20 | 3.42 | 58.50 | 1.58 | 0.035855 |
| 82.00 | 50 | 1630 | 37.87 | 17.20 | 18.11 | 73.19 | 1.63 | 0.036418 |
| 82.05 | 50 | 1680 | 37.87 | 17.20 | 50.70 | 105.77 | 1.68 | 0.036973 |

**Structure Storage**

Max Rim 81.95

| | Structure | Cross Section Area | Depth | Volume (m3) |
|---|---|---|---|---|
| | STM CB-9 | 0.36 | 1.00 | 0.36 |
| | STM CBMH-8 | 1.13 | 1.28 | 1.45 |
| | STM CBMH-7 | 1.13 | 1.30 | 1.47 |
| | STM CB-6 | 0.36 | 1.20 | 0.43 |
| | STM CB-5 | 0.36 | 1.20 | 0.43 |
| | STM CBMH-4 | 1.13 | 1.28 | 1.45 |
| | STM CBMH-3 | 1.13 | 1.51 | 1.71 |
| | STM MH-2 | 1.13 | 1.44 | 1.63 |
| **Total** | | | | 8.93 |

**Pipe Storage**

Max Pipe Inv 80.80

| Size (mm) | Length (m) | Area (m2) | Total Volume (m3) |
|---|---|---|---|
| 150 | 0.000 | 0.018 | 0.000 |
| 200 | 0.000 | 0.031 | 0.000 |
| 150 | 0.000 | 0.018 | 0.000 |
| 200 | 0.000 | 0.031 | 0.000 |
| 300 | 117.110 | 0.071 | 8.278 |
| **Total** | | | 8.28 |

**Orifice 1 (Plate Orifice)**

$Q=CA(2gh)^{0.5}$

| | | |
|---|---|---|
| Type | Plate | |
| Diameter= | 0.115 | m |
| Area= | 0.0104 | m2 |
| C= | 0.62 | |
| C/L Elev= | 80.370 | m |

**Surface Storage**

| m | m2 | m2 | m | m3 | m3 |
|---|---|---|---|---|---|
| | | | | | |
| 81.80 | | | | | 0.00 |
| | | 0.55 | 0.05 | 0.027 | |
| 81.85 | 1.1 | | | | 0.03 |
| | | 2.735 | 0.05 | 0.137 | |
| 81.90 | 4.37 | | | | 0.16 |
| | | 65.1 | 0.05 | 3.255 | |
| 81.95 | 125.83 | | | | 3.42 |
| | | 293.8 | 0.05 | 14.690 | |
| 82.00 | 461.77 | | | | 18.11 |
| | | 651.745 | 0.05 | 32.587 | |
| 82.05 | 841.72 | | | | 50.70 |

**PROJECT** 666-682 Liverpool Road, Pickering ON
**PROJECT #** 124123
**DATE** Apr-25

*Under StormTech-800 Chambers

**Infiltration Gallery Sizing**

| | | | |
|---|---|---|---|
| Infiltration Rate | 15 | mm/hr | *assumed |
| Total Impervious Area | 2825 | m² | |
| Design Capture Proposed | 5.00 | mm | |
| WQV | **14.13** | m³ | |
| vr | 0.4 | | |
| ts | 48 | hours | |
| Stone Volume Required | 35.31 | m³ | |
| Max depth | i*ts/vr | | Max depth of stone layer |
| | 1800 | mm | |
| Therefore Use dc = | 400 | mm | |
| Af | WQV/(dc*vr) | | Minimum Footprint area required |
| | 88.28 | m² | |

Prop. Dimensions

| | | | | |
|---|---|---|---|---|
| ** | Footprint Area Provided | 88.50 | m² | (5.90mx15.00mx0.40m) |
| | Depth | 0.40 | m | |
| | Stone Volume Prop. | 35.40 | m³ | |
| | Water Volume Prop. | **14.16** | m³ | |

** Refer to Site Servicing Plan, SS-1, for Infiltration gallery footprint / details

**PROJECT** 666-682 Liverpool Rd, Pickering ON
**PROJECT #** 124123
**DATE** Mar-25

TSS Removal (Treatment Train Approach)

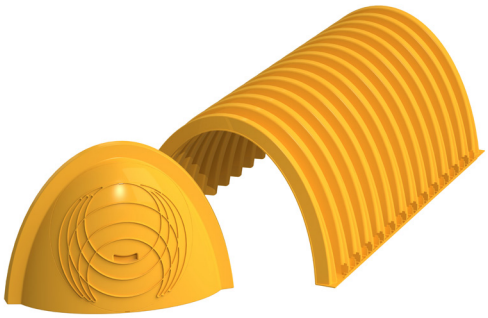
Assume Total TSS = 0.093 (1 TSS per hectare of impervious drainage sources, not including rooftops)

| Description | Tributary Area (ha) | Incoming TSS | Tss Removal System | TSS Removal (%) | Remaining TSS (%) | TSS Removal x Incoming TSS | Remaining TSS | Notes |
|---|---|---|---|---|---|---|---|---|
| CB Shields (Pavement Areas Tributary to CBMH-8 & CBMH-3) | 0.045 | 0.045 | Sediment Control | 50.0% | 50.0% | 0.023 | 0.023 | Remaining TSS to StormTech Isolator Row PLUS |
| StormTech Isolator Row PLUS | 0.339 | 0.066 | Stormwater Filtration Device | 81.0% | 19.0% | 0.053 | 0.012 | Remaining TSS to Downstream Watercourse |
| | | | | | | | | |
| Untreated (Tributary to Uncontrolled at entrance*)* | 0.005 | 0.005 | Untreated | 0.0% | 100.0% | 0.000 | 0.005 | Remaining TSS to Downstream Watercourse |
| Total TSS | 0.093 | | | | | | | |
| Total TSS Removal | 0.076 | | | | | | | |
| Removal % | 81 | % | | | | | | |

*Refer to SD-2 for post-development drainage areas

# StormTech® SC-800 Chamber

Designed to meet the most stringent industry performance standards for superior structural integrity while providing designers with a cost-effective method to save valuable land and protect water resources. The StormTech system is designed primarily to be used under parking lots, thus maximizing land usage for private (commercial) and public applications. StormTech chambers can also be used in conjunction with Green Infrastructure, thus enhancing the performance and extending the service life of these practices.



**Nominal Chamber Specifications**
(not to scale)

**Size (L x W x H)**
85.4” x 51” x 33”
2169 mm x 1295 mm x 838 mm

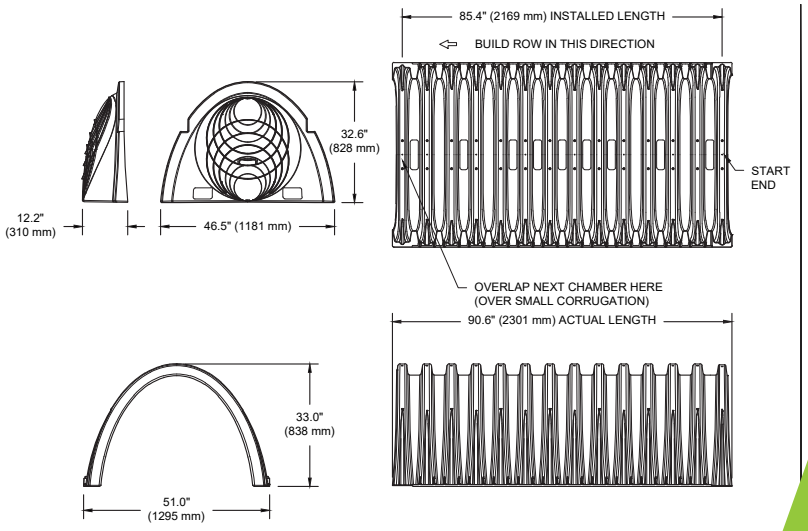
**Chamber Storage**
50.6 ft³ (1.43 m³)

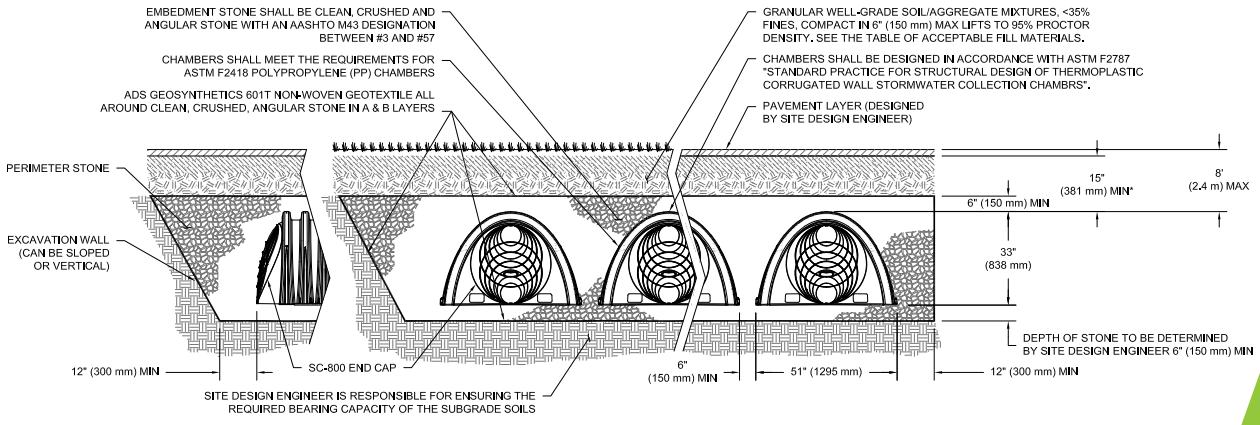
**Min. Installed Storage***
81.0 ft³ (2.29 m³)

**Weight**
81.8 lbs (37.1 kg)

**Shipping**
30 chambers/pallet
60 end caps/pallet
12 pallets/truck

*Assumes 6” (150 mm) stone above, below and between chambers and 40% stone porosity.




*MINIMUM COVER TO BOTTOM OF FLEXIBLE PAVEMENT. FOR UNPAVED INSTALLATIONS WHERE RUTTING FROM VEHICLES MAY OCCUR, INCREASE COVER TO 21" (533 mm).

ADS StormTech™

# StormTech SC-800 Specifications

## Cumulative Storage Volumes Per Chamber

Assumes 40% Stone Porosity. Calculations are Based Upon a 6" (150 mm) Stone Base Under Chambers.

| Depth of Water in System Inches (mm) | Cumulative Chamber Storage ft³ (m³) | Total System Cumulative Storage ft³ (m³) |
|---|---|---|
| 45 (1143) | 50.62 (1.433) | 81.08 (2.296) |
| 44 (1118) | 50.62 (1.433) | 79.96 (2.264) |
| 43 (1092) | 50.62 (1.433) | 78.83 (2.232) |
| 42 (1067) | 50.62 (1.433) | 77.70 (2.200) |
| 41 (1041) | 50.62 (1.433) | 76.57 (2.168) |
| 40 (1016) | 50.62 (1.433) | 75.44 (2.136) |
| 39 (991) | 50.62 (1.433) | 74.31 (2.104) |
| 38 (965) | 50.55 (1.431) | 73.14 (2.071) |
| 37 (940) | 50.35 (1.426) | 71.90 (2.036) |
| 36 (914) | 50.07 (1.418) | 70.60 (1.999) |
| 35 (889) | 49.56 (1.403) | 69.17 (1.959) |
| 34 (864) | 48.82 (1.382) | 67.60 (1.914) |
| 33 (838) | 47.93 (1.357) | 65.94 (1.867) |
| 32 (813) | 46.91 (1.328) | 64.20 (1.818) |
| 31 (787) | 45.79 (1.297) | 62.40 (1.767) |
| 30 (762) | 44.58 (1.262) | 60.55 (1.715) |
| 29 (737) | 43.28 (1.226) | 58.65 (1.661) |
| 28 (711) | 41.91 (1.187) | 56.70 (1.606) |
| 27 (686) | 40.47 (1.146) | 54.71 (1.549) |
| 26 (660) | 38.96 (1.103) | 52.68 (1.492) |
| 25 (635) | 37.40 (1.059) | 50.61 (1.433) |
| 24 (610) | 35.78 (1.013) | 48.51 (1.374) |
| 23 (584) | 34.10 (0.966) | 46.38 (1.313) |
| 22 (559) | 32.38 (0.917) | 44.22 (1.252) |
| 21 (533) | 30.61 (0.867) | 42.03 (1.190) |
| 20 (508) | 28.80 (0.816) | 39.82 (1.128) |
| 19 (483) | 26.95 (0.763) | 37.58 (1.064) |
| 18 (457) | 25.06 (0.710) | 35.32 (1.000) |
| 17 (432) | 23.13 (0.655) | 33.04 (0.936) |
| 16 (406) | 21.17 (0.599) | 30.74 (0.870) |
| 15 (381) | 19.17 (0.543) | 28.42 (0.805) |
| 14 (356) | 17.14 (0.485) | 26.08 (0.739) |
| 13 (330) | 15.09 (0.427) | 23.72 (0.672) |
| 12 (305) | 13.00 (0.368) | 21.34 (0.604) |
| 11 (279) | 10.89 (0.308) | 18.95 (0.537) |
| 10 (254) | 8.76 (0.248) | 16.54 (0.468) |
| 9 (229) | 6.60 (0.187) | 14.12 (0.400) |
| 8 (203) | 4.42 (0.125) | 11.69 (0.331) |
| 7 (178) | 2.22 (0.063) | 9.24 (0.262) |
| 6 (152) | 0 (0) | 6.78 (0.192) |
| 5 (127) | 0 (0) | 5.65 (0.160) |
| 4 (102) | 0 (0) | 4.52 (0.128) |
| 3 (76) | 0 (0) | 3.39 (0.096) |
| 2 (51) | 0 (0) | 2.26 (0.064) |
| 1 (25) | 0 (0) | 1.13 (0.032) |

Stone Cover

Stone Foundation

**Note:** Add 1.13 ft³ (0.032 m³) of storage for each additional inch (25 mm) of stone foundation.

## Storage Volume Per Chamber ft³ (m³)

| | Bare Chamber Storage ft³ (m³) | Chamber and Stone Foundation Depth in. (mm) | | |
|---|---|---|---|---|
| | | 6 (150) | 12 (300) | 18 (450) |
| SC-800 Chamber | 50.6 (1.43) | 81.0 (2.29) | 87.8 (2.48) | 94.6 (2.6) |

**Note:** Assumes 6" (150 mm) stone above chambers, 6" (150 mm) row spacing and 40% stone porosity.

## Amount of Stone Per Chamber

| English Tons (yds³) | Stone Foundation Depth | | |
|---|---|---|---|
| | 6" | 12" | 18" |
| SC-800 | 3.9 (2.8) | 4.8 (3.4) | 5.7 (4.1) |
| **Metric Kilograms (m³)** | **150 mm** | **300 mm** | **450 mm** |
| SC-800 | 3580 (2.2) | 4380 (2.6) | 5170 (3.1) |

**Note:** Assumes 6" (150 mm) of stone above and between chambers.

## Volume Excavation Per Chamber yd³ (m³)

| | Stone Foundation Depth | | |
|---|---|---|---|
| | 6" (150 mm) | 12" (300 mm) | 18" (450 mm) |
| SC-800 | 5.6 (4.3) | 6.3 (4.8) | 6.9 (5.3) |

**Note:** Assumes 6" (150 mm) of row separation and 15" (375 mm) of cover. The volume of excavation will vary as depth of cover increases.

ADS StormTech products, manufactured in accordance with ASTM F2418 or ASTMF2922, comply with all requirements in the Build America, Buy America (BABA) Act.

**Working on a project?**
**Visit us at adspipe.com/stormtech and utilize the Design Tool**

ADS StormTech™

**adspipe.com**
800-821-6710

# 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**

!
"#$! %&'()"$*#!+,'-.&'(/!0'1  !234%!&$*#5'-'67!1.,!  &$,&$8&!&#$!9:8<&-.5&:*!%&'()!=.&$(!
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## Technology Application

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## Technology Description

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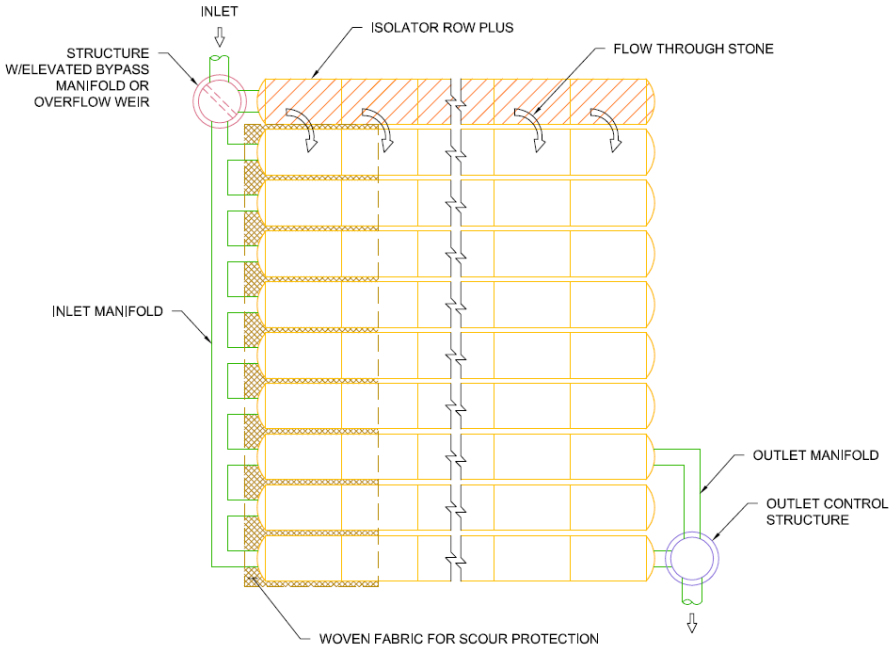


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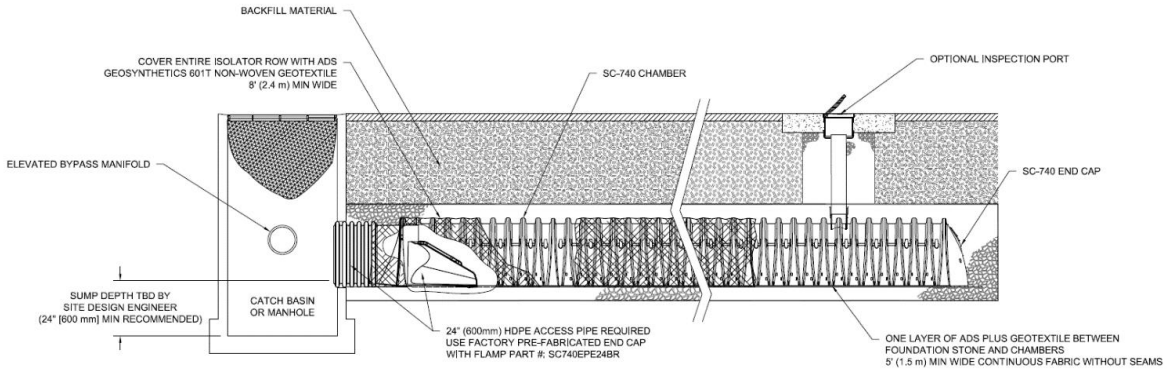


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## Description of Test Procedure for the StormTech Isolator® Row PLUS

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[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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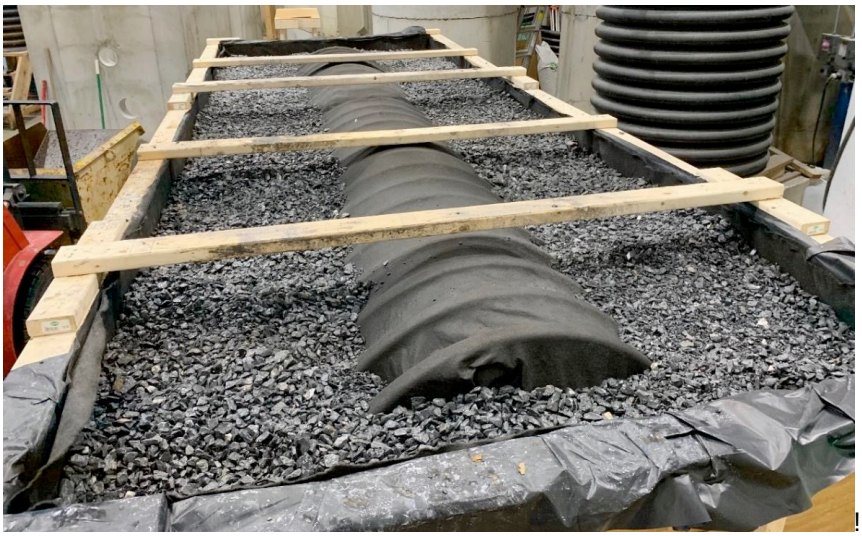

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## Verification Results

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%B)).(7aH !
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2.(&:*-$!,:^$!8:,&(:IB&:'5!.5.-7,:,!1.,!C$(E'()$8!I7!G>%!9:8 ;<&-.5&:*A!33>!'E!](8$(:*bA!9c!:5
.**'(8.5*$!1:&#!<%"9!cKTT ;UR?TLLJ@H!G>%!:,!.**($8:&$8!I7!&#$!<)$(:*.5!<,,'*:.&:'5!' E%&.&$!
N:6#1.7,!.58!"(.5,C'(&.&:'5!PEE:*:.-,!?<<%N"P@H! !
!
<%"9!cKTT ;UR?TLLJ@!:,!.!,:$D$!.5&#78(')$&$(!)$&#'8!1#$($!&#$!-.(6$(!C.(&:*-$,A!i!J[!):*('5,A!
.($!)$.,B($8!B,:56!.!,&.58.(8 !,:$D$!,&.*b!1#:-$!&#$!,).--$(!C.(&:*-$,!.($!)$.,B($8!I.,$8!'5!&#$:(!
,$&&-:5&:)$!B,:56!. !#78(')$&$(H!
!
"#$!2%c!)$$&,!&#$!($OB:($)$5&,!'E!gdcG2A!1#:*#!:,!6$5$(.--7!.**$C&$8!.,!($C($,$5&.&:D$!'E !&#$!
&7C$!'E!C.(&:*-$!,:^$,!.5!PM%!1'B-8!I$!8$,:65$8!&'!&($.&H!<*&B.-!2%c!:,!,:&$!.58(.:5E.--!$D$5&!
,C$*:E:*A!,'!:&!1.,!5$*$,,.(7!&'!*#",$ !.!,&.58.(8!2%c!&'!).b$!&$,&:56!.58 !*')C.(:,'5!
).5.6$.I-$H !
!
".I-$! Q,#'1,!&#$!gdcG2! 2%c!,C$*:E:*.&:'5H!'!.I-$! T!.58! ]:6B($! K!,#'1 !&#$!:5*'):56!).&$ (:.-!
2%c!.,!8$&$():5$8!I7! G>%!9:8;<&-.5&:!*58!*'5E:()$8!I7!&#$!D$(:E:$(!H
!

&.Q-'* JK**RSF?2*2!F*!:'(676(."6#8 *
!

| 2.$"6(-'*!6T'*<U%=** | RSF?2*C686%9%*!:'(676(."6#8 ** |
|---|---|
| QLLL! | ZW! |
| [LL ! | ZR! |
| T[L ! | WW! |
| Q[L ! | JR! |
| QLL! | [W! |
| J[ ! | KW! |
| [L ! | KR! |
| TL! | RR! |
| W! | QW! |
| [ ! | W! |
| T! | R! |
| 850! | j!J[!k) ! |

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!"#$%&'()*+,#-."#$/*0#1*234!  **
5'$676(."6#8*!"."'%'8"  *
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!

&.Q-'* L*V*2.$"6(-'*!6T'*F6,"$6Q9"6#8*<2!F=*#7*&',"*!';6%'8"  *
!

| C',)  *<%%*= | 4!*!6'>'*!6T'  * | !.%:-'*+F  * | | |
|---|---|---|---|---|
| | | 2!F*A  * | 2!F*W * | 2!F*I  * |
| | | 2'$('8"*E68'$  * | | |
| ZH[T[! | LHRJ[ | QLLH!L | QLLH!L | QLLH!L |
| KHJ[L! | lK ! | QLLH!L | QLLH!L | QLLH!L |
| KHLLL | l[  ! | QLLH!L | QLLH!L | QLLH!L |
| THRUL | lW! | QLLH!L | QLLH!L | QLLH!L |
| THLLL | lQL ! | QLLH!L | QLLH!L | QLLH!L |
| QHQWL | lQU! | QLLH!L | QLLH!L | QLLH!L |
| QHLLL | lQW! | QLLH!L | QLLH!L | QLLH!L |
| LH[LL! | lR[  ! | QLLH!L | QLLH!L | QLLH!L |
| LHKT[ | lKL ! | ZRH!R | ZRH!L | ZRH!U |
| LHT[L! | lUL ! | ZLH!R | WZH!W | ZLH!T |
| LHQ[L | lQLL ! | JZH!R | JWH!Q | JWH!Q |
| LHQT![ | lQTL ! | JRH!U | JQH!J | JQH!J |
| LHQL!U | lQKL ! | UW#!K | U[H!T | UKH!W |
| LHLZL | lQJL ! | ULH!T | [WH!R | [JH[ ! |
| LHLJ[! | lTLL ! | [TH!L | [LHZ! | [LH!R |
| LHL[R | lTJL ! | KWH!L | KWH!R | KJH!W |
| LHLK[ | X@:$'#%"$* | KUH!U | KUH!J | KUH!J |
| LHLR!T | | KTH!W | KTHZ | KQH!L |
| LHLTQ | | RJHQ | RJH!T | R[H!R |
| LHLQT![ | | T[HJ! | T[HJ! | T[H!W |
| LHLLZL | | TLHQ | TLHQ | QZH!T |
| LHLLU!K | | QUHR | QUH!K | QKH[ |
| LHLLR!T | | WHW | WHJ | JHW |
| LHLLQ!K | | RH!W | RHJ | RH!W |

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!
"#$!,B,C$58$8!,$8:)$5&!*'5*$5&(.&:'5!.5.-7,:,!1.,!*')C-$&$8!I7!](8$(:*b&'15$!3.I,!+5*HA  !
9$7$(,D:--$A!9cH!](8$(:*b&'15!3.I,!:,!.**($8:&$8!I7!&#$!9.(7-.58!c$C.(&)$5&!'E!G5D:('5)$5&  !.,!
9.(7-.58!>$(&:E:$8!=.&$(!eB.-:&7!3.I'(.&'(7H!"#$!  .5.-7,:,!C('*$8B($!1.,!<%"9!cRZJJ  ;ZJA
%B,C$58$8!%$8:)$5&!>'5*$5&(.&:'5H!"#$!,.)C-:56!C('*$8B($!.58!,BI):,,:'5!'E!,.)C-$,!&'!&#$  !
&$,&!-.I!1$($!'D$(,$$5!I7!&#$!:58$C$58$5&!'I,$(D$(A!F'66,!G5D:('5)$5&.-!>'5,B-&.5&,A!+5*H!
!
<--!&$,&!8.&.!.58!*.-*B-.&:'5,!1$($!8  $&.:-$8!:5!&#$!($C'(&!`gd><"!"G>NgP3PMm!VG0+]+><"+Pg!
+,'-.&'(/!0'1!234%!%&'()"$*#A!33>aA!dB-7!TLTL  A!1#:*#!1.,!,BI):&&$8!&'!.58!D$(:E:$8!I7!&#$!g$1!
d$(,$7!>'(C'(.&:'5!E'(!<8D.5*$8!"$*#5'-'67!?gd><"@H!!  !
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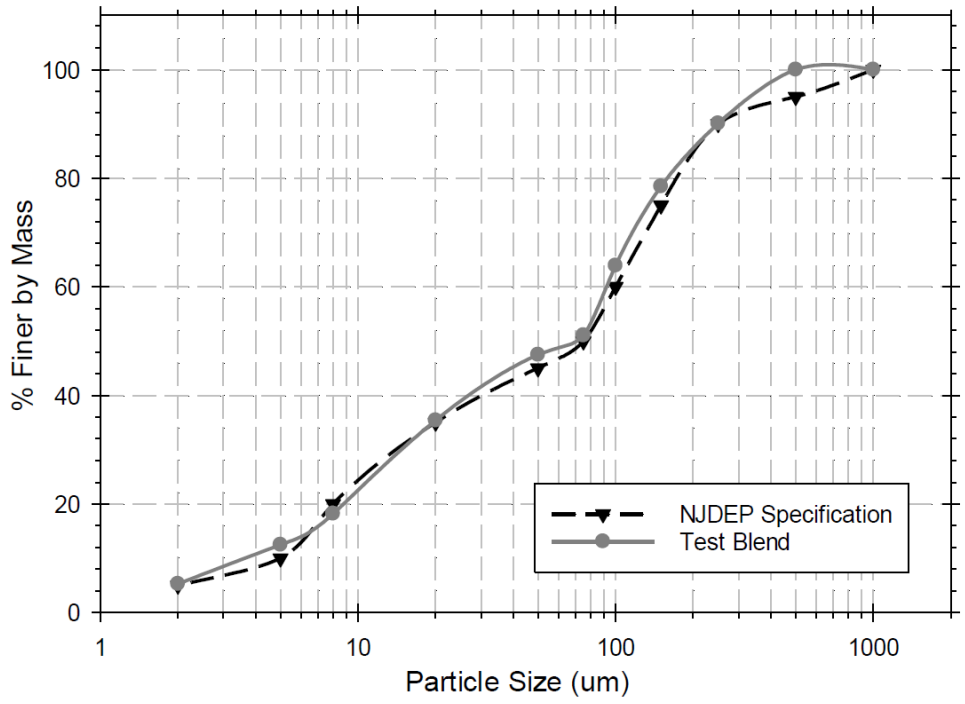
!"#$%&'()*+,#-."#$/*0#1*234! **
5'$676("6#8*!"'"%'8" *
*




!
E6B9$'*YV*2.$"6(-'*!6T'* F6,"$6Q9"6#8*<2!F*=
!

!
"#$!8.&.!:5! ".I-$! R!?-'1!0.&$!.58!"$)C$(.&B($ @58! ".I-$! K!?0$)'D.-!GEE:*:$5*7 @#'()!&#$!I.,:,!E'(!
&#$!D$(:E:$8!&$*#5'-'67!C$(E'().5*$!*-.:)A!,C$*:E:*.--7A!E-'1!(.&$A!,$8:)$5&!*.C&B($8!.58!($)'D.-!
$EE:*:$5*H!
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!

&.Q-'* MK**E-#10."'*.8;*&'%:'$."9$'*!9%%.$@ *
*

| 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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!"#$%&'()*+,#-."#$/*0#1*234! **
5'$676(."6#8*!"."'%'8" *
*

&.Q-'* YK**0'%#>.-*?776(6'8(@*0',9-", *

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| 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 Re-moval 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** | | |

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## Quality Assurance

2$(E'().5*$!D$(:E:*.&:'5!'E!&#$! %&'()"$*#!+,'-.&'(/!0'1!234% !&$*#5'-'67! 1 ., !C$(E'()$8! :5!
.**'(8.5*$!1:&#!&#$!($OB:($)$5&,!'E!+%P!QKLRKSTLQU!.58!&#$!V$(:E:M-'I.-!2$(E'().5*$!
V$(:E:*.&:'5!2('&'*- H!#:,!:5*-B8$ 8!($D:$1:56!.--!8.&.!,#$$&,!.58! *.-*B-.&$8!D.-B$, A!.,!1$--!.,!
'D$(.--!).5.6$)$5&!'E!&#$!&$,&!,7,&$)A!OB.-:&7!*'5&('-!.58!8.&.!:5&$6(:&7H!
!
<88:&:'5.-!:5E'().&:'5!'5! OB.-:&7!*'5&('!)$.,B($,!&.b$5!*.5!I$!E'B58!:5!,$*&:'5![!'E! &#$e<22! E( !
%&'()"$*# !+,'-.&'(!0'1!g$1!d$(,$7!c$C.(&)$5&!'E!G5D:('5)$5&.-!2('&$*&:'5!"$,&:56A!0$DH !
Q\Z\TLTL!H
!
%C$*:E:*!e<\e>!)$.,B($,!($D:$1$8!I7!&#$!D$(:E:$(!.($!,B)).(:^$8 !:5!".I-$! [ !I$ -'1H!
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&.Q-'* Z[*5.-6;."6#8*#7*\AH\I*2$#(';9$', *

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| \I*2.$.%""$ * | A((':".8('*I$6'"$6. * |
| +58$C$58$5*$!'E!'I,$(D$( ! | >'5E:()$8!:5! -$&&$(!E(')!F'66, !G5D:('5)$5&.-! >'5,B-&; .5&,A!+5*!&!'!gd><" ! ! |
| >'5,:,&$5*7!'E!C('*$8B($ ! | c.:-7!-'6,!*'5E:()!C('C$(!C('*$8B($ ! ! |
| G_:,&$5*$!'E!e<22 ! | >'5E:()$8H!`e<22!]'(!%&'()"$*#!+,'-.&'(!0'1!g$1 ! d$(,$7!c$C.(&)$5&!'E!G5D:('5)$5&.-!2('&$*&:'5!"$,&; :56aA0$DH!Q\Z\TLTJL ! |
| 4,$!'E!.CC('C(:.&$!,.)C-$!.5.-7,:,! )$&#'8! h!<%"9!cRJZZ ! ! | >'5E:()$8!I7! )$&#'8!($E$($5*$!'5!-.I!($C'(&, !E(') ! ]($8$(:*b&'15$!3.I,!+5* H! |
| "$,&!)$&#'8!.CC('C(:.&$!E'(!&#$! &$*#5'-'67 ! ! | 4,$8!:58B,&(7!,&.b$#'-8$(!.CC('D$8!C('&'*- S!! *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids* |

| | |
|---|---|
| | *Removal by a Filtration Manufactured Treatment Device (January 2013)*<br>! |
| "$,&!C.(.)$&$(,!,&.7$8!1:&#:5!!!!<br>($OB:($8!:):&,! | >'5E:()$8!:5!($C'(&!`gd><"!"G>NgP3PMm !<br>VG0+]+><"+Pg!+,'-.&'(/!0'1!234%!%&'()"$*#A!33>aA !<br>dB-7!TLTL!! |
| "#:(8!C.(&7!D$(:E:$8!8.&. | <--!&$,&:56!1.,!'I,$(D$8!.58!($D:$1$8!I7!F'66,!G5D:;<br>('5)$5&.-!>'5,B-&.5&,A!+5*H!!<br>! |

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## Variance

2$(E'().5*$!*-.:),!($6.(8:56!,&(B*&B(.-!-'.8!-:):&.&:'5,!1$($!5'&!D$(:E:$8!.,!&#$7!.($!'B&,:8$!&#$!
,*'C$!'E!&#$!C$(E'().5*$!&$,&:56!&#.&!1.,!*'58B*&$8!:5!.**'(8.5*$!1:&#!&#$!neB.-:&7!<,,B(.5*$!
2('f$*&!2-.5!?e<22@!E'(!%&'()"$*#!+,'-.&'(!0'1A!g$1!d$(,$7!c$C. (&)$5&!'E!G5D:('5)$5&.-!
2('&$*&:'5!"$,&:56oA!($D:,:'5!8.&$8!d.5B.(7!LZA!TLTL!LH
!
!

## Verification Summary

!
"#$! %&'()"$*# ! `+,'-.&'(/! 0'1! 234%a! :,! .! ,&'()1.&$(! &($.&)$5&! &$*#5'-'67! 8$,:65$8! E'(! B,$!
B58$(! C.(b:56! -'&,A! ('.81.7,! .58! #$.D7! $.(&#! -'.8,! 1#:-$! C('D:8:56! .! ,BC$(:'(! .58! 8B(.I-$!
,&(B*&B(.-!,7,&$)H!"#$!&$*#5'-'67!*')C(:,$,!.!('1'!E!*#.)I$(,!1(.CC$8!:5!1'D$5!6$'&$_&:-$! E.I(:*!
1:&#!&1'!-.7$(,!.&!&#$!I'&&')!&#.&!,$(D$!.,!.!E:-&$(!,&(:CA!C('D:8:56!,B(E.*$!.($.!E'(!:5E:-&(.&:'5!.58!
(B5'EE!($8B*&:'5!1:&#!$5#.5*$8!,B,C$58$8!,'-:8,!.58!C'--B&.5&!($)'D.-H !
!
"#$! %&'()"$*#!+,'-.&'(/!0'1 !234%!&$*#5'-'67!1.,! &$,&$8&!&#$!9:8<&-.5&!%&'()!=.&$(!
0$,$.(*#!>$5&$(!?9<%=0>@A!B58$(!&#$!,BC$(D:,:'5!'E!F'66,!G5D:('5)$5&.-!>'5,B-&.5&,A!+5*H!'#$!
C$(E'().5*$!&$,&!($,B-&,!E'(!&1'!D$(-.CC:56!%&'()"$*#!+,'-.&'(/!0'1 !234%!*#.)I$(,!
?*'))$(*:.-!B5:&!)'8$-!%> ;JKL@1!$($!D$(:E:$8!I7!M"8!N .(I'B(!3.I'( .&'(:$,!+5*H!?MN3@E'A!'1:56!
&#$!($OB:($)$5&,!'E!+%P!QKLRKSTLQU!.58!&#$!V$(:E:M-'I.-!2$(E'().5*$!V$(:E:*.&:'5!2('&'*!!'.I-$!
U!,B)).(:^$,!&#$!D$(:E:*.&:'5!($,B-&,!:5!($-.&:'5!&'!&#$!&$*#5'-'67!C$(E'().5*$!C.(.)$&$(,!&#.&!
1$($!:8$5&:E:$8!5!&#$!V$(:E:*.&:'5!2-.5&'!8$&$()5$!&#$!$EE:*.*7!'E!&#$&'()"$*#!+,'-.&'(/!0'1 !
234%!&$*#5'-'67H!
!
!
&.Q-' *] **G!9%%.$@*#7*5'$676(."6#8!0',9-", *AB.68,"* 2'$7#$%.8('*2.$.%""$, !
!

| | | |
|---|---|---|
| 2.(.)$&$(,! !<br>! | V$(:E:$8!>-.:), ! | <**B(.*7 !<br>! |
| "'&.-!%B,C$58$8!<br>%'-:8,!?"%%@$)'D.-!<br>GEE:*:$5*!7 | F.,$8!'5!&#$!-.!'(.&'(7!&$,&:56!*'58B*&$8A!<br>&#$!%&'()"$*# !+,'-.&'(/ !0'1!234%!<br>.*#:$D$8!.5!.D$(.6$!WTX!($)'D.- !<br>$EE:*:$5*7!'E!%%>!<br>! | Y!QX!?Z[X!*'5E:8$5*$ !<br>-$D$-!@<br>! |
| <D$(.6$!3'.8:56!0.&$ !<br>! | F.,$8!'5!&#$!-.!'(.&'(7!&$,&:56! C.(.)$&$(, A!<br>&#$!%&'()"$*# !+,'-.&'( ®!0'1!234%!<br>).:5&.:5$8!.!-'.8:56!(.&$!'E!KHQ[!M29\,E !!<br>! | YLHLR!M29\,E !?Z[X!<br>*'5E:8$5*$!-$D$-!@<br>! |
| 9._:)B)!"($.&)$5&!<br>]-'1!0.&$!?9"]0@ !<br>! | <-&#'B6#!&#$!9"]0!D.(:$,!.)'56!&#$!<br>%&'()"$*#!+,'-.&'( ®!0'1!234%!)'8$-!<br>,:^$,!.58!&#$!5B)I$(!'E!*#.)I$(,A!&#$!<br>8$,:65!,B(E.*$!-'.8:56!(.&$!($).:5,!&#$!<br>,.)$!?KHQR!M29 \E&'E!&($.&)$5&!,B(E.*$!<br>.($.@H!"#$!&$,&!B5:&!*'5,:,&$8!'E!&1'!<br>'D$(-.CC:56!%&'()"$*#!%> ;JKL!*#.)I$(,!<br>1:&#!.!5'):5.-!9"]0!'E!TT[ !M29!?LH[LQ!<br>>]%@!.58!.5!$EE$*&:D$!E:-&(.&:'5!&($.&)$5&!<br>.($.!?G]"<@!'E!.CC('_:).&$-7![KH[!E&?H!<br>! | Y!QHK!M29\Z[X!*'5;<br>E:8$5*$!-$D$-!@<br>! |
| c$&$5&:'5!":)$!.58!<br>V'-B)$ !<br>! | c $&$5&:'5!&:)$!.58!1$&!D'-B)$!D.(:$,!1:&#!<br>)'8$-!,:^$H!"#$!B5:&!&$,&$8!#.8!.!1$&!D'-;<br>B)$!'E!.CC('_:).&$-7!U[HQ!E&?I.,$8!'5! | g\< !<br>! |

!"#$%&'()*+,#-."#$/*0#1*234! **
5'$676(."6#8*!"."'%'8" *
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|---|---|---|
| | C#7,:*.-!)$.,B($)$5&@ !.58!.!8$&$5&:'5!<br>&:)$!'E!THT!):5B&$,H<br>! | |
| 9._:)B)!%$8:)$5&!<br>%&'(.6$!c$C&#!.58!<br>V'-B)$ !!<br>! | "#$!,$8:)$5&!,&'(.6$!D'-B)$!.58!8$C&#!<br>D.(7!.**'(8:56!&'!&#$!%&'()"$*#!+,'-.&'( ®!<br>0'1!234%!)'8$-!,:^$,!.58!,7,&$)!*'5E:6;<br>B(.&:'5H!]'(!&#$!&1!'D$(-.CC:56!%&'()"$*#!<br>%>;JKL!*#.)I$(,!&$,&$8A!&#$!)._:)B)!<br>,$8:)$5&!,&'(.6$!D'-B)$!:,!THR!E&3!.&!.!,$8;<br>:)$5&!8$C&#!'E!LH[!:5*#$,H<br>! | g\< ! |
| GEE$*&:D$!%$8:)$5&.;<br>&:'5\!]:-&(.&:'5!"($.&;<br>)$5&!<($. !<br>! | "#$! $EE$*&:D,$8:)$5&.&:'5!.58!E:-&(.&:'5!<br>&($.&)$5&!.($. !:5*($.,$,! .,!&#$!,:^$!'E!&#$!<br>*#.)I$( !:5*($.,$,H!458$(! &#$&$,&8!*'58:;<br>&:'5,!B,:56!T!'D$(-.CC:56!*#.)I$(, A!&#$!<br>&($.&)$5&!.($.!1.,![KH[!E&2<br>! | "#$!,$8:)$5&.&:'5!<br>\E:-&(.&:'5!.($.!1.,!<br>8$&$():5$8!E(')!&#$!<br>.*&B.-!C#7,:*.-!8:)$5;<br>,:'5,!'E!&#$!&$,&!B5:&p |
| %$8:)$5&!9.,,!3'.8!<br>>.C.*:&7!<br>! | "#$!,$8:)$5&!).,,!-'.8!*.C.*:&7!D.(:$,!<br>.**'(8:56!&'!&#$!%&'()"$*#!+,'-.&'( ®!0'1!<br>234%!)'8$-!,:^$,!.58!,7,&$)!*'5E:6B(.;<br>&:'5H!!]'(!&#$!&1'!'D$(-.CC:56!%&'()"$*# !<br>%>;JKL!*#.)I$(,!&$,&$8A!&#$!).,,!-'.8:56!<br>*.C&B($!1.,!Q[WHK!-I,!?THZ!Q\!E&@!E'--'1;<br>:56!.!&'&.-!,$8:)$5&!-'.8:56!'E!QZ[HT!-I, !<br>! | Y!LHW!-I?YLHLQ!-I,\E@<br>?Z[X!*'5E:8$5*$!-$D;<br>$-@ |

*Note: These numbers are determined based on physical measurement or a dimensional drawing, which is standard practice. Highly accurate measurements are not practical.

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+5!*'5*-B,:'5A!&#$!%&'()"$*#!+,'-.&'(/!0'1!234%!:,!.!D:.I-$!&$*#5'-'67!&#.&!*.5!I$!B,$8!&' !
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#$.D7!) $&.-,A!.58!.!1:8$!D.(:$&7!'E!'(6.5:*!*'5&.):5.5&,H! 2$(E'().5*$!:,!.!EB5*&:'5!'E!C'--B&.5&!
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8$,:65!'E!&#$!,7,&$)!:,!*(:&:*.-!&'!.*#:$D:56!&#$!8$,:($8!($,B-&,H!

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## What is ISO 14034?!

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*-$.(-7AB5.)I:6B'B,-7!.58!'If$*&:D$- 7H!'#$ !+5&$(5.&:'5.!P(6.5:^.&:'5 !E'(!%&.58.(8:^.&:'5!?+%P@
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g'D$)I$(!TLQU H!

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## Benefits of ETV

G"V!*'5&(:IB&$, !&'!C('&$*&:'5 1.58 !*'5,$(D.&:'5 !'E!&#$$5D:('5)$5& !I7 !C(')'&:56 !.58 !E.*:-:&.&:56
).(b$& !BC&.b$E!:55'D.&:D$$5D:('5)$5&.- !&$*#5'-'6:$,A!$,C$*:.--7 !&#',$ !&#.&C$(E'()!I$&&$(!&#.5!
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:55'D.&:D$E$.&B($,!'(!C$(E'().5*$!*.55'& !I$ !EB-!7,,$,,$8 !B,:56!$_:,&:56!,&.58.(8,H!"#('B6# !&#$
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&#$!*($8:I-:&7!'E!5L$A!:55'D.&:D$!&$*#5'-'6:$,!I7!,BCC'(&:56!:5E'()$8!8$*:,:'5 ;).b:56!.)'56!
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| %&'()"$*# A!33>H<br>[TL!>(')1$--!<D$5B$A!0'*b7!N:--A!>"!<br>LULUJ!4%<br>&8qQ WW,WZ,TUZK<br>$S!:5E'r,&'()&$*#H*') !<br>1 S!111H,&'()&$*#H*') !<br>! | V$(:E:M-'I.-!*\'!G"< ;c.5).(b!<\% !<br>Ms&$I'(6!2-.8,!QA!ct ;TQ[L!g'(8#.D$5 !<br>&8qK[!JTTK![ZLL!! !<br>$S!:5E'rD$(:E:6-'I.-H*') !<br>1S!111H!D$(:E:6-'I.-H*') !<br>!<br>! |
| %:65$8!E'(%&'()"$*# S<br>!<br>*Original signed by:*<br>*Greg Spires*<br>M($6!%C:($,A!2H!GH<br>M$5$(.-!9.5.6$( !<br>! | %:65$8!E'(V$(:E:M-'I.-S<br>!<br>*Original signed by:*<br>*Thomas Bruun*<br>"#').,!F(BB5A! 9.5.6:56!c:($*&'( !<br>!<br>!<br>*Original signed by:*<br>*John Neate*<br>d'#5!g$.&$A!9.5.6:56!c:($*&'( !<br>! |

**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.

VerifiGlobal and the Verification Expert, Good Harbour Laboratories, provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.

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

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

**Notes:**

1. Runoff Coefficient 'C' is approximately equal to 0.05 + 0.9*Impervious Fraction.
2. Above chart is based on long term continuous hydrologic analysis of Toronto, Ontario (Bloor St) rainfall data.
3. Assumes 0.6 m sump in CB and that maintenance is performed (i.e. CB cleaning) when required by sediment/pollutant build-up or otherwise.
4. See accompanying chart for suggested maintenance scheduling - AND - get CB Shield Inc. to monitor it for you in field.
5. Sediment/Pollutant removal rates based on third party certified laboratory testing using ETV sediment (PSD analysis available on request).
6. See additional discussion regarding scour protection from CB Shield during more infrequent runoff events.

◆ Verification Statement ◆ Verification Statement ◆ Verification Statement ◆

# VERIFICATION STATEMENT

## GLOBE Performance Solutions

Verifies the performance of

## CB Shield® Stormwater Quality Device

Developed by CB Shield Inc.
Oakville, Ontario, Canada

**Registration: GPS-ETV_VR2022-10-31**

In accordance with

## ISO 14034:2016

**Environmental Management —**
**Environmental Technology Verification (ETV)**

John D. Wiebe, PhD
Executive Chairman
GLOBE Performance Solutions

October 31, 2022
Vancouver, BC, Canada

Verification Body
GLOBE Performance Solutions
404 – 999 Canada Place | Vancouver, B.C | Canada |V6C 3E2

# Technology description and application

The CB Shield® technology provides an environmental benefit of controlling sediment wash off at upstream locations. A standard catch basin has a 1.2 m waterfall inflow that churns up sediment in the sump below causing a very poor rate of sediment retention. The CB Shield is a flow deflection device that is inserted into a standard catch basin. It contains a sloped plate to direct runoff to the back wall of the catch basin, thereby dissipating the energy of stormwater inflows. The dissipation of inflow energy allows time for settling of sediment in stormwater runoff, increasing capture and reducing scour/ re-suspension of previously deposited sediment. Installation involves lowering the unit into a standard sized catch basin, and adjusting the height of the unit to the height of the permanent pool in the sump. The unit is manufactured with durable fiberglass requiring little maintenance and is estimated to be operated on the same cleanout schedule set for the catch basin. Due to high rates of scour in a standard catch basin, they are seldom filled beyond 40% of sump capacity. Clean out routines and expenses are optimized when the CB Shield captures and retains more sediment within the sump.

In an urban setting, there are typically approximately 5 catch basins installed per hectare. Assuming an equal distribution of overland flow, the tested flow rates for the scour and capture tests are meaningful in the context of 78 L/s per hectare and 42 L/s per hectare, respectively. The CB Shield's scour prevention performance has been evaluated in a laboratory setting relative to a standard unshielded catch basin for flows of 1.2 to15.6 L/s. The device's sediment capture performance was evaluated for flows of 0.24 to 8.4 L/s. Hydraulically, the CB Shield has been tested to pass flows up to 60 L/s without any negative impacts (i.e., surcharging).

# Performance conditions

Claim 1: Capture test

The capture test is carried out in a laboratory with a constructed simulated street scape (1 % slope along its 2.4 m ( 96 inch) length, 2 % slope along its 1.2 m (48 inch) width). The catch basin was clean of any litter or debris. Capture performance was tested by comparing the mass of retained sediment with the influent sediment mass for each of six inflow rates: 0.24, 0.48, 1.20, 2.40, 6.00, and 8.40 L/s. The test sediment consisted of ground silica (1 – 1000 micron) with a specific gravity of 2.65, uniformly mixed to meet the particle size distribution specified in the *Procedure for Laboratory Testing of Oil Grit Separators (TRCA, 2014)*. Sediment was injected onto the street scape at a point just upstream of the catch basin to allow mixing prior to discharge while avoiding excessive buildup of sediment on the street scape. The sediment feed rate was adjusted for each flow rate to keep the influent concentrations consistent at 200 mg/L. The tests were conducted with a false floor set at 300 mm below the outlet invert simulating a catch basin that is filled to 50% of the manufacturer's recommended maximum sediment storage.

Claim 2: Scour test

The scour test was carried out in a laboratory on catch basins with and without the CB Shield® insert with a constructed simulated street scape (1 % slope along its 2.4 m ( 96 inch) length, 2 % slope along its 1.2 m (48 inch) width) and the catch basins clean of any litter or debris. A false floor was set in the catch basins at 254 mm below the outlet invert and preloaded with the test sediment (1- 1000 micron silica blend) test up to 150 mm below the outlet invert simulating a catch basin that is ¾ full of sediment. Water was filled to the effluent pipe and sediments were allowed to settle for 12-24 hours. Flows of 1.2, 4.8, 8.4, 12, and 15.6 L/s were tested on a continuous run with flow rates maintained at 5 minutes and a one minute transition time between flow rates. A minimum effluent grab sample of 500 mL was collected in 1000 mL jars by holding it under the entire effluent stream. A sample was taken at 30 seconds during the flow transitions to account for scour during the transition. Background samples were also taken at least once

every flow rate and effluent concentrations were corrected accordingly. Effluent flow was filtered using a 10µm filter and was recycled during the continuous 30 min test.

# Performance claim(s)

Claim 1: Capture test

During the sediment capture test, for a catch basin with a false floor set to 50% of the manufacturer's recommended maximum sediment storage depth and a constant influent sediment concentration of 200 mg/L, the catch basin with a CB Shield® insert removed 64, 59.9, 52.4, 42.6, 25.2, and 26.7 percent of influent test sediment by mass at inflow rates of 0.24, 0.48, 1.20, 2.40, 6.00, and 8.40 L/s, respectively.

Claim 2: Scour test

For a catch basin filled to three quarters of the manufacturer's recommended maximum sediment storage depth, with the CB Shield® insert, scouring of test sediment is at most 8% of the control catch basin during a continuous 30 minute scour test run with 5 minute duration inflows of 1.2, 4.8, 8.4, 12.0, and 15.6 L/s.

# Performance results

The test sediment used to evaluate the CB Shield® technology was the same as that required by CETV for the evaluation of Oil Grit Separators. The comparison of the average test sediment PSD to the CETV specified PSD in Figure 1 indicates that the test sediment was finer than the specified PSD, with a median particle size of approximately 50 microns.

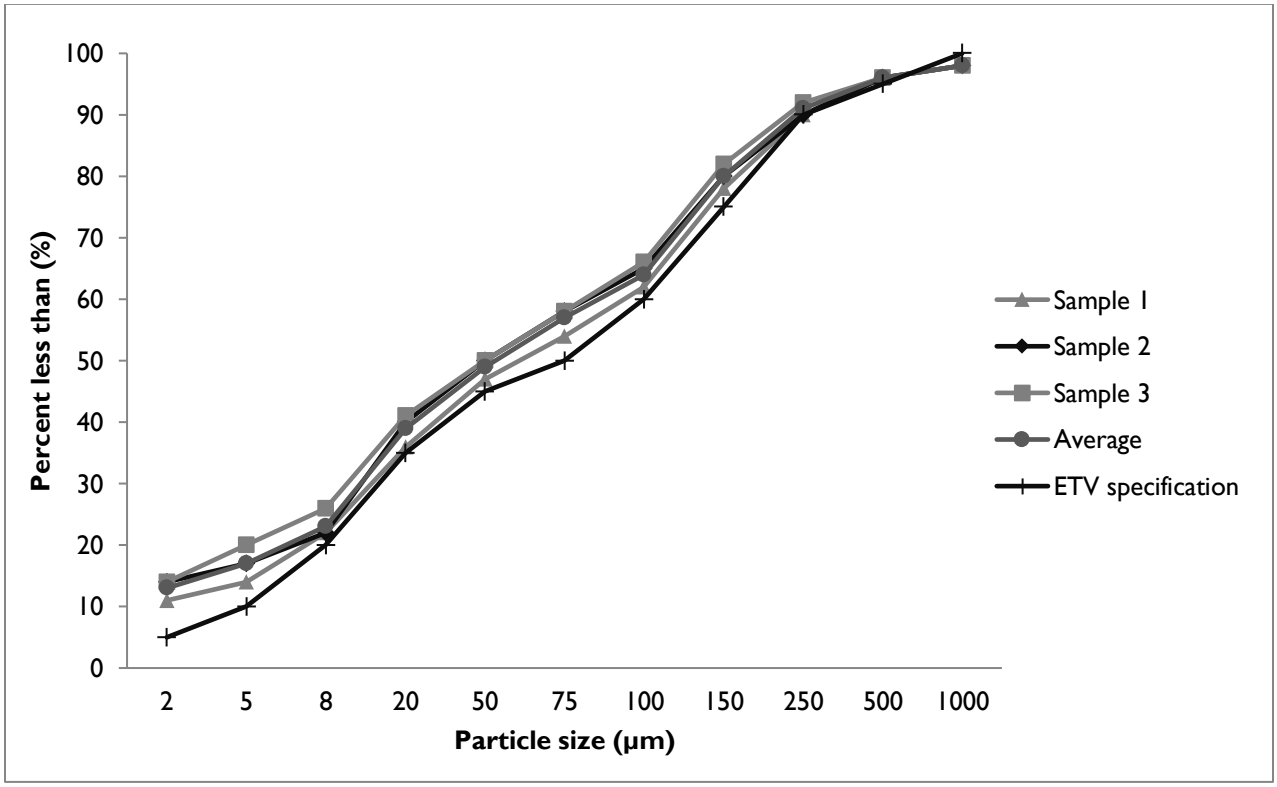


Figure 1. Test sediment particle size distribution (PSD) in relation to specified PSD.

The capacity of the device to retain sediment was determined at six surface loading rates using the modified mass balance method (see TRCA, 2014). During each of the tested flow rates, a known quantity

of sediment was injected at a constant rate onto a simulated street scape just upstream of the catch basin containing the CB Shield® technology. Based on these results, removal efficiencies were determined for each of the tested surface loading rates (Table 1).

Table 1. Removal efficiencies (%) based on modified mass balance results at specified surface loading rates.

| **Flow rate** | **(L/s)** | 0.24 | 0.48 | 1.20 | 2.40 | 6.00 | 8.40 |
|---|---|---|---|---|---|---|---|
| **Surface loading rate** | **(L/min/m²)** | 40 | 80 | 200 | 400 | 1000 | 1400 |
| **Total mass added** | **(kg)** | 1.217 | 2.302 | 5.072 | 5.150 | 4.921 | 4.812 |
| **Total mass captured** | **(kg)** | 0.778 | 1.378 | 2.659 | 2.196 | 1.238 | 1.287 |
| **Removal efficiency** | **(%)** | 64.0 | 59.9 | 52.4 | 42.6 | 25.2 | 26.7 |

Table 2 shows the results of the sediment scour and re-suspension test. This test involved preloading fresh test sediment into the sedimentation area of two catch basins with and without the CB Shield technology, as described in Performance Conditions section above. Effluent samples were collected at one-minute sampling intervals and analyzed for Suspended Sediment Concentration (SSC). The mean sediment scour load of the catch basin with the CB shield insert was shown to be only 5% that of the control catch basin.

Table 2. Scour test effluent sediment concentration and loads.

| Run | Flow rates (L/sec) | Surface loading rate (L/min/m²) | CB Shield® | | | Control | | |
|---|---|---|---|---|---|---|---|---|
| | | | Run time (min) | Effluent suspended sediment concentration (mg/L) | Sediment load (g) | Run time (min) | Effluent suspended sediment concentration (mg/L) | Sediment load (g) |
| | | | 1:00 | 17.7 | 1.3 | 1:00 | 129.2 | 9.7 |
| | | | 2:00 | 6.5 | 0.47 | 2:00 | 185.3 | 13.9 |
| | | | 3:00 | 2.7 | 0.19 | 3:00 | 206.0 | 15.5 |
| | | | 4:00 | 3.1 | 0.22 | 4:00 | 176.0 | 13.2 |
| | | | 5:00 | 4.6 | 0.33 | 5:00 | 523.6 | 39.4 |
| | | | 6:00 | 0.6 | 0.04 | 6:00 | 495.7 | 41.8 |
| 1 | 1.2 | 200 | **Sum** | | **2.6** | **Sum** | | **133.5** |
| | | | 7:00 | 8.2 | 2.4 | 7:00 | 7164.0 | 2069.0 |
| | | | 8:00 | 4 | 1.2 | 8:00 | 8094.0 | 2338.0 |
| | | | 9:00 | 0.6 | 0.2 | 9:00 | 6762.0 | 1950.0 |
| | | | 10:00 | 0.6 | 0.2 | 10:00 | 4842.0 | 1393.0 |
| | | | 11:00 | 1.7 | 0.5 | 11:00 | 5266.0 | 1517.0 |
| | | | 12:00 | 0.6 | 0.2 | 12:00 | 4768.0 | 1457.0 |
| 2 | 4.8 | 800 | **Sum** | | **4.7** | **Sum** | | **10724.0** |
| | | | 13:00 | 5.4 | 2.7 | 13:00 | 5429.0 | 2725.0 |
| | | | 14:00 | 10.0 | 5.0 | 14:00 | 6648.0 | 3332.0 |
| | | | 15:00 | 9.5 | 4.8 | 15:00 | 5025.0 | 2528.0 |
| | | | 16:00 | 10.0 | 5.0 | 16:00 | 5859.0 | 2939.0 |
| | | | 17:00 | 8.4 | 4.2 | 17:00 | 5019.0 | 2515.0 |
| | | | 18:00 | 8.2 | 4.1 | 18:00 | 3249.0 | 1628.0 |
| 3 | 8.4 | 1400 | **Sum** | | **25.8** | **Sum** | | **15667.0** |
| | | | 19:00 | 38.4 | 27.6 | 25:30 | 1886.0 | 1347.0 |
| | | | 20:00 | 79.4 | 57.2 | 26:30 | 1432.0 | 1027.0 |
| | | | 21:00 | 113.0 | 81.3 | 27:30 | 1167.0 | 844.0 |
| | | | 22:00 | 103.0 | 74.2 | 28:30 | 1508.0 | 1089.0 |
| | | | 23:00 | 114.0 | 82.1 | 29:30 | 1100.0 | 795.0 |
| | | | 24:00 | 92.3 | 66.5 | 30:30 | 708.0 | 512.0 |
| 4 | 12 | 2000 | **Sum** | | **388.9** | **Sum** | | **5614.0** |
| | | | 25:00 | 117.4 | 166.0 | 52:30 | 386.9 | 364.8 |
| | | | 26:00 | 211.6 | 198.1 | 53:30 | 252.7 | 237.8 |
| | | | 27:00 | 220.3 | 206.2 | 54:30 | 372.5 | 349.6 |
| | | | 28:00 | 187.8 | 175.8 | 55:30 | 332.4 | 311.7 |
| | | | 29:00 | 224.4 | 210.0 | 56:30 | 279.8 | 262.6 |
| | | | 30:00 | 199.2 | 186.5 | 57:30 | 310.2 | 290.9 |
| 5 | 15.6 | 2600 | **Sum** | | **1142.6** | **Sum** | | **1817.4** |
| **Total load** | | | | | **1564.6** | | | **33956.0** |

# Potential sources of error

1. Background concentrations during the scour test were measured to be generally under 5 mg/L for both CB Shield® and Control treatments. However, background concentrations for the Control treatment at flow rates of 12.0 L/s and 15.6 L/s were substantially higher than the expected threshold of 20 mg/L as a result of inefficient recycling of water in the laboratory. Effluent samples were corrected based on the measured background concentrations since it was assumed that background sediments consisted of fine particles that were not captured in the device and flowed through as effluent concentration. If instead, some of the background sediments settled, the correction for all background sediments would bias against the relative performance of the CB Shield and therefore result in a more conservative evaluation of the CB Shield technology performance.

2. The reduction in scour at higher flow rates for the Control treatment suggested that the amount of preloaded sediment (10.2 cm depth) may have been insufficient to provide a continuous supply of fine particles for scour throughout the test. A similar decrease in scour at high flow rates was not observed for the CB Shield® treatment. This interpretation of the data implies that preloading both catch basins with additional sediment would likely have shown increased relative scour for the Control treatment, particularly at high flow rates. Although further testing would be required to verify this interpretation, it is reasonable to suggest that the test as conducted may have produced a smaller relative difference, resulting in a more conservative claim for the CB Shield technology.

# Verification

This verification was first completed in October, 2016 and is considered valid for subsequent renewal periods every three (3) years thereafter. Data and information provided by CB Shield Inc. to support the performance claim included the following: Performance test report prepared by Good Harbour Laboratories of Mississauga, Ontario, dated 24 August 2016; the report was based on testing completed in accordance with the Procedure for Laboratory Testing of Oil-Grit Separators (Version 3.0, June 2014).

The original verification was completed by the Toronto and Region Conservation Authority, contracted by GLOBE Performance Solutions, using the Canadian ETV Program's General Verification Protocol (June 2012) and taking into account ISO/FDIS 14034:2015(E). This ETV renewal is considered to meet the equivalency of an ETV verification completed using the International Standard ***ISO 14034:2016 Environmental management -- Environmental technology verification (ETV)***.

# What is ISO14034:2016 Environmental management – Environmental technology verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV) and was developed and published by the *International Organization for Standardization (ISO)*. The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

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**PETERBOROUGH**
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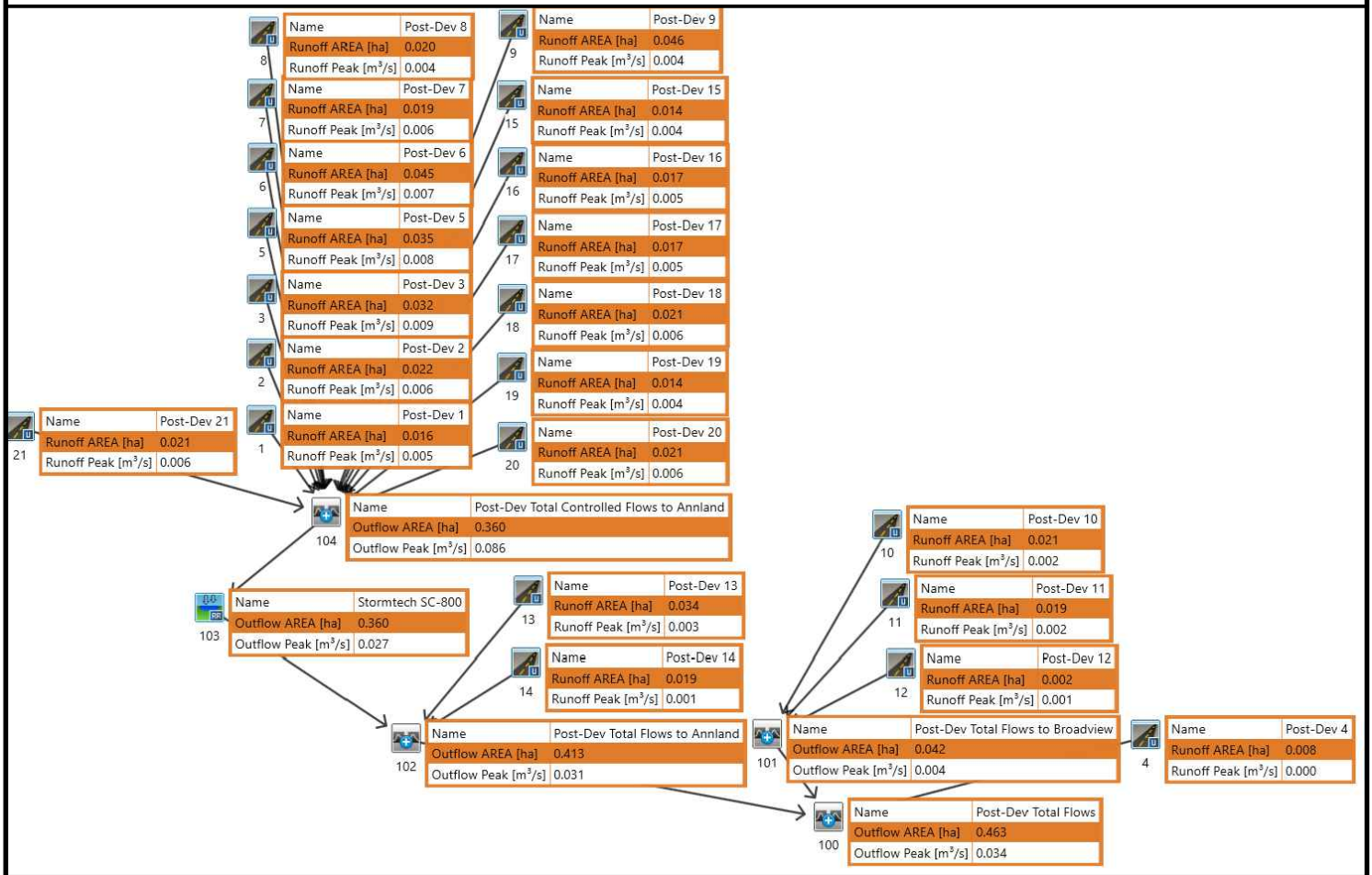
Peterborough, ON K9J 2R9
705-201-0272

dgbiddle.com

# SCHEDULE 3

## FIGURE 2: VISUAL OTTHYMO SCHEMATIC
## VISUAL OTTHYMO 6.2 OUTPUT




666–682 LIVER POOL RD, PICKERING ON FOR: BRIAN MOSS & ASSOCIATES LTD.

# HYMO SCHEME

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS

96 King Street East
Oshawa, Ontario, L1H 1B6

Phone: 905-576-8500

info@dgbiddle.com
dgbiddle.com

PROJECT NO. 124123

DRAWING NO. FIGURE 2

| | |
|---|---|
| SCALE: N.T.S. | DRAWN BY: B.K.Y. |
| DATE: MARCH 2025 | CHECKED BY: C.J.F. |

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\0583656
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\0583656


DATE: 05-05-2025                          TIME: 10:45:56

USER:


COMMENTS: _____________________________________________________


-------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 100yr 1hr AES                 **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\BenjaminYan\AppD
|                  |              ata\Local\Temp\
|                  |              fa7bedf1-2fde-4000-bb8a-f77f7e2f7efc\0ad055bb
| Ptotal= 56.04 mm |    Comments: 100yr 1hr AES
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  0.33  100.87 |  0.67   53.80 |  1.00    6.72
               0.08    6.72 |  0.42  188.29 |  0.75   33.62 |
               0.17   20.17 |  0.50  100.87 |  0.83   20.17 |
               0.25   53.80 |  0.58   80.70 |  0.92    6.72 |

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

--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  94.29   Dir. Conn.(%)=  94.29
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.33        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.51 (ii)    2.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.30
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          53.60
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0002)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  95.71   Dir. Conn.(%)=  95.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      12.11        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.56 (ii)    2.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.31
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.011 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          53.96
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0003)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  84.29   Dir. Conn.(%)=  84.29
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.61        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.63 (ii)    3.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.26
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.015 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          51.07
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.91

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0005)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.57   Dir. Conn.(%)=  68.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      15.28        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
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     Storage Coeff.  (min)=       0.64 (ii)    4.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.015 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          47.05
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.84

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0006)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.14   Dir. Conn.(%)=  47.14
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.69 (ii)    8.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.013 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          41.69
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0007)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.53 (ii)    0.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.010 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.71   Dir. Conn.(%)=  65.71
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.55        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.54 (ii)    4.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.22
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          46.32
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.83

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0009)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.51        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.70 (ii)    8.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.010 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          37.00
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.66

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0015)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.49 (ii)    0.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
```

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                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0016)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.52 (ii)    0.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0017)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.52 (ii)    0.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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            |
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```
| STANDHYD (  0018)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.55 (ii)    0.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.011 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0019)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.49 (ii)    0.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04        29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04        56.04          56.04
     RUNOFF COEFFICIENT   =       0.98         0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0020)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     188.29        84.38
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.55 (ii)    0.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.011 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
```

```
     RUNOFF VOLUME    (mm)=      55.04         29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04         56.04          56.04
     RUNOFF COEFFICIENT   =       0.98          0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0021)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.83         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     188.29         84.38
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.55 (ii)     0.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW        (cms)=      0.01          0.00           0.011 (iii)
     TIME TO PEAK     (hrs)=      0.50          0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04         29.94          55.04
     TOTAL RAINFALL   (mm)=      56.04         56.04          56.04
     RUNOFF COEFFICIENT   =       0.98          0.53           0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.02   0.008     0.50    53.60
     + ID2= 2 (  0015):     0.01   0.007     0.50    55.04
       ================================================
       ID = 3 (  0104):     0.03   0.015     0.50    54.27

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.03   0.015     0.50    54.27
     + ID2= 2 (  0016):     0.02   0.009     0.50    55.04
       ================================================
       ID = 1 (  0104):     0.05   0.024     0.50    54.55

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.05   0.024     0.50    54.55
     + ID2= 2 (  0017):     0.02   0.009     0.50    55.04
       ================================================
       ID = 3 (  0104):     0.06   0.033     0.50    54.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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```
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.06   0.033     0.50    54.68
     + ID2= 2 (  0018):     0.02   0.011     0.50    55.04
       ================================================
       ID = 1 (  0104):     0.09   0.044     0.50    54.77

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.09   0.044     0.50    54.77
     + ID2= 2 (  0019):     0.01   0.007     0.50    55.04
       ================================================
       ID = 3 (  0104):     0.10   0.052     0.50    54.81

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.10   0.052     0.50    54.81
     + ID2= 2 (  0002):     0.02   0.011     0.50    53.96
       ================================================
       ID = 1 (  0104):     0.12   0.063     0.50    54.65

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.12   0.063     0.50    54.65
     + ID2= 2 (  0020):     0.02   0.011     0.50    55.04
       ================================================
       ID = 3 (  0104):     0.14   0.074     0.50    54.71

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.14   0.074     0.50    54.71
     + ID2= 2 (  0021):     0.02   0.011     0.50    55.04
       ================================================
       ID = 1 (  0104):     0.16   0.085     0.50    54.75

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.16   0.085     0.50    54.75
     + ID2= 2 (  0003):     0.03   0.015     0.50    51.07
       ================================================
       ID = 3 (  0104):     0.19   0.100     0.50    54.15

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.19   0.100     0.50    54.15
     + ID2= 2 (  0005):     0.04   0.015     0.50    47.05
       ================================================
       ID = 1 (  0104):     0.23   0.115     0.50    53.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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```
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.23   0.115     0.50    53.07
     + ID2= 2 (  0006):     0.05   0.013     0.50    41.69
       ================================================
       ID = 3 (  0104):     0.28   0.128     0.50    51.21

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

-------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.28   0.128     0.50    51.21
     + ID2= 2 (  0007):     0.02   0.010     0.50    55.04
       ================================================
       ID = 1 (  0104):     0.29   0.138     0.50    51.45

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

-------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.29   0.138     0.50    51.45
     + ID2= 2 (  0008):     0.02   0.008     0.50    46.32
       ================================================
       ID = 3 (  0104):     0.31   0.146     0.50    51.13

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

-------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.31   0.146     0.50    51.13
     + ID2= 2 (  0009):     0.05   0.010     0.50    37.00
       ================================================
       ID = 1 (  0104):     0.36   0.156     0.50    49.32

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0103)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0284      0.0052
                           0.0091      0.0006   |    0.0299      0.0052
                           0.0129      0.0013   |    0.0314      0.0053
                           0.0158      0.0019   |    0.0328      0.0054
                           0.0182      0.0025   |    0.0341      0.0054
                           0.0203      0.0031   |    0.0347      0.0055
                           0.0223      0.0036   |    0.0353      0.0055
                           0.0241      0.0041   |    0.0359      0.0059
                           0.0261      0.0047   |    0.0364      0.0073
                           0.0277      0.0050   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0104)     0.360     0.156      0.50      49.32
   OUTFLOW: ID= 1 (  0103)     0.360     0.038      0.83      49.29

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.08
                  TIME SHIFT OF PEAK FLOW         (min)= 20.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0103

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.14   Dir. Conn.(%)=  27.14
-------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.01         0.02
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     15.06        40.00
     Mannings n           =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    188.29        84.38
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      0.64 (ii)    8.19 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.34         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.00         0.00        0.007 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.67         0.50
     RUNOFF VOLUME    (mm)=     55.04        29.94        36.64
     TOTAL RAINFALL   (mm)=     56.04        56.04        56.04
     RUNOFF COEFFICIENT   =      0.98         0.53         0.65

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0014)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
-------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.00         0.02
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     11.25        40.00
     Mannings n           =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    188.29        84.38
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      0.53 (ii)    8.09 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.34         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.00         0.00        0.003 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.67         0.67
     RUNOFF VOLUME    (mm)=     55.04        29.94        29.67
     TOTAL RAINFALL   (mm)=     56.04        56.04        56.04
     RUNOFF COEFFICIENT   =      0.98         0.53         0.53

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

-------------------
| ADD HYD  (  0102)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     0.36   0.038     0.83    49.29
     + ID2= 2 (  0013):     0.03   0.007     0.50    36.64
       ================================================
       ID = 3 (  0102):     0.39   0.043     0.67    48.20

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

-------------------
| ADD HYD  (  0102)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0102):     0.39   0.043     0.67    48.20
     + ID2= 2 (  0014):     0.02   0.003     0.67    29.67
       ================================================
       ID = 1 (  0102):     0.41   0.047     0.67    47.35

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0004)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
```

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--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.01
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=       7.30         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     188.29         84.38
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.41 (ii)     7.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.67           0.67
     RUNOFF VOLUME    (mm)=      55.04         29.94          29.46
     TOTAL RAINFALL   (mm)=      56.04         56.04          56.04
     RUNOFF COEFFICIENT   =       0.98          0.53           0.53

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0010)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.83         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     188.29         84.38
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.55 (ii)     8.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.67           0.50
     RUNOFF VOLUME    (mm)=      55.04         29.94          36.91
     TOTAL RAINFALL   (mm)=      56.04         56.04          56.04
     RUNOFF COEFFICIENT   =       0.98          0.53           0.66

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0011)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  25.71   Dir. Conn.(%)=  25.71
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.01
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.25         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     188.29         84.38
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.53 (ii)     8.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.67           0.50
     RUNOFF VOLUME    (mm)=      55.04         29.94          36.19
     TOTAL RAINFALL   (mm)=      56.04         56.04          56.04
     RUNOFF COEFFICIENT   =       0.98          0.53           0.65

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0012)|   Area    (ha)=   0.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=       3.65         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     188.29         84.38
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.27 (ii)     0.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50           0.50
     RUNOFF VOLUME    (mm)=      55.04         29.94          53.92
     TOTAL RAINFALL   (mm)=      56.04         56.04          56.04
     RUNOFF COEFFICIENT   =       0.98          0.53           0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0101)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):     0.02   0.004     0.50    36.91
     + ID2= 2 (  0011):     0.02   0.004     0.50    36.19
       ==================================================
       ID = 3 (  0101):     0.04   0.008     0.50    36.57

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

--------------------
| ADD HYD  (  0101)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0101):     0.04   0.008     0.50    36.57
     + ID2= 2 (  0012):     0.00   0.001     0.50    53.92
       ==================================================
       ID = 1 (  0101):     0.04   0.009     0.50    37.40

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

--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.04   0.009     0.50    37.40
     + ID2= 2 (  0102):     0.41   0.047     0.67    47.35
       ==================================================
       ID = 3 (  0100):     0.46   0.054     0.58    46.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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```
| ADD HYD  (  0100)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
------------------            (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0100):     0.46   0.054     0.58    46.43
     + ID2= 2 (  0004):     0.01   0.001     0.67    29.46
       ==========================================
       ID = 1 (  0100):     0.46   0.056     0.58    46.14

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

 FINISH
================================================================================================================

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\3a99752
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\3a99752


DATE: 05-05-2025                          TIME: 10:45:55

USER:


COMMENTS: _____________________________________________________________


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  ************************************************
  ** SIMULATION : 10yr 1hr AES                  **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\BenjaminYan\AppD
|                  |              ata\Local\Temp\
|                  |              fa7bedf1-2fde-4000-bb8a-f77f7e2f7efc\5710fbc2
| Ptotal= 38.10 mm |    Comments: 10yr 1hr AES
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  0.33   68.58 |  0.67   36.58 |  1.00    4.57
                0.08    4.57 |  0.42  128.02 |  0.75   22.86 |
                0.17   13.72 |  0.50   68.58 |  0.83   13.72 |
                0.25   36.58 |  0.58   54.86 |  0.92    4.57 |

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  94.29   Dir. Conn.(%)=  94.29
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.02         0.00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     10.33        40.00
     Mannings n            =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.59 (ii)    2.68 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.29
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00         0.005 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.50         0.50
     RUNOFF VOLUME    (mm)=     37.10        16.45        35.92
     TOTAL RAINFALL   (mm)=     38.10        38.10        38.10
     RUNOFF COEFFICIENT   =      0.97         0.43         0.94

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0002)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  95.71   Dir. Conn.(%)=  95.71
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.02         0.00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     12.11        40.00
     Mannings n            =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.65 (ii)    2.50 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.29
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00         0.008 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.50         0.50
     RUNOFF VOLUME    (mm)=     37.10        16.45        36.21
     TOTAL RAINFALL   (mm)=     38.10        38.10        38.10
     RUNOFF COEFFICIENT   =      0.97         0.43         0.95

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0003)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  84.29   Dir. Conn.(%)=  84.29
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.03         0.01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     14.61        40.00
     Mannings n            =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.73 (ii)    4.00 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.24
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00         0.010 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.50         0.50
     RUNOFF VOLUME    (mm)=     37.10        16.45        33.84
     TOTAL RAINFALL   (mm)=     38.10        38.10        38.10
     RUNOFF COEFFICIENT   =      0.97         0.43         0.89

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0005)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.57   Dir. Conn.(%)=  68.57
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      15.28        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.75 (ii)    5.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.58          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         30.55
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.80

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0006)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.14   Dir. Conn.(%)=  47.14
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       0.81 (ii)   10.46 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         26.08
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.68

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0007)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.62 (ii)    0.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         37.10
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.71   Dir. Conn.(%)=  65.71
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.55        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.63 (ii)    5.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         29.84
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0009)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.51        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       0.81 (ii)   10.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         22.20
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.58

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0015)|   Area    (ha)=   0.01
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|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    0.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         37.10
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0016)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.60 (ii)    0.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         37.10
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0017)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.60 (ii)    0.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         37.10
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0018)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.64 (ii)    0.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         37.10
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0019)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    0.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         37.10
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0020)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
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```
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.64 (ii)    0.80 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00       0.007 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.50        0.50
     RUNOFF VOLUME    (mm)=     37.10        16.45       37.10
     TOTAL RAINFALL   (mm)=     38.10        38.10       38.10
     RUNOFF COEFFICIENT   =      0.97         0.43        0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0021)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      0.64 (ii)    0.80 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.01         0.00       0.007 (iii)
     TIME TO PEAK    (hrs)=      0.50         0.50        0.50
     RUNOFF VOLUME    (mm)=     37.10        16.45       37.10
     TOTAL RAINFALL   (mm)=     38.10        38.10       38.10
     RUNOFF COEFFICIENT   =      0.97         0.43        0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.02   0.005     0.50    35.92
     + ID2= 2 (  0015):     0.01   0.005     0.50    37.10
       ================================================
       ID = 3 (  0104):     0.03   0.010     0.50    36.47

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.03   0.010     0.50    36.47
     + ID2= 2 (  0016):     0.02   0.006     0.50    37.10
       ================================================
       ID = 1 (  0104):     0.05   0.017     0.50    36.70

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.05   0.017     0.50    36.70
     + ID2= 2 (  0017):     0.02   0.006     0.50    37.10
       ================================================
       ID = 3 (  0104):     0.06   0.023     0.50    36.80

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.06   0.023     0.50    36.80
     + ID2= 2 (  0018):     0.02   0.007     0.50    37.10
       ================================================
       ID = 1 (  0104):     0.09   0.030     0.50    36.88

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.09   0.030     0.50    36.88
     + ID2= 2 (  0019):     0.01   0.005     0.50    37.10
       ================================================
       ID = 3 (  0104):     0.10   0.035     0.50    36.91

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.10   0.035     0.50    36.91
     + ID2= 2 (  0002):     0.02   0.008     0.50    36.21
       ================================================
       ID = 1 (  0104):     0.12   0.043     0.50    36.78

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.12   0.043     0.50    36.78
     + ID2= 2 (  0020):     0.02   0.007     0.50    37.10
       ================================================
       ID = 3 (  0104):     0.14   0.050     0.50    36.83

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.14   0.050     0.50    36.83
     + ID2= 2 (  0021):     0.02   0.007     0.50    37.10
       ================================================
       ID = 1 (  0104):     0.16   0.058     0.50    36.86

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.16   0.058     0.50    36.86
     + ID2= 2 (  0003):     0.03   0.010     0.50    33.84
       ================================================
       ID = 3 (  0104):     0.19   0.068     0.50    36.37

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

```
--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.19   0.068     0.50    36.37
     + ID2= 2 (  0005):     0.04   0.009     0.50    30.55
       ================================================
       ID = 1 (  0104):     0.23   0.077     0.50    35.48

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.23   0.077     0.50    35.48
     + ID2= 2 (  0006):     0.05   0.008     0.50    26.08
       ================================================
       ID = 3 (  0104):     0.28   0.085     0.50    33.94

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.28   0.085     0.50    33.94
     + ID2= 2 (  0007):     0.02   0.007     0.50    37.10
       ================================================
       ID = 1 (  0104):     0.29   0.092     0.50    34.15

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.29   0.092     0.50    34.15
     + ID2= 2 (  0008):     0.02   0.005     0.50    29.84
       ================================================
       ID = 3 (  0104):     0.31   0.097     0.50    33.87

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.31   0.097     0.50    33.87
     + ID2= 2 (  0009):     0.05   0.005     0.50    22.20
       ================================================
       ID = 1 (  0104):     0.36   0.102     0.50    32.38

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0103)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0284      0.0052
                           0.0091      0.0006   |    0.0299      0.0052
                           0.0129      0.0013   |    0.0314      0.0053
                           0.0158      0.0019   |    0.0328      0.0054
                           0.0182      0.0025   |    0.0341      0.0054
                           0.0203      0.0031   |    0.0347      0.0055
                           0.0223      0.0036   |    0.0353      0.0055
                           0.0241      0.0041   |    0.0359      0.0059
                           0.0261      0.0047   |    0.0364      0.0073
                           0.0277      0.0050   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0104)     0.360     0.102      0.50      32.38
   OUTFLOW: ID= 1 (  0103)     0.360     0.036      0.75      32.34

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 34.99
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0058
```

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.14   Dir. Conn.(%)=  27.14
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      15.06         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     128.02         45.67
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       0.74 (ii)    10.40 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.09
                                                            *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.75          0.50
     RUNOFF VOLUME    (mm)=      37.10         16.45         21.91
     TOTAL RAINFALL   (mm)=      38.10         38.10         38.10
     RUNOFF COEFFICIENT   =       0.97          0.43          0.58

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0     Ia = Dep. 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 (  0014)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.25         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     128.02         45.67
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       0.62 (ii)    10.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.09
                                                            *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.75          0.75
     RUNOFF VOLUME    (mm)=      37.10         16.45         16.14
     TOTAL RAINFALL   (mm)=      38.10         38.10         38.10
     RUNOFF COEFFICIENT   =       0.97          0.43          0.42

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0     Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0102)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     0.36   0.036     0.75    32.34
     + ID2= 2 (  0013):     0.03   0.004     0.50    21.91
       ================================================
       ID = 3 (  0102):     0.39   0.039     0.67    31.44

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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```
| ADD HYD  (  0102)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0102):     0.39   0.039     0.67    31.44
     + ID2= 2 (  0014):     0.02   0.002     0.75    16.14
       ================================================
       ID = 1 (  0102):     0.41   0.040     0.75    30.74

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| CALIB           |
| STANDHYD (  0004)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       7.30        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.48 (ii)   10.14 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.10
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.75
     RUNOFF VOLUME    (mm)=      37.10        16.45         15.66
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.41

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0010)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.64 (ii)   10.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         22.13
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.58

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0011)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  25.71   Dir. Conn.(%)=  25.71
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.62 (ii)   10.28 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         21.38
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.56

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0012)|   Area    (ha)=   0.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       3.65        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=     128.02        45.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.32 (ii)    0.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      37.10        16.45         35.19
     TOTAL RAINFALL   (mm)=      38.10        38.10         38.10
     RUNOFF COEFFICIENT   =       0.97         0.43          0.92

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

-------------------
| ADD HYD  (  0101)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):     0.02   0.002     0.50    22.13
     + ID2= 2 (  0011):     0.02   0.002     0.50    21.38
       ================================================
       ID = 3 (  0101):     0.04   0.005     0.50    21.78

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

-------------------
| ADD HYD  (  0101)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0101):     0.04   0.005     0.50    21.78
     + ID2= 2 (  0012):     0.00   0.001     0.50    35.19
       ================================================
       ID = 1 (  0101):     0.04   0.005     0.50    22.42

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

```
--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.04   0.005     0.50    22.42
     + ID2= 2 (  0102):     0.41   0.040     0.75    30.74
       ================================================
       ID = 3 (  0100):     0.46   0.044     0.67    29.97

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

--------------------
| ADD HYD  (  0100)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0100):     0.46   0.044     0.67    29.97
     + ID2= 2 (  0004):     0.01   0.001     0.75    15.66
       ================================================
       ID = 1 (  0100):     0.46   0.045     0.67    29.72

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\24a9ec8
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\24a9ec8


DATE: 05-05-2025                          TIME: 10:45:55

USER:


COMMENTS: _____________________________________________________


----------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 25yr 1hr AES                  **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\BenjaminYan\AppD
|                  |              ata\Local\Temp\
|                  |              fa7bedf1-2fde-4000-bb8a-f77f7e2f7efc\df902870
| Ptotal= 45.30 mm |    Comments: 25yr 1hr AES
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.00    0.00 |  0.33   81.54 |  0.67   43.49 |  1.00    5.44
               0.08    5.44 |  0.42  152.21 |  0.75   27.18 |
               0.17   16.31 |  0.50   81.54 |  0.83   16.31 |
               0.25   43.49 |  0.58   65.23 |  0.92    5.44 |

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--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  94.29   Dir. Conn.(%)=  94.29
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      10.33         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)          5.00          5.00
     Storage Coeff.  (min)=       0.55 (ii)     2.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30         21.65         43.00
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.95

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0002)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  95.71   Dir. Conn.(%)=  95.71
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      12.11         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)          5.00          5.00
     Storage Coeff.  (min)=       0.61 (ii)     2.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.30
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30         21.65         43.33
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0003)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  84.29   Dir. Conn.(%)=  84.29
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03          0.01
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      14.61         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)          5.00          5.00
     Storage Coeff.  (min)=       0.68 (ii)     3.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.012 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30         21.65         40.72
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.90
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0005)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.57   Dir. Conn.(%)=  68.57
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      15.28        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.70 (ii)    5.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.011 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.58          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         37.11
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.82

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0006)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.14   Dir. Conn.(%)=  47.14
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.75 (ii)    9.38 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.010 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         32.22
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.71

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0007)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.58 (ii)    0.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         44.30
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.71   Dir. Conn.(%)=  65.71
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.55        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.59 (ii)    5.19 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.58          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         36.32
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.80

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0009)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.51        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.76 (ii)    9.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         27.98
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.62

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
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```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0015)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.53 (ii)    0.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65       44.30
     TOTAL RAINFALL   (mm)=      45.30        45.30       45.30
     RUNOFF COEFFICIENT   =       0.98         0.48        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0016)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.56 (ii)    0.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65       44.30
     TOTAL RAINFALL   (mm)=      45.30        45.30       45.30
     RUNOFF COEFFICIENT   =       0.98         0.48        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0017)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.56 (ii)    0.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65       44.30
     TOTAL RAINFALL   (mm)=      45.30        45.30       45.30
     RUNOFF COEFFICIENT   =       0.98         0.48        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0018)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.60 (ii)    0.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65       44.30
     TOTAL RAINFALL   (mm)=      45.30        45.30       45.30
     RUNOFF COEFFICIENT   =       0.98         0.48        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0019)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.53 (ii)    0.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65       44.30
     TOTAL RAINFALL   (mm)=      45.30        45.30       45.30
     RUNOFF COEFFICIENT   =       0.98         0.48        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    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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--------------------
| CALIB            |
| STANDHYD (  0020)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.83         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.60 (ii)     0.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30         21.65         44.30
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0021)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.83         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.60 (ii)     0.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30         21.65         44.30
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.02   0.007     0.50    43.00
     + ID2= 2 (  0015):     0.01   0.006     0.50    44.30
       ================================================
       ID = 3 (  0104):     0.03   0.012     0.50    43.61

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.03   0.012     0.50    43.61
     + ID2= 2 (  0016):     0.02   0.007     0.50    44.30
       ================================================
       ID = 1 (  0104):     0.05   0.020     0.50    43.86

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.05   0.020     0.50    43.86
     + ID2= 2 (  0017):     0.02   0.007     0.50    44.30
       ================================================
       ID = 3 (  0104):     0.06   0.027     0.50    43.97

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.06   0.027     0.50    43.97
     + ID2= 2 (  0018):     0.02   0.009     0.50    44.30
       ================================================
       ID = 1 (  0104):     0.09   0.036     0.50    44.05

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.09   0.036     0.50    44.05
     + ID2= 2 (  0019):     0.01   0.006     0.50    44.30
       ================================================
       ID = 3 (  0104):     0.10   0.042     0.50    44.09

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.10   0.042     0.50    44.09
     + ID2= 2 (  0002):     0.02   0.009     0.50    43.33
       ================================================
       ID = 1 (  0104):     0.12   0.051     0.50    43.95

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.12   0.051     0.50    43.95
     + ID2= 2 (  0020):     0.02   0.009     0.50    44.30
       ================================================
       ID = 3 (  0104):     0.14   0.060     0.50    44.00

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.14   0.060     0.50    44.00
     + ID2= 2 (  0021):     0.02   0.009     0.50    44.30
       ================================================
       ID = 1 (  0104):     0.16   0.068     0.50    44.04

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

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

```
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0104):      0.16     0.068     0.50     44.04
     + ID2= 2 (  0003):      0.03     0.012     0.50     40.72
       ================================================
       ID = 3 (  0104):      0.19     0.081     0.50     43.49

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

-------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0104):      0.19     0.081     0.50     43.49
     + ID2= 2 (  0005):      0.04     0.011     0.50     37.11
       ================================================
       ID = 1 (  0104):      0.23     0.092     0.50     42.52

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

-------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0104):      0.23     0.092     0.50     42.52
     + ID2= 2 (  0006):      0.05     0.010     0.50     32.22
       ================================================
       ID = 3 (  0104):      0.28     0.102     0.50     40.84

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

-------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0104):      0.28     0.102     0.50     40.84
     + ID2= 2 (  0007):      0.02     0.008     0.50     44.30
       ================================================
       ID = 1 (  0104):      0.29     0.110     0.50     41.06

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

-------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0104):      0.29     0.110     0.50     41.06
     + ID2= 2 (  0008):      0.02     0.006     0.50     36.32
       ================================================
       ID = 3 (  0104):      0.31     0.116     0.50     40.76

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

-------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0104):      0.31     0.116     0.50     40.76
     + ID2= 2 (  0009):      0.05     0.007     0.50     27.98
       ================================================
       ID = 1 (  0104):      0.36     0.123     0.50     39.13

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
-------------------
| RESERVOIR(  0103)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0284      0.0052
                          0.0091      0.0006   |    0.0299      0.0052
                          0.0129      0.0013   |    0.0314      0.0053
                          0.0158      0.0019   |    0.0328      0.0054
                          0.0182      0.0025   |    0.0341      0.0054
                          0.0203      0.0031   |    0.0347      0.0055
                          0.0223      0.0036   |    0.0353      0.0055
                          0.0241      0.0041   |    0.0359      0.0059
                          0.0261      0.0047   |    0.0364      0.0073
                          0.0277      0.0050   |    0.0000      0.0000

                                      AREA     QPEAK     TPEAK      R.V.
                                      (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0104)      0.360      0.123      0.50      39.13
   OUTFLOW: ID= 1 (  0103)      0.360      0.036      0.75      39.10

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.51
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0075

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.14   Dir. Conn.(%)=  27.14
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      15.06         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.69 (ii)     9.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.67          0.50
     RUNOFF VOLUME    (mm)=      44.30         21.65         27.65
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.61

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0014)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
-------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.25         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     152.21         60.54
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.58 (ii)     9.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.67          0.67
     RUNOFF VOLUME    (mm)=      44.30         21.65         21.33
     TOTAL RAINFALL   (mm)=      45.30         45.30         45.30
     RUNOFF COEFFICIENT   =       0.98          0.48          0.47

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

-------------------
| ADD HYD  (  0102)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
```

```
                    (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     0.36   0.036     0.75    39.10
     + ID2= 2 (  0013):     0.03   0.005     0.50    27.65
       ================================================
       ID = 3 (  0102):     0.39   0.041     0.67    38.11

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

--------------------
| ADD HYD  (  0102)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0102):     0.39   0.041     0.67    38.11
     + ID2= 2 (  0014):     0.02   0.002     0.67    21.33
       ================================================
       ID = 1 (  0102):     0.41   0.043     0.67    37.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0004)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       7.30        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.45 (ii)    9.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.67
     RUNOFF VOLUME    (mm)=      44.30        21.65         21.13
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.47

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0010)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.60 (ii)    9.23 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.003 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         27.89
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.62

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0011)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  25.71   Dir. Conn.(%)=  25.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.58 (ii)    9.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.003 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         27.23
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.60

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0012)|   Area    (ha)=   0.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       3.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     152.21        60.54
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.30 (ii)    0.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      44.30        21.65         42.03
     TOTAL RAINFALL   (mm)=      45.30        45.30         45.30
     RUNOFF COEFFICIENT   =       0.98         0.48          0.93

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0101)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):     0.02   0.003     0.50    27.89
     + ID2= 2 (  0011):     0.02   0.003     0.50    27.23
       ================================================
       ID = 3 (  0101):     0.04   0.006     0.50    27.58

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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```
| ADD HYD  (  0101)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0101):     0.04   0.006     0.50    27.58
     + ID2= 2 (  0012):     0.00   0.001     0.50    42.03
       ==================================================
       ID = 1 (  0101):     0.04   0.007     0.50    28.26

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

-------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.04   0.007     0.50    28.26
     + ID2= 2 (  0102):     0.41   0.043     0.67    37.34
       ==================================================
       ID = 3 (  0100):     0.46   0.049     0.67    36.50

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

-------------------
| ADD HYD  (  0100)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0100):     0.46   0.049     0.67    36.50
     + ID2= 2 (  0004):     0.01   0.001     0.67    21.13
       ==================================================
       ID = 1 (  0100):     0.46   0.050     0.67    36.23

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\9ec939e
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\9ec939e


DATE: 05-05-2025                          TIME: 10:45:54

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 2yr 1hr AES                   **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\BenjaminYan\AppD
|                  |              ata\Local\Temp\
|                  |              fa7bedf1-2fde-4000-bb8a-f77f7e2f7efc\dfb7a2d5
| Ptotal= 23.74 mm |    Comments: 2yr 1hr AES
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  0.33   42.73 |  0.67   22.79 |  1.00    2.85
                0.08    2.85 |  0.42   79.77 |  0.75   14.24 |
                0.17    8.55 |  0.50   42.73 |  0.83    8.55 |
                0.25   22.79 |  0.58   34.19 |  0.92    2.85 |

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

--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  94.29   Dir. Conn.(%)=  94.29
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          0.02          0.00
     Dep. Storage     (mm)=          1.00          1.50
     Average Slope     (%)=          1.00          2.00
     Length            (m)=         10.33         40.00
     Mannings n           =         0.013         0.250

     Max.Eff.Inten.(mm/hr)=         79.77         19.97
               over (min)           5.00          5.00
     Storage Coeff.  (min)=          0.72 (ii)     3.23 (ii)
     Unit Hyd. Tpeak (min)=          5.00          5.00
     Unit Hyd. peak  (cms)=          0.34          0.27
                                                          *TOTALS*
     PEAK FLOW       (cms)=          0.00          0.00     0.003 (iii)
     TIME TO PEAK    (hrs)=          0.50          0.50      0.50
     RUNOFF VOLUME    (mm)=         22.74          7.38     21.86
     TOTAL RAINFALL   (mm)=         23.74         23.74     23.74
     RUNOFF COEFFICIENT   =          0.96          0.31      0.92

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0002)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  95.71   Dir. Conn.(%)=  95.71
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          0.02          0.00
     Dep. Storage     (mm)=          1.00          1.50
     Average Slope     (%)=          1.00          2.00
     Length            (m)=         12.11         40.00
     Mannings n           =         0.013         0.250

     Max.Eff.Inten.(mm/hr)=         79.77         19.97
               over (min)           5.00          5.00
     Storage Coeff.  (min)=          0.79 (ii)     3.02 (ii)
     Unit Hyd. Tpeak (min)=          5.00          5.00
     Unit Hyd. peak  (cms)=          0.34          0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=          0.00          0.00     0.005 (iii)
     TIME TO PEAK    (hrs)=          0.50          0.50      0.50
     RUNOFF VOLUME    (mm)=         22.74          7.38     22.08
     TOTAL RAINFALL   (mm)=         23.74         23.74     23.74
     RUNOFF COEFFICIENT   =          0.96          0.31      0.93

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0003)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  84.29   Dir. Conn.(%)=  84.29
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          0.03          0.01
     Dep. Storage     (mm)=          1.00          1.50
     Average Slope     (%)=          1.00          2.00
     Length            (m)=         14.61         40.00
     Mannings n           =         0.013         0.250

     Max.Eff.Inten.(mm/hr)=         79.77         19.97
```

```
            over (min)        5.00          5.00
      Storage Coeff.  (min)=      0.88 (ii)     4.83 (ii)
      Unit Hyd. Tpeak (min)=      5.00          5.00
      Unit Hyd. peak  (cms)=      0.34          0.22
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.01          0.00          0.006 (iii)
      TIME TO PEAK    (hrs)=      0.50          0.58          0.50
      RUNOFF VOLUME    (mm)=     22.74          7.38         20.31
      TOTAL RAINFALL   (mm)=     23.74         23.74         23.74
      RUNOFF COEFFICIENT   =      0.96          0.31          0.86

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0005)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.57   Dir. Conn.(%)=  68.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      0.02          0.01
      Dep. Storage     (mm)=      1.00          1.50
      Average Slope     (%)=      1.00          2.00
      Length            (m)=     15.28         40.00
      Mannings n            =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=     79.77         18.63
            over (min)        5.00          15.00
      Storage Coeff.  (min)=      0.91 (ii)     14.73 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
      Unit Hyd. peak  (cms)=      0.34          0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.01          0.00          0.005 (iii)
      TIME TO PEAK    (hrs)=      0.50          0.83          0.50
      RUNOFF VOLUME    (mm)=     22.74          7.38         17.65
      TOTAL RAINFALL   (mm)=     23.74         23.74         23.74
      RUNOFF COEFFICIENT   =      0.96          0.31          0.74

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0006)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.14   Dir. Conn.(%)=  47.14
--------------------
                           IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      0.02          0.02
      Dep. Storage     (mm)=      1.00          1.50
      Average Slope     (%)=      1.00          2.00
      Length            (m)=     17.32         40.00
      Mannings n            =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=     79.77         18.63
            over (min)        5.00          15.00
      Storage Coeff.  (min)=      0.98 (ii)     14.80 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
      Unit Hyd. peak  (cms)=      0.34          0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.00          0.00          0.005 (iii)
      TIME TO PEAK    (hrs)=      0.50          0.83          0.50
      RUNOFF VOLUME    (mm)=     22.74          7.38         14.39
      TOTAL RAINFALL   (mm)=     23.74         23.74         23.74
      RUNOFF COEFFICIENT   =      0.96          0.31          0.61

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0007)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      0.02          0.00
      Dep. Storage     (mm)=      1.00          1.50
      Average Slope     (%)=      1.00          2.00
      Length            (m)=     11.25         40.00
      Mannings n            =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=     79.77         19.97
            over (min)        5.00          5.00
      Storage Coeff.  (min)=      0.75 (ii)     0.95 (ii)
      Unit Hyd. Tpeak (min)=      5.00          5.00
      Unit Hyd. peak  (cms)=      0.34          0.34
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.00          0.00          0.004 (iii)
      TIME TO PEAK    (hrs)=      0.50          0.50          0.50
      RUNOFF VOLUME    (mm)=     22.74          7.38         22.74
      TOTAL RAINFALL   (mm)=     23.74         23.74         23.74
      RUNOFF COEFFICIENT   =      0.96          0.31          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.71   Dir. Conn.(%)=  65.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      0.01          0.01
      Dep. Storage     (mm)=      1.00          1.50
      Average Slope     (%)=      1.00          2.00
      Length            (m)=     11.55         40.00
      Mannings n            =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=     79.77         18.63
            over (min)        5.00          15.00
      Storage Coeff.  (min)=      0.77 (ii)     14.59 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
      Unit Hyd. peak  (cms)=      0.34          0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.00          0.00          0.003 (iii)
      TIME TO PEAK    (hrs)=      0.50          0.83          0.50
      RUNOFF VOLUME    (mm)=     22.74          7.38         17.08
      TOTAL RAINFALL   (mm)=     23.74         23.74         23.74
      RUNOFF COEFFICIENT   =      0.96          0.31          0.72

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0009)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=      0.01          0.03
      Dep. Storage     (mm)=      1.00          1.50
      Average Slope     (%)=      1.00          2.00
      Length            (m)=     17.51         40.00
      Mannings n            =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=     79.77         18.63
            over (min)        5.00          15.00
      Storage Coeff.  (min)=      0.98 (ii)     14.81 (ii)
      Unit Hyd. Tpeak (min)=      5.00          15.00
```

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     Unit Hyd. peak  (cms)=       0.34         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.003 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.83          0.50
     RUNOFF VOLUME    (mm)=      22.74         7.38         11.55
     TOTAL RAINFALL   (mm)=      23.74        23.74         23.74
     RUNOFF COEFFICIENT   =       0.96         0.31          0.49

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0015)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.01          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=        9.66         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=       79.77         19.97
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.69 (ii)     0.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.003 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38         22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74         23.74
     RUNOFF COEFFICIENT   =       0.96          0.31          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0016)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.02          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       10.65         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=       79.77         19.97
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.73 (ii)     0.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38         22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74         23.74
     RUNOFF COEFFICIENT   =       0.96          0.31          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0017)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.02          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       10.65         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=       79.77         19.97
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.73 (ii)     0.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38         22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74         23.74
     RUNOFF COEFFICIENT   =       0.96          0.31          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0018)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.02          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       11.83         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=       79.77         19.97
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.78 (ii)     0.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38         22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74         23.74
     RUNOFF COEFFICIENT   =       0.96          0.31          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0019)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.01          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=        9.66         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=       79.77         19.97
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.69 (ii)     0.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.003 (iii)
```

```
     TIME TO PEAK    (hrs)=       0.50          0.50           0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38          22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74          23.74
     RUNOFF COEFFICIENT   =       0.96          0.31           0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0020)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length             (m)=      11.83         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      79.77         19.97
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       0.78 (ii)     0.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00           0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50           0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38          22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74          23.74
     RUNOFF COEFFICIENT   =       0.96          0.31           0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0021)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length             (m)=      11.83         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      79.77         19.97
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       0.78 (ii)     0.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00           0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50           0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38          22.74
     TOTAL RAINFALL   (mm)=      23.74         23.74          23.74
     RUNOFF COEFFICIENT   =       0.96          0.31           0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.02   0.003     0.50    21.86
     + ID2= 2 (  0015):     0.01   0.003     0.50    22.74
       ================================================
       ID = 3 (  0104):     0.03   0.006     0.50    22.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.03   0.006     0.50    22.27
     + ID2= 2 (  0016):     0.02   0.004     0.50    22.74
       ================================================
       ID = 1 (  0104):     0.05   0.010     0.50    22.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.05   0.010     0.50    22.44
     + ID2= 2 (  0017):     0.02   0.004     0.50    22.74
       ================================================
       ID = 3 (  0104):     0.06   0.014     0.50    22.52

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.06   0.014     0.50    22.52
     + ID2= 2 (  0018):     0.02   0.005     0.50    22.74
       ================================================
       ID = 1 (  0104):     0.09   0.019     0.50    22.57

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.09   0.019     0.50    22.57
     + ID2= 2 (  0019):     0.01   0.003     0.50    22.74
       ================================================
       ID = 3 (  0104):     0.10   0.022     0.50    22.60

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.10   0.022     0.50    22.60
     + ID2= 2 (  0002):     0.02   0.005     0.50    22.08
       ================================================
       ID = 1 (  0104):     0.12   0.026     0.50    22.50

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.12   0.026     0.50    22.50
     + ID2= 2 (  0020):     0.02   0.005     0.50    22.74
       ================================================
       ID = 3 (  0104):     0.14   0.031     0.50    22.54

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.14   0.031     0.50    22.54
     + ID2= 2 (  0021):     0.02   0.005     0.50    22.74
       ================================================
       ID = 1 (  0104):     0.16   0.036     0.50    22.56

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.16   0.036     0.50    22.56
     + ID2= 2 (  0003):     0.03   0.006     0.50    20.31
       ================================================
       ID = 3 (  0104):     0.19   0.042     0.50    22.19

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.19   0.042     0.50    22.19
     + ID2= 2 (  0005):     0.04   0.005     0.50    17.65
       ================================================
       ID = 1 (  0104):     0.23   0.047     0.50    21.50

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.23   0.047     0.50    21.50
     + ID2= 2 (  0006):     0.05   0.005     0.50    14.39
       ================================================
       ID = 3 (  0104):     0.28   0.052     0.50    20.34

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.28   0.052     0.50    20.34
     + ID2= 2 (  0007):     0.02   0.004     0.50    22.74
       ================================================
       ID = 1 (  0104):     0.29   0.056     0.50    20.49

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.29   0.056     0.50    20.49
     + ID2= 2 (  0008):     0.02   0.003     0.50    17.08
       ================================================
       ID = 3 (  0104):     0.31   0.059     0.50    20.28

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.31   0.059     0.50    20.28
     + ID2= 2 (  0009):     0.05   0.003     0.50    11.55
       ================================================
       ID = 1 (  0104):     0.36   0.063     0.50    19.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0103)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                           0.0000      0.0000   |    0.0284      0.0052
                           0.0091      0.0006   |    0.0299      0.0052
                           0.0129      0.0013   |    0.0314      0.0053
                           0.0158      0.0019   |    0.0328      0.0054
                           0.0182      0.0025   |    0.0341      0.0054
                           0.0203      0.0031   |    0.0347      0.0055
                           0.0223      0.0036   |    0.0353      0.0055
                           0.0241      0.0041   |    0.0359      0.0059
                           0.0261      0.0047   |    0.0364      0.0073
                           0.0277      0.0050   |    0.0000      0.0000

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0104)      0.360      0.063      0.50      19.16
   OUTFLOW: ID= 1 (  0103)      0.360      0.021      0.75      19.13

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 33.46
                  TIME SHIFT OF PEAK FLOW          (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0032

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.14   Dir. Conn.(%)=  27.14
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      15.06         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      79.77         18.63
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       0.90 (ii)    14.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.83          0.50
     RUNOFF VOLUME    (mm)=      22.74          7.38         11.33
     TOTAL RAINFALL   (mm)=      23.74         23.74         23.74
     RUNOFF COEFFICIENT   =       0.96          0.31          0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0014)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.25         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      79.77         18.63
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       0.75 (ii)    14.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.83          0.83
     RUNOFF VOLUME    (mm)=      22.74          7.38          6.97
     TOTAL RAINFALL   (mm)=      23.74         23.74         23.74
     RUNOFF COEFFICIENT   =       0.96          0.31          0.29

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

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

```
          CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0102)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     0.36   0.021     0.75    19.13
     + ID2= 2 (  0013):     0.03   0.002     0.50    11.33
       ================================================
       ID = 3 (  0102):     0.39   0.022     0.75    18.46

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

--------------------
| ADD HYD  (  0102)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0102):     0.39   0.022     0.75    18.46
     + ID2= 2 (  0014):     0.02   0.001     0.83     6.97
       ================================================
       ID = 1 (  0102):     0.41   0.023     0.75    17.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0004)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       7.30        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      79.77        18.63
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.58 (ii)   14.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00      0.000 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.83       0.83
     RUNOFF VOLUME    (mm)=      22.74         7.38       6.25
     TOTAL RAINFALL   (mm)=      23.74        23.74      23.74
     RUNOFF COEFFICIENT   =       0.96         0.31       0.26

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0010)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      79.77        18.63
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.78 (ii)   14.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00      0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.83       0.50
     RUNOFF VOLUME    (mm)=      22.74         7.38      11.35
     TOTAL RAINFALL   (mm)=      23.74        23.74      23.74
     RUNOFF COEFFICIENT   =       0.96         0.31       0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0011)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  25.71   Dir. Conn.(%)=  25.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      79.77        18.63
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.75 (ii)   14.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00      0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.83       0.50
     RUNOFF VOLUME    (mm)=      22.74         7.38      10.90
     TOTAL RAINFALL   (mm)=      23.74        23.74      23.74
     RUNOFF COEFFICIENT   =       0.96         0.31       0.46

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0012)|   Area    (ha)=   0.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       3.65        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      79.77        19.97
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.38 (ii)    0.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00      0.000 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      22.74         7.38      20.36
     TOTAL RAINFALL   (mm)=      23.74        23.74      23.74
     RUNOFF COEFFICIENT   =       0.96         0.31       0.86

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0101)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
```

```
                    (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0010):     0.02     0.001      0.50     11.35
     + ID2= 2 (  0011):     0.02     0.001      0.50     10.90
       ================================================
       ID = 3 (  0101):     0.04     0.003      0.50     11.14

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

-------------------
| ADD HYD  (  0101)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0101):     0.04     0.003      0.50     11.14
     + ID2= 2 (  0012):     0.00     0.000      0.50     20.36
       ================================================
       ID = 1 (  0101):     0.04     0.003      0.50     11.58

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

-------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0101):     0.04     0.003      0.50     11.58
     + ID2= 2 (  0102):     0.41     0.023      0.75     17.93
       ================================================
       ID = 3 (  0100):     0.46     0.025      0.75     17.34

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

-------------------
| ADD HYD  (  0100)|
|   3 +  2 =  1    |          AREA     QPEAK     TPEAK      R.V.
-------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0100):     0.46     0.025      0.75     17.34
     + ID2= 2 (  0004):     0.01     0.000      0.83      6.25
       ================================================
       ID = 1 (  0100):     0.46     0.025      0.75     17.15

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\6b9a122
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\6b9a122


DATE: 05-05-2025                          TIME: 10:45:56

USER:


COMMENTS: _____________________________________________________

------------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 50yr 1hr AES                  **
  ************************************************
```

```
-------------------
|    READ STORM     |    Filename: C:\Users\BenjaminYan\AppD
|                   |              ata\Local\Temp\
|                   |              fa7bedf1-2fde-4000-bb8a-f77f7e2f7efc\3e3dda1d
| Ptotal= 50.51 mm  |    Comments: 50yr 1hr AES
-------------------

                TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  0.33   90.92 |  0.67   48.49 |  1.00    6.06
                0.08    6.06 |  0.42  169.71 |  0.75   30.31 |
                0.17   18.18 |  0.50   90.92 |  0.83   18.18 |
                0.25   48.49 |  0.58   72.73 |  0.92    6.06 |

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

-------------------
| CALIB             |
| STANDHYD (  0001)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  94.29   Dir. Conn.(%)=  94.29
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.02          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       10.33         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      169.71         71.90
               over (min)         5.00          5.00
     Storage Coeff.  (min)=        0.53 (ii)     2.39 (ii)
     Unit Hyd. Tpeak (min)=        5.00          5.00
     Unit Hyd. peak  (cms)=        0.34          0.30
                                                          *TOTALS*
     PEAK FLOW       (cms)=        0.01          0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=        0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=       49.51         25.60         48.14
     TOTAL RAINFALL   (mm)=       50.51         50.51         50.51
     RUNOFF COEFFICIENT   =        0.98          0.51          0.95

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0002)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  95.71   Dir. Conn.(%)=  95.71
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.02          0.00
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       12.11         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=      169.71         71.90
               over (min)         5.00          5.00
     Storage Coeff.  (min)=        0.58 (ii)     2.23 (ii)
     Unit Hyd. Tpeak (min)=        5.00          5.00
     Unit Hyd. peak  (cms)=        0.34          0.30
                                                          *TOTALS*
     PEAK FLOW       (cms)=        0.01          0.00          0.010 (iii)
     TIME TO PEAK    (hrs)=        0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=       49.51         25.60         48.48
     TOTAL RAINFALL   (mm)=       50.51         50.51         50.51
     RUNOFF COEFFICIENT   =        0.98          0.51          0.96

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0003)|   Area    (ha)=   0.03
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  84.29   Dir. Conn.(%)=  84.29
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.61        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.65 (ii)    3.57 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.26
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.014 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         45.73
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.91

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0005)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.57   Dir. Conn.(%)=  68.57
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      15.28        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.67 (ii)    4.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.22
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.013 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         41.90
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.83

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0006)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.14   Dir. Conn.(%)=  47.14
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.72 (ii)    8.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.012 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         36.78
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.73

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0007)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.56 (ii)    0.70 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.71   Dir. Conn.(%)=  65.71
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.55        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    4.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.22
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         41.20
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.82

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0009)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                            IMPERVIOUS    PERVIOUS (i)
```

```
     Surface Area     (ha)=       0.01         0.03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.51        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.73 (ii)    8.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         32.30
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.64

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0015)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.51 (ii)    0.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0016)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.54 (ii)    0.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.98
```

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0017)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      10.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.54 (ii)    0.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0018)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    0.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.010 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60         49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0019)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
```

```
     Length            (m)=       9.66        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.51 (ii)    0.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50        0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60       49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0020)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    0.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.010 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50        0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60       49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.98

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0021)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n          =       0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.57 (ii)    0.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00       0.010 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50        0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60       49.51
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.98

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

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

```
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):     0.02   0.007     0.50    48.14
     + ID2= 2 (  0015):     0.01   0.007     0.50    49.51
       ================================================
       ID = 3 (  0104):     0.03   0.014     0.50    48.78

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.03   0.014     0.50    48.78
     + ID2= 2 (  0016):     0.02   0.008     0.50    49.51
       ================================================
       ID = 1 (  0104):     0.05   0.022     0.50    49.04

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.05   0.022     0.50    49.04
     + ID2= 2 (  0017):     0.02   0.008     0.50    49.51
       ================================================
       ID = 3 (  0104):     0.06   0.030     0.50    49.17

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.06   0.030     0.50    49.17
     + ID2= 2 (  0018):     0.02   0.010     0.50    49.51
       ================================================
       ID = 1 (  0104):     0.09   0.040     0.50    49.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.09   0.040     0.50    49.25
     + ID2= 2 (  0019):     0.01   0.007     0.50    49.51
       ================================================
       ID = 3 (  0104):     0.10   0.046     0.50    49.29

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.10   0.046     0.50    49.29
     + ID2= 2 (  0002):     0.02   0.010     0.50    48.48
       ================================================
       ID = 1 (  0104):     0.12   0.057     0.50    49.14

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.12   0.057     0.50    49.14
```

```
      + ID2= 2 (  0020):     0.02   0.010     0.50    49.51
        ================================================
        ID = 3 (  0104):     0.14   0.066     0.50    49.19

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.14   0.066     0.50    49.19
      + ID2= 2 (  0021):     0.02   0.010     0.50    49.51
        ================================================
        ID = 1 (  0104):     0.16   0.076     0.50    49.24

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.16   0.076     0.50    49.24
      + ID2= 2 (  0003):     0.03   0.014     0.50    45.73
        ================================================
        ID = 3 (  0104):     0.19   0.090     0.50    48.66

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.19   0.090     0.50    48.66
      + ID2= 2 (  0005):     0.04   0.013     0.50    41.90
        ================================================
        ID = 1 (  0104):     0.23   0.103     0.50    47.63

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.23   0.103     0.50    47.63
      + ID2= 2 (  0006):     0.05   0.012     0.50    36.78
        ================================================
        ID = 3 (  0104):     0.28   0.115     0.50    45.86

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.28   0.115     0.50    45.86
      + ID2= 2 (  0007):     0.02   0.009     0.50    49.51
        ================================================
        ID = 1 (  0104):     0.29   0.124     0.50    46.09

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     0.29   0.124     0.50    46.09
      + ID2= 2 (  0008):     0.02   0.007     0.50    41.20
        ================================================
        ID = 3 (  0104):     0.31   0.131     0.50    45.78

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0104):     0.31   0.131     0.50    45.78
```

```
      + ID2= 2 (  0009):     0.05   0.009     0.50    32.30
        ================================================
        ID = 1 (  0104):     0.36   0.140     0.50    44.06

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

--------------------
| RESERVOIR(  0103)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000      0.0000    |    0.0284      0.0052
                          0.0091      0.0006    |    0.0299      0.0052
                          0.0129      0.0013    |    0.0314      0.0053
                          0.0158      0.0019    |    0.0328      0.0054
                          0.0182      0.0025    |    0.0341      0.0054
                          0.0203      0.0031    |    0.0347      0.0055
                          0.0223      0.0036    |    0.0353      0.0055
                          0.0241      0.0041    |    0.0359      0.0059
                          0.0261      0.0047    |    0.0364      0.0073
                          0.0277      0.0050    |    0.0000      0.0000

                                AREA     QPEAK     TPEAK      R.V.
                                (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0104)      0.360     0.140      0.50     44.06
   OUTFLOW: ID= 1 (  0103)      0.360     0.037      0.83     44.02

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 26.46
                  TIME SHIFT OF PEAK FLOW         (min)= 20.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0089

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

--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.14   Dir. Conn.(%)=  27.14
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      15.06         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     169.71         71.90
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.66 (ii)     8.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.67          0.50
     RUNOFF VOLUME    (mm)=      49.51         25.60         31.96
     TOTAL RAINFALL   (mm)=      50.51         50.51         50.51
     RUNOFF COEFFICIENT   =       0.98          0.51          0.63

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0     Ia = Dep. 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 (  0014)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00          0.02
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.25         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     169.71         71.90
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       0.56 (ii)     8.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.34          0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.003 (iii)
```

```
     TIME TO PEAK    (hrs)=       0.50         0.67          0.67
     RUNOFF VOLUME    (mm)=      49.51        25.60         25.30
     TOTAL RAINFALL   (mm)=      50.51        50.51         50.51
     RUNOFF COEFFICIENT   =       0.98         0.51          0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0102)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     0.36   0.037     0.83    44.02
     + ID2= 2 (  0013):     0.03   0.006     0.50    31.96
       ================================================
       ID = 3 (  0102):     0.39   0.042     0.67    42.98

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

--------------------
| ADD HYD  (  0102)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0102):     0.39   0.042     0.67    42.98
     + ID2= 2 (  0014):     0.02   0.003     0.67    25.30
       ================================================
       ID = 1 (  0102):     0.41   0.045     0.67    42.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0004)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       7.30        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.43 (ii)    8.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67       0.67
     RUNOFF VOLUME    (mm)=      49.51        25.60       25.10
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.50

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0010)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.57 (ii)    8.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67       0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60       32.22
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.64

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0011)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  25.71   Dir. Conn.(%)=  25.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       0.56 (ii)    8.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.003 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67       0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60       31.53
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.62

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. 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 (  0012)|   Area    (ha)=   0.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       3.65        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     169.71        71.90
               over (min)          5.00         5.00
     Storage Coeff.  (min)=       0.28 (ii)    0.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50       0.50
     RUNOFF VOLUME    (mm)=      49.51        25.60       48.50
     TOTAL RAINFALL   (mm)=      50.51        50.51       50.51
     RUNOFF COEFFICIENT   =       0.98         0.51        0.96

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

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

```
          CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0101)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):     0.02   0.004     0.50    32.22
     + ID2= 2 (  0011):     0.02   0.003     0.50    31.53
       ================================================
       ID = 3 (  0101):     0.04   0.007     0.50    31.89

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

--------------------
| ADD HYD  (  0101)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0101):     0.04   0.007     0.50    31.89
     + ID2= 2 (  0012):     0.00   0.001     0.50    48.50
       ================================================
       ID = 1 (  0101):     0.04   0.008     0.50    32.68

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

--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.04   0.008     0.50    32.68
     + ID2= 2 (  0102):     0.41   0.045     0.67    42.17
       ================================================
       ID = 3 (  0100):     0.46   0.051     0.67    41.29

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

--------------------
| ADD HYD  (  0100)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0100):     0.46   0.051     0.67    41.29
     + ID2= 2 (  0004):     0.01   0.001     0.67    25.10
       ================================================
       ID = 1 (  0100):     0.46   0.053     0.67    41.01

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I      SS   U   U  AAAAA  L
        V  V    I       SS  U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\ff1a84a
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\ff1a84a


DATE: 05-05-2025                          TIME: 10:45:55

USER:
```

```
COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------------------------------------------
  ************************************************
  ** SIMULATION : 5yr 1hr AES                    **
  ************************************************


--------------------
|    READ STORM    |    Filename: C:\Users\BenjaminYan\AppD
|                  |              ata\Local\Temp\
|                  |              fa7bedf1-2fde-4000-bb8a-f77f7e2f7efc\852e2e8c
| Ptotal= 32.48 mm |    Comments: 5yr 1hr AES
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  0.33   58.46 |  0.67   31.18 |  1.00    3.90
                0.08    3.90 |  0.42  109.13 |  0.75   19.49 |
                0.17   11.69 |  0.50   58.46 |  0.83   11.69 |
                0.25   31.18 |  0.58   46.77 |  0.92    3.90 |

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

--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  94.29   Dir. Conn.(%)=  94.29
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      10.33         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         34.87
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.63 (ii)     2.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         30.40
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.94

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0002)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  95.71   Dir. Conn.(%)=  95.71
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      12.11         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         34.87
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.70 (ii)     2.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         30.67
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.94

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

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0003)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  84.29   Dir. Conn.(%)=  84.29
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.61        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.78 (ii)    4.26 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         28.50
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.88

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0005)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  68.57   Dir. Conn.(%)=  68.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      15.28        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.80 (ii)    5.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.67          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         25.42
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0006)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  47.14   Dir. Conn.(%)=  47.14
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        32.06
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       0.86 (ii)   11.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         21.40
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.66

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0007)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.67 (ii)    0.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0008)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.71   Dir. Conn.(%)=  65.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.55        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        32.06
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       0.68 (ii)   11.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         24.73
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.76

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    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.

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0009)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.03
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      17.51         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         32.06
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       0.87 (ii)    11.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.75          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         17.85
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0015)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=       9.66         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         34.87
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.61 (ii)     0.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0016)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      10.65         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         34.87
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.64 (ii)     0.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0017)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      10.65         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         34.87
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.64 (ii)     0.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0018)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      11.83         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=     109.13         34.87
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       0.69 (ii)     0.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.34          0.34
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50          0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48         12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48         32.48         32.48
     RUNOFF COEFFICIENT   =       0.97          0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0019)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       9.66        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.61 (ii)    0.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0020)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.69 (ii)    0.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. 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 (  0021)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n            =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       0.69 (ii)    0.86 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50          0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66         31.48
     TOTAL RAINFALL   (mm)=      32.48        32.48         32.48
     RUNOFF COEFFICIENT   =       0.97         0.39          0.97

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0001):      0.02   0.005     0.50    30.40
     + ID2= 2 (  0015):      0.01   0.004     0.50    31.48
       ================================================
       ID = 3 (  0104):      0.03   0.009     0.50    30.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0104):      0.03   0.009     0.50    30.90
     + ID2= 2 (  0016):      0.02   0.005     0.50    31.48
       ================================================
       ID = 1 (  0104):      0.05   0.014     0.50    31.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0104):      0.05   0.014     0.50    31.11
     + ID2= 2 (  0017):      0.02   0.005     0.50    31.48
       ================================================
       ID = 3 (  0104):      0.06   0.019     0.50    31.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0104):      0.06   0.019     0.50    31.21
     + ID2= 2 (  0018):      0.02   0.006     0.50    31.48
       ================================================
       ID = 1 (  0104):      0.09   0.026     0.50    31.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 1 (  0104):      0.09   0.026     0.50    31.28
     + ID2= 2 (  0019):      0.01   0.004     0.50    31.48
       ================================================
       ID = 3 (  0104):      0.10   0.030     0.50    31.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
       ID1= 3 (  0104):      0.10   0.030     0.50    31.30
     + ID2= 2 (  0002):      0.02   0.006     0.50    30.67
       ================================================
```

```
        ID = 1 (  0104):     0.12   0.036     0.50    31.19

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0104):     0.12   0.036     0.50    31.19
      + ID2= 2 (  0020):     0.02   0.006     0.50    31.48
        ================================================
        ID = 3 (  0104):     0.14   0.043     0.50    31.23

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0104):     0.14   0.043     0.50    31.23
      + ID2= 2 (  0021):     0.02   0.006     0.50    31.48
        ================================================
        ID = 1 (  0104):     0.16   0.049     0.50    31.26

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0104):     0.16   0.049     0.50    31.26
      + ID2= 2 (  0003):     0.03   0.009     0.50    28.50
        ================================================
        ID = 3 (  0104):     0.19   0.058     0.50    30.81

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0104):     0.19   0.058     0.50    30.81
      + ID2= 2 (  0005):     0.04   0.008     0.50    25.42
        ================================================
        ID = 1 (  0104):     0.23   0.065     0.50    29.99

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0104):     0.23   0.065     0.50    29.99
      + ID2= 2 (  0006):     0.05   0.007     0.50    21.40
        ================================================
        ID = 3 (  0104):     0.28   0.072     0.50    28.58

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0104):     0.28   0.072     0.50    28.58
      + ID2= 2 (  0007):     0.02   0.006     0.50    31.48
        ================================================
        ID = 1 (  0104):     0.29   0.078     0.50    28.77

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

--------------------
| ADD HYD  (  0104)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0104):     0.29   0.078     0.50    28.77
      + ID2= 2 (  0008):     0.02   0.004     0.50    24.73
        ================================================
```

```
        ID = 3 (  0104):     0.31   0.082     0.50    28.51

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

--------------------
| ADD HYD  (  0104)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0104):     0.31   0.082     0.50    28.51
      + ID2= 2 (  0009):     0.05   0.004     0.50    17.85
        ================================================
        ID = 1 (  0104):     0.36   0.086     0.50    27.15

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

--------------------
| RESERVOIR(  0103)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0284      0.0052
                          0.0091      0.0006   |    0.0299      0.0052
                          0.0129      0.0013   |    0.0314      0.0053
                          0.0158      0.0019   |    0.0328      0.0054
                          0.0182      0.0025   |    0.0341      0.0054
                          0.0203      0.0031   |    0.0347      0.0055
                          0.0223      0.0036   |    0.0353      0.0055
                          0.0241      0.0041   |    0.0359      0.0059
                          0.0261      0.0047   |    0.0364      0.0073
                          0.0277      0.0050   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0104)     0.360      0.086      0.50      27.15
   OUTFLOW: ID= 1 (  0103)     0.360      0.027      0.75      27.11

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 31.41
                  TIME SHIFT OF PEAK FLOW          (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0049

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0013)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  27.14   Dir. Conn.(%)=  27.14
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          0.01          0.02
     Dep. Storage     (mm)=          1.00          1.50
     Average Slope     (%)=          1.00          2.00
     Length            (m)=         15.06         40.00
     Mannings n           =         0.013         0.250

     Max.Eff.Inten.(mm/hr)=        109.13         32.06
               over (min)           5.00         15.00
     Storage Coeff.  (min)=          0.79 (ii)    11.92 (ii)
     Unit Hyd. Tpeak (min)=          5.00         15.00
     Unit Hyd. peak  (cms)=          0.34          0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=          0.00          0.00      0.003 (iii)
     TIME TO PEAK    (hrs)=          0.50          0.75       0.50
     RUNOFF VOLUME    (mm)=         31.48         12.66      17.58
     TOTAL RAINFALL   (mm)=         32.48         32.48      32.48
     RUNOFF COEFFICIENT   =          0.97          0.39       0.54

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0014)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=          0.00          0.02
     Dep. Storage     (mm)=          1.00          1.50
     Average Slope     (%)=          1.00          2.00
```

```
     Length            (m)=      11.25        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        32.06
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.67 (ii)   11.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75        0.75
     RUNOFF VOLUME    (mm)=      31.48        12.66       12.29
     TOTAL RAINFALL   (mm)=      32.48        32.48       32.48
     RUNOFF COEFFICIENT   =       0.97         0.39        0.38

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0102)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0103):     0.36   0.027     0.75    27.11
     + ID2= 2 (  0013):     0.03   0.003     0.50    17.58
       ================================================
       ID = 3 (  0102):     0.39   0.029     0.75    26.29

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

--------------------
| ADD HYD  (  0102)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0102):     0.39   0.029     0.75    26.29
     + ID2= 2 (  0014):     0.02   0.001     0.75    12.29
       ================================================
       ID = 1 (  0102):     0.41   0.031     0.75    25.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0004)|   Area    (ha)=   0.01
|ID= 1 DT= 5.0 min |   Total Imp(%)=   0.01   Dir. Conn.(%)=   0.01
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       7.30        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        32.06
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.51 (ii)   11.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.000 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75        0.75
     RUNOFF VOLUME    (mm)=      31.48        12.66       11.81
     TOTAL RAINFALL   (mm)=      32.48        32.48       32.48
     RUNOFF COEFFICIENT   =       0.97         0.39        0.36

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0010)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.57   Dir. Conn.(%)=  28.57
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.01         0.02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.83        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        32.06
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.69 (ii)   11.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75        0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66       17.77
     TOTAL RAINFALL   (mm)=      32.48        32.48       32.48
     RUNOFF COEFFICIENT   =       0.97         0.39        0.55

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0011)|   Area    (ha)=   0.02
|ID= 1 DT= 5.0 min |   Total Imp(%)=  25.71   Dir. Conn.(%)=  25.71
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      11.25        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        32.06
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.67 (ii)   11.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00       0.002 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.75        0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66       17.07
     TOTAL RAINFALL   (mm)=      32.48        32.48       32.48
     RUNOFF COEFFICIENT   =       0.97         0.39        0.53

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. 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 (  0012)|   Area    (ha)=   0.00
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.99   Dir. Conn.(%)=  99.99
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.00         0.00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=       3.65        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     109.13        34.87
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       0.34 (ii)    0.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.34
```

```
                                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00           0.001 (iii)
     TIME TO PEAK    (hrs)=       0.50         0.50           0.50
     RUNOFF VOLUME    (mm)=      31.48        12.66          29.85
     TOTAL RAINFALL   (mm)=      32.48        32.48          32.48
     RUNOFF COEFFICIENT   =       0.97         0.39           0.92

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0101)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0010):     0.02   0.002     0.50    17.77
     + ID2= 2 (  0011):     0.02   0.002     0.50    17.07
       ================================================
       ID = 3 (  0101):     0.04   0.004     0.50    17.44

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

--------------------
| ADD HYD  (  0101)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0101):     0.04   0.004     0.50    17.44
     + ID2= 2 (  0012):     0.00   0.001     0.50    29.85
       ================================================
       ID = 1 (  0101):     0.04   0.004     0.50    18.03

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

--------------------
| ADD HYD  (  0100)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0101):     0.04   0.004     0.50    18.03
     + ID2= 2 (  0102):     0.41   0.031     0.75    25.65
       ================================================
       ID = 3 (  0100):     0.46   0.033     0.75    24.94

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

--------------------
| ADD HYD  (  0100)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0100):     0.46   0.033     0.75    24.94
     + ID2= 2 (  0004):     0.01   0.000     0.75    11.81
       ================================================
       ID = 1 (  0100):     0.46   0.034     0.75    24.72

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

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M M M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output  filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\3ad0e53
  Summary filename: C:\Users\BenjaminYan\AppData\Local\Civica\VH5\4f69efe0-4741-4b2e-8a04-46006f1d0016\3ad0e53


DATE: 05-05-2025                          TIME: 10:25:19

USER:


COMMENTS: _____________________________________________________


  ************************************************
  ** SIMULATION : 100 Year 12 Hour AES          **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha    '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0001  1  5.0    0.02    0.00  5.25  81.40 0.92   0.000
    [I%=94.3:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0002  1  5.0    0.02    0.00  5.25  83.59 0.94   0.000
    [I%=95.7:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0003  1  5.0    0.03    0.00  5.25  80.13 0.90   0.000
    [I%=84.3:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0005  1  5.0    0.04    0.00  5.25  75.56 0.85   0.000
    [I%=68.6:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0006  1  5.0    0.05    0.00  5.25  71.53 0.81   0.000
    [I%=47.1:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0007  1  5.0    0.02    0.00  5.08  83.10 0.94   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0008  1  5.0    0.02    0.00  5.25  73.52 0.83   0.000
    [I%=65.7:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0009  1  5.0    0.05    0.00  5.25  65.90 0.74   0.000
    [I%=28.6:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0015  1  5.0    0.01    0.00  5.08  83.10 0.94   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0016  1  5.0    0.02    0.00  5.08  83.10 0.94   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0017  1  5.0    0.02    0.00  5.08  83.10 0.94   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0018  1  5.0    0.02    0.00  5.08  84.87 0.96   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0019  1  5.0    0.01    0.00  5.08  83.10 0.94   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0020  1  5.0    0.02    0.00  5.08  84.87 0.96   0.000
    [I%=****:S%= 2.00]
*
    READ STORM                15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
 *  CALIB STANDHYD       0021  1  5.0    0.02    0.00  5.08  84.87 0.96   0.000
    [I%=****:S%= 2.00]
*
    ADD [  0001+  0015]  0104  3  5.0    0.03    0.00  5.25  82.19  n/a   0.000
*
    ADD [  0104+  0016]  0104  1  5.0    0.05    0.01  5.25  82.52  n/a   0.000
*
    ADD [  0104+  0017]  0104  3  5.0    0.06    0.01  5.25  82.67  n/a   0.000
```
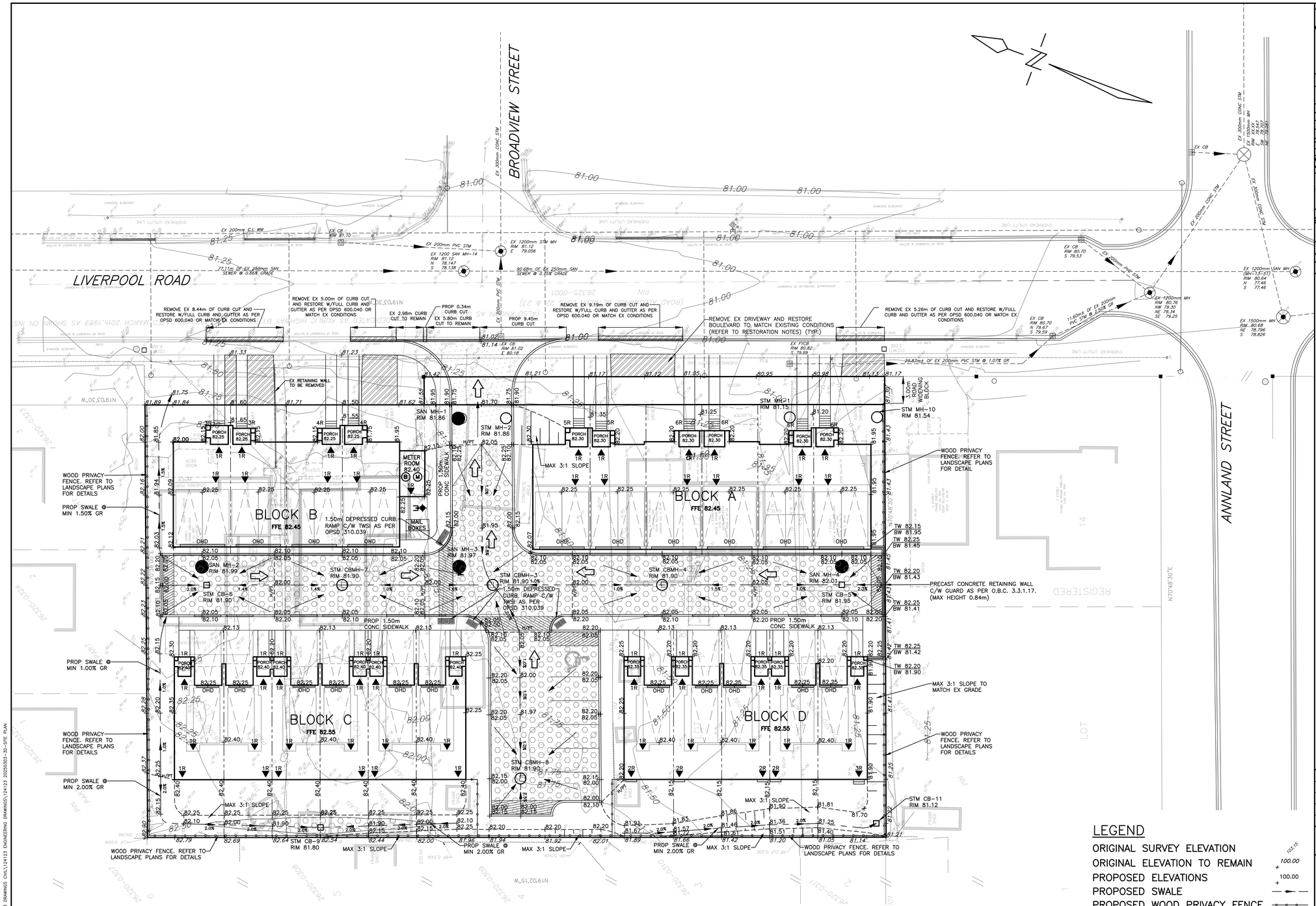
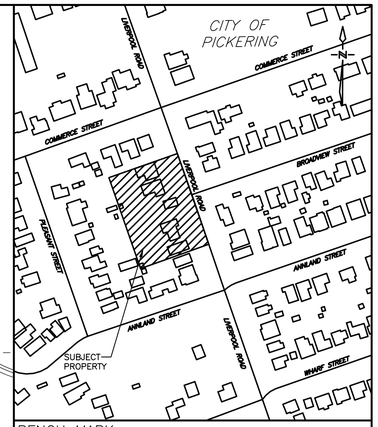

```
*
    ADD [  0104+  0018]  0104  1  5.0    0.09    0.01  5.25  83.21  n/a   0.000
*
    ADD [  0104+  0019]  0104  3  5.0    0.10    0.01  5.25  83.20  n/a   0.000
*
    ADD [  0104+  0002]  0104  1  5.0    0.12    0.01  5.25  83.27  n/a   0.000
*
    ADD [  0104+  0020]  0104  3  5.0    0.14    0.02  5.25  83.51  n/a   0.000
*
    ADD [  0104+  0021]  0104  1  5.0    0.16    0.02  5.25  83.68  n/a   0.000
*
    ADD [  0104+  0003]  0104  3  5.0    0.19    0.02  5.25  83.10  n/a   0.000
*
    ADD [  0104+  0005]  0104  1  5.0    0.23    0.03  5.25  81.95  n/a   0.000
*
    ADD [  0104+  0006]  0104  3  5.0    0.28    0.03  5.25  80.24  n/a   0.000
*
    ADD [  0104+  0007]  0104  1  5.0    0.29    0.03  5.25  80.43  n/a   0.000
*
    ADD [  0104+  0008]  0104  3  5.0    0.31    0.03  5.25  79.99  n/a   0.000
*
    ADD [  0104+  0009]  0104  1  5.0    0.36    0.04  5.25  78.19  n/a   0.000
*
 ** Reservoir
    OUTFLOW:             0103  1  5.0    0.36    0.04  5.25  78.16  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
  * CALIB STANDHYD       0013  1  5.0    0.03    0.00  5.25  63.18 0.71   0.000
    [I%=27.1:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
  * CALIB STANDHYD       0014  1  5.0    0.02    0.00  5.25  53.58 0.61   0.000
    [I%= 0.0:S%= 2.00]
*
    ADD [  0103+  0013]  0102  3  5.0    0.39    0.04  5.25  76.87  n/a   0.000
*
    ADD [  0102+  0014]  0102  1  5.0    0.41    0.04  5.25  75.80  n/a   0.000
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
  * CALIB STANDHYD       0004  1  5.0    0.01    0.00  5.25  49.92 0.56   0.000
    [I%= 0.0:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
  * CALIB STANDHYD       0010  1  5.0    0.02    0.00  5.25  62.63 0.71   0.000
    [I%=28.6:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
  * CALIB STANDHYD       0011  1  5.0    0.02    0.00  5.25  61.32 0.69   0.000
    [I%=25.7:S%= 2.00]
*
    READ STORM                 15.0
    [ Ptot= 88.54 mm ]
    fname : C:\Users\BenjaminYan\AppData\Local\Temp\d1052320-a7b1-4be2-8850-115486202aaa\212d56f4-d7cf-4671-88
    remark: 100 Year 12 Hour AES
*
  * CALIB STANDHYD       0012  1  5.0    0.00    0.00  5.08  61.85 0.70   0.000
    [I%=****:S%= 2.00]
*
    ADD [  0010+  0011]  0101  3  5.0    0.04    0.00  5.25  62.01  n/a   0.000
*
    ADD [  0101+  0012]  0101  1  5.0    0.04    0.00  5.25  62.00  n/a   0.000
*
    ADD [  0101+  0102]  0100  3  5.0    0.46    0.04  5.25  74.52  n/a   0.000
*
    ADD [  0100+  0004]  0100  1  5.0    0.46    0.04  5.25  74.10  n/a   0.000
*
 FINISH
 ================================================================================================================
```




## BENCH MARK

TOPOGRAPHIC SURVEY DONE BY RICHMOND SURVEYING INC.

THE INFORMATION IN THIS SITE PLAN IS FROM PLAN OF SURVEY OF LOTS 9, 10, & 13 AND LOTS 11 & 12 BLOCK D REGISTERED PLAN 65

## SITE GRADING NOTES

1. A ROAD OCCUPANCY PERMIT WILL BE REQUIRED FOR ANY WORKS WITHIN THE MUNICIPAL RIGHT OF WAY.
2. ALL WORKS OR RESTORATION WITHIN THE MUNICIPAL RIGHT OF WAY SHALL BE COMPLETED AS PER THE MUNICIPALITY'S FIELD STAFF DIRECTION.
3. THE LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND SERVICES TO BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. CONCERNED UTILITIES TO BE GIVEN ADVANCED NOTICE FOR STAKE OUT. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITIES SHOWN ON THE DRAWINGS.
4. QUANTITIES, DIMENSIONS AND ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
5. ALL SLOPES SHALL BE CONSTRUCTED AT 3:1 (MAXIMUM) UNLESS OTHERWISE NOTED ON THE DRAWINGS.
6. ALL SWALES SHALL BE CONSTRUCTED WITH 2% MINIMUM GRADE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
7. ALL SLOPES, SWALES AND OPEN SPACE AREAS SHALL BE SODDED ON A MINIMUM OF 450mm OF TOPSOIL.
8. ALL DISTURBED AREAS WITHIN ABUTTING MUNICIPAL RIGHT OF WAYS SHALL BE SODDED ON A MINIMUM OF 450mm OF TOPSOIL.
9. CONCRETE BARRIER CURB TO BE INSTALLED AS PER OPSD 600.110.
10. PARKING AREAS AND DRIVE AISLES SHALL CONSIST OF THE FOLLOWING UNLESS OTHERWISE APPROVED BY THE ENGINEER

LIGHT DUTY PAVEMENT
- 40mm HL3 (SURFACE COURSE)
- 50mm HL8 (BASE COURSE)
- 150mm GRANULAR A (GRANULAR BASE)
- 300mm GRANULAR B, TYPE I OR II (GRANULAR SUB-BASE)

HEAVY DUTY PAVEMENT
- 40mm HL3 (SURFACE COURSE)
- 70mm HL8 (BASE COURSE)
- 150mm GRANULAR A (GRANULAR BASE)
- 450mm GRANULAR B, TYPE I OR II (GRANULAR SUB-BASE)

## LEGEND

- ORIGINAL SURVEY ELEVATION 101.5
- ORIGINAL ELEVATION TO REMAIN + 100.00
- PROPOSED ELEVATIONS + 100.00
- PROPOSED SWALE
- PROPOSED WOOD PRIVACY FENCE
- DIRECTION OF DRAINAGE
- ENTRANCE
- WATER METER LOCATION (M)
- BACKFLOW LOCATION (B)
- SURFACE PONDING W.S.E. 82.05
- PROPOSED PEDESTRIAN CROSSING
- OVERLAND FLOW DIRECTION
- TACTILE WALKING SURFACE AS PER OPSD 310.039
- HEAVY DUTY ASPHALT

## RESTORATION NOTES

BOULEVARD RESTORATION:

1. CONCRETE SIDEWALK TO BE RESTORED TO MATCH WITH 2-4% CROSSFALL. EXISTING CONCRETE SIDEWALKS TO BE INSPECTED BY PICKERING STAFF. SIDEWALK TO BE REPLACED IF REQUIRED OR AS DIRECTED BY THE CITY OF PICKERING STANDARD P-610.
2. BOULEVARD TO BE RESTORED WITH 450mm OF TOPSOIL AND SOD.

PRELIMINARY NOT FOR CONSTRUCTION

| NO. | SUBMISSION | DATE |
|---|---|---|
| 1. | ISSUED FOR SUBMISSION | 2025/05/06 |

666-682 LIVERPOOL ROAD, PICKERING ON

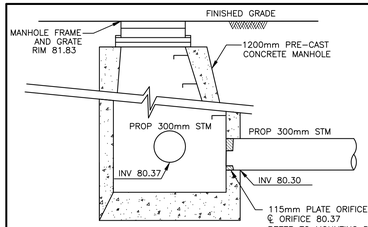
# SITE GRADING PLAN


D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS
96 King Street East
Oshawa, Ontario, L1H 1B6
Phone: 905-576-8500
info@dgbiddle.com
dgbiddle.com


LICENCED PROFESSIONAL ENGINEER
C. J. FLAMMINIO
100544401
MAY 6, 2025
PROVINCE OF ONTARIO

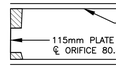
| | |
|---|---|
| SCALE: | 1:200 |
| DESIGNED BY: | B.K.Y. |
| CHECKED BY: | C.J.F. |
| PROJECT NO.: | 124123 |
| DRAWING NO.: | SG-1 |

06/05/2025
X:\STAFF\JOB FILES\124000\124123 LIVERPOOL SITE PLAN\124123 DRAWINGS CIVIL\124123 ENGINEERING DRAWINGS\124123 20250503-3D-SITE PLAN




## STM MH-2 ORIFICE CONTROL DETAIL

NOT TO SCALE



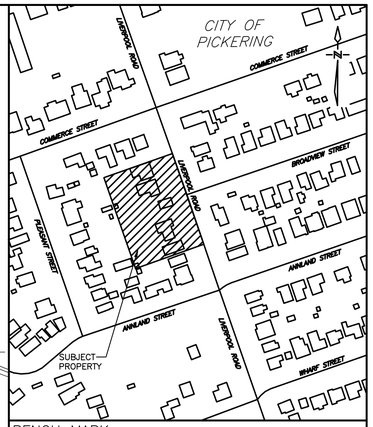

## HORIZONTAL INLET CONTROL DEVICE MOUNTING DETAIL

N.T.S.

## PIPE CROSSING SCHEDULE

| | | | | | |
|---|---|---|---|---|---|
| A | STM RWL INV | 80.69 | G | WM INV | 79.90 |
| | SAN OBV | 79.25 | | SAN OBV | 79.36 |
| | CLEARANCE | 1.44m | | CLEARANCE | 0.54m |
| B | STM RWL INV | 80.63 | H | STM INV | 80.56 |
| | WM OBV | 80.00 | | WM OBV | 80.00 |
| | CLEARANCE | 0.63m | | CLEARANCE | 0.56m |
| C | STM INV | 80.37 | I | STM RWL INV | 80.67 |
| | SAN OBV | 79.21 | | WM OBV | 80.00 |
| | CLEARANCE | 1.18m | | CLEARANCE | 0.67m |
| D | STM INV | 80.58 | J* | EX STM INV | N/A |
| | WM OBV | 80.00 | | WM OBV | 79.09 |
| | CLEARANCE | 0.58m | | CLEARANCE | 0.50m MIN |
| E | STM RWL INV | 80.40 | K | WM INV | 78.94 |
| | SAN OBV | 78.99 | | EX SAN OBV | 78.44 |
| | CLEARANCE | 1.41m | | CLEARANCE | 0.50m |
| F | STM RWL INV | 80.55 | L | STM RWL INV | 80.31 |
| | SAN OBV | 79.37 | | WM OBV | 79.20 |
| | CLEARANCE | 1.18m | | CLEARANCE | 1.11m |




## BENCH MARK

TOPOGRAPHIC SURVEY DONE BY RICHMOND SURVEYING INC.

THE INFORMATION IN THIS SITE PLAN IS FROM PLAN OF SURVEY OF LOTS 9, 10, & 13 AND LOTS 11 & 12 BLOCK D REGISTERED PLAN 65

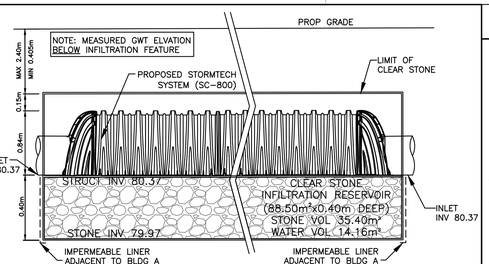
## SITE SERVICING NOTES

1. A ROAD OCCUPANCY PERMIT WILL BE REQUIRED FOR ANY WORKS WITHIN THE MUNICIPAL RIGHT OF WAY.
2. ALL WORKS OR RESTORATION WITHIN THE MUNICIPAL RIGHT OF WAY SHALL BE COMPLETED AS PER MUNICIPALITY'S FIELD STAFF DIRECTION.
3. THE LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND SERVICES TO BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. CONCERNED UTILITIES TO BE GIVEN ADVANCED NOTICE FOR STAKE OUT. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE UTILITIES SHOWN ON THE DRAWINGS.
4. QUANTITIES, DIMENSIONS AND ELEVATIONS TO BE VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR COMMENCING CONSTRUCTION.
5. ALL SANITARY SEWER AND APPURTENANCES SHALL COMPLY WITH THE REGION OF DURHAM STANDARDS AND THE ONTARIO PLUMBING CODE.
   - SANITARY SEWER PIPES, 200mm TO BE CL DR35 PVC PIPE, CL P BEDDING.
   - 100mm SANITARY SERVICE CONNECTIONS TO BE CL DR28 PVC PIPE, CL "P" BEDDING. INSTALLATION AS PER S-100.010.
   - SANITARY MANHOLES AS PER OPSD 701.010 C/W GRATE AS PER OPSD 401.010
   - ALL TRENCHES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH REGION OF DURHAM STANDARDS.
6. ALL WATER MAINS AND APPURTENANCES SHALL COMPLY WITH THE REGION OF DURHAM STANDARDS AND THE ONTARIO PLUMBING CODE.
   - ALL WATER MAINS SHALL BE CONSTRUCTED A MINIMUM OF 1.80m BELOW FINISHED GRADE
   - ALL TRENCHES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH REGION OF DURHAM STANDARDS
   - 100mm, AND 150mm (DOMESTIC WATER SERVICE AND FIRE LINE RESPECTIVELY) TO BE CL DR18 PVC PIPE, CL 'P' BEDDING
   - 25mm WATER SERVICE CONNECTIONS TO BE MUNICIPEX CROSS-LINKED POLYETHYLENE, CL "P" BEDDING. INSTALLATION AS PER S-230.020.
7. ALL STORM SEWERS AND APPURTENANCES SHALL COMPLY WITH THE MUNICIPALITY OF CLARINGTON STANDARDS AND THE ONTARIO PLUMBING CODE.
   - STORM SEWER PIPE 450mm AND SMALLER SHALL BE DR35 PVC PIPE, CL P BEDDING
   - STORM SEWER MANHOLES AND CATCH BASIN MANHOLES SHALL BE AS PER OPSD 701.010
   - CATCH BASINS SHALL BE AS PER OPSD 705.010
   - MANHOLE GRATES SHALL BE AS PER OPSD 401.010
   - CATCH BASIN GRATES SHALL BE AS PER OPSD 400.020
   - ALL TRENCHES SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH OPSD STANDARDS
8. GENERALLY, A MINIMUM OF 0.30m SHALL BE PROVIDED BETWEEN THE OUTSIDE OF PIPE BARRELS AT THE POINT OF CROSSING FOR STORM AND SANITARY SEWERS. A MINIMUM OF 0.50m SHALL BE PROVIDED BETWEEN THE OUTSIDE OF PIPE BARRELS AT THE POINT OF CROSSING FOR ALL SEWERS CROSSING WATER MAINS.
9. EX SAN SERVICE CONNECTIONS TO BE LOCATED BY CONTRACTOR PRIOR TO CONSTRUCTION AND PLUGGED AT BACK OF CURB W/ WATER-TIGHT PLUGS AND ABANDONED.
10. EX WATER SERVICE CONNECTIONS TO BE DISCONNECTED AT MAIN, CAPPED W/ BRASS PLUGS, AND ABANDONED.
11. CONCRETE BARRIER CURB TO BE INSTALLED AS PER OPSD 600.110

| NO. | SUBMISSION | DATE |
|---|---|---|
| 1. | ISSUED FOR SUBMISSION | 2025/05/06 |

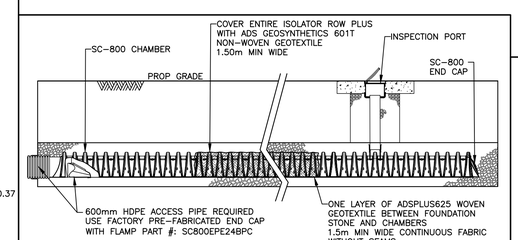
PRELIMINARY NOT FOR CONSTRUCTION

666-682 LIVERPOOL RD, PICKERING ON



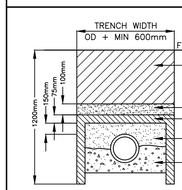

## STORMTECH SC-800 SYSTEM DETAIL

NOT TO SCALE




## STORMTECH ISOLATOR ROW PLUS SECTION

NOT TO SCALE




## SEWER INSULATION DETAIL

NOT TO SCALE

## LEGEND

WATER METER LOCATION (M)
BACKFLOW LOCATION (B)

## RESTORATION NOTES

LIVERPOOL ROAD TO BE RESTORED AS PER THE FOLLOWING UPON INSTALLATION OF ALL SERVICE CONNECTION TRENCHES:

ROAD RESTORATION:

1. TRENCH RESTORATION AS PER REGION OF DURHAM STANDARD S-200.020.
2. PAVEMENT TO BE RESTORED TO MATCH EXISTING PAVEMENT STRUCTURE.
3. PAVEMENT TO BE SAW CUT. PROVIDE SURFACE PAVEMENT JOINT TREATMENT AT ALL PAVEMENT CUTS AS PER MUNICIPAL CRITERIA.
4. CURB AND GUTTER TO BE RESTORED AS PER OPSD 600.040 OR MATCH EXISTING CONDITIONS.
5. CONCRETE SIDEWALK TO BE RESTORED TO MATCH WITH 2-4% CROSSFALL. EXISTING CONCRETE SIDEWALKS TO BE INSPECTED BY PICKERING STAFF. SIDEWALK TO BE REPLACED IF REQUIRED OR AS DIRECTED BY THE CITY OF PICKERING STANDARD P-610.
6. BOULEVARD TO BE RESTORED WITH 450mm OF TOPSOIL AND SOD.

# SITE SERVICING PLAN

D.G. BIDDLE & ASSOCIATES
CONSULTING ENGINEERS & PLANNERS
96 King Street East
Oshawa, Ontario, L1H 1B6
Phone: 905-576-8500
info@dgbiddle.com
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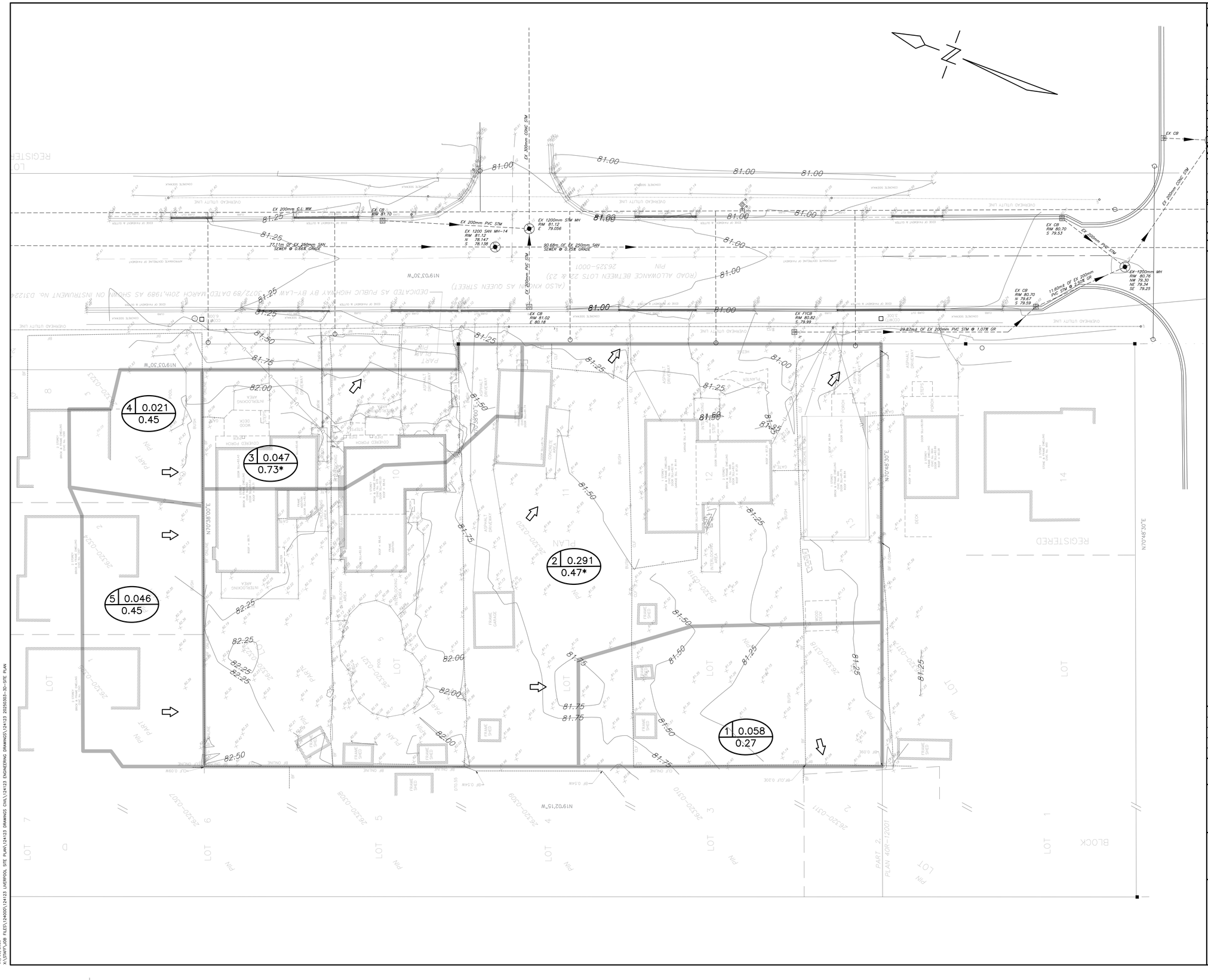
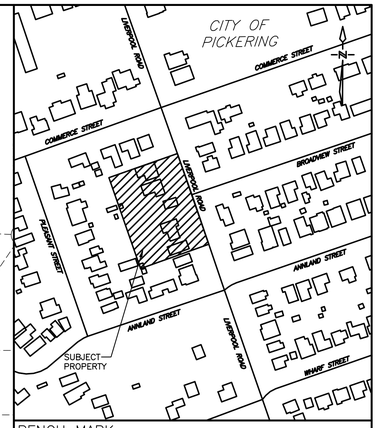
LICENSED PROFESSIONAL ENGINEER
C. J. FLAMMINIO
100544401
MAY 6, 2025
PROVINCE OF ONTARIO

| | |
|---|---|
| SCALE: | 1:200 |
| DESIGNED BY: | B.K.Y. |
| CHECKED BY: | C.J.F. |
| PROJECT NO.: | 124123 |
| DRAWING NO.: | SS-1 |

06/05/2025
X:\STAFF\DB FILES\24000\124123 LIVERPOOL SITE PLAN\124123 DRAWINGS CIVIL\124123 ENGINEERING DRAWINGS\124123 20250303-3D-SITE PLAN




BENCH MARK

TOPOGRAPHIC SURVEY DONE BY RICHMOND SURVEYING INC.

THE INFORMATION IN THIS SITE PLAN IS FROM PLAN OF SURVEY OF LOTS 9, 10, & 13 AND LOTS 11 & 12
BLOCK D
REGISTERED PLAN 65

## LEGEND

- DRAINAGE BOUNDARY
- 1 | 0.396 / 0.45 — DRAINAGE AREA (ha) / PERCENT IMPERVIOUS
- OVERLAND FLOW DIRECTION

NOTE: THIS PLAN IS FOR STORM DRAINAGE AREAS ONLY

*AREAS WHERE RUNOFF COEFFICIENTS EXCEED 0.45 HAVE BEEN REDUCED TO 0.45 FOR PRE-DEVELOPMENT STORMWATER CALCULATIONS

PRELIMINARY
NOT FOR CONSTRUCTION

| NO. | SUBMISSION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| 1. | ISSUED FOR SUBMISSION | 2025/05/06 |

666-682 LIVERPOOL RD, PICKERING ON

# PRE-DEVELOPMENT STORM DRAINAGE PLAN

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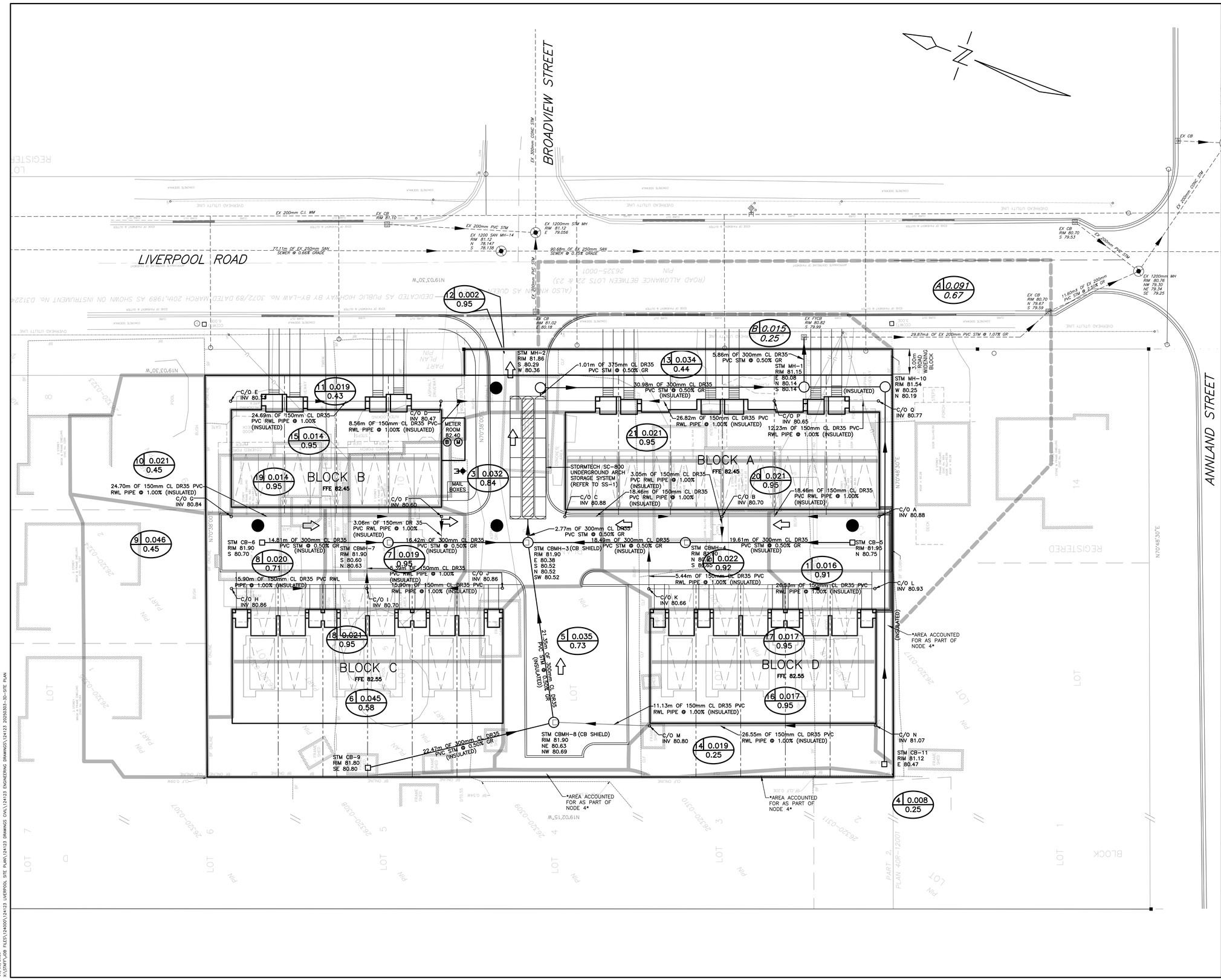
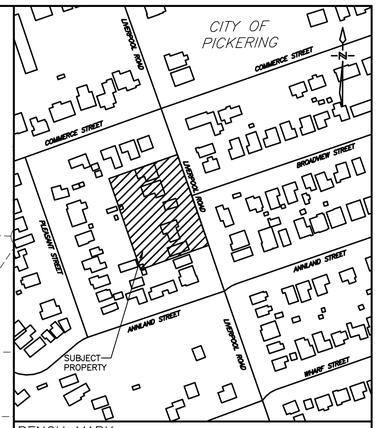
dgbiddle.com

LICENSED PROFESSIONAL ENGINEER
C. J. FLAMMINIO
100544401
MAY 6, 2025
PROVINCE OF ONTARIO

| | |
|---|---|
| SCALE: | 1:200 |
| DESIGNED BY: | B.K.Y. |
| CHECKED BY: | C.J.F. |
| PROJECT NO.: | 124123 |
| DRAWING NO.: | SD-1 |




BENCH MARK

TOPOGRAPHIC SURVEY DONE BY RICHMOND SURVEYING INC.

THE INFORMATION IN THIS SITE PLAN IS FROM PLAN OF SURVEY OF LOTS 9, 10, & 13 AND LOTS 11 & 12 BLOCK D REGISTERED PLAN 65

## LEGEND

- DRAINAGE BOUNDARY
- 1 | 0.016 / 0.91 — DRAINAGE AREA (ha) / WEIGHTED RUNOFF COEFF
- OVERLAND FLOW DIRECTION
- EX CB DRAINAGE BOUNDARY
- A | 0.034 / 0.45 — DRAINAGE AREA (ha) / WEIGHTED RUNOFF COEFF

NOTE: THIS PLAN IS FOR STORM DRAINAGE AREAS ONLY

PRELIMINARY NOT FOR CONSTRUCTION

| NO. | SUBMISSION | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| 1. | ISSUED FOR SUBMISSION | 2025/05/06 |

666–682 LIVERPOOL RD, PICKERING ON

# POST DEVELOPMENT STORM DRAINAGE PLAN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| CHECKED BY: | C.J.F. |
| PROJECT NO.: | 124123 |
| DRAWING NO.: | SD–2 |

06/05/2025
X:\STAFF\JOB FILES\124000\124123 LIVERPOOL SITE PLAN\124123 DRAWINGS CIVIL\124123 ENGINEERING DRAWINGS\124123 20250303-3D-SITE PLAN