Preliminary Stormwater Management Report

3491 Wallace Point Rd Development

Otonabee-South Monaghan, Ontario

D.M. Wills Project Number 21-85162

D.M. Wills Associates Limited
Partners in Engineering, Planning and Environmental Services
Peterborough

January 2026

Prepared for:
Life at Wallace Point Inc.

Submissions Summary

Submission No.	Submission Title	Date of Release	Submissions Summary
1	Preliminary Stormwater Management Report	April 2023	1st Submission for Draft Plan Approval
2	Preliminary Stormwater Management Report	January 2026	2nd Submission for Draft Plan Approval

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

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1.0 Purpose

D.M. Wills Associates Limited (Wills) has been retained by Life at Wallace Point Inc. to prepare a Preliminary Stormwater Management (SWM) Report in support of the Draft Plan of Subdivision and Zoning Bylaw Amendment applications for the proposed development of the Wallace Point Subdivision, located at 3491 Wallace Point Road, Otonabee-South Monaghan, Ontario (Subject Property).

The purpose of this report is to evaluate the drainage characteristics of the proposed development and to develop a preliminary plan for SWM that will permit the development to proceed with no adverse impacts to the receiving drainage and groundwater system. This report has been prepared to address the requirements of the Township of Otonabee-South Monaghan (Township) and the Otonabee Region Conservation Authority (ORCA).

2.0 Site Description

The location of the site is shown in **Figure 1** and is legally described as:

Lots 17 and 18
Concession 15
Township of Otonabee-South Monaghan
County of Peterborough

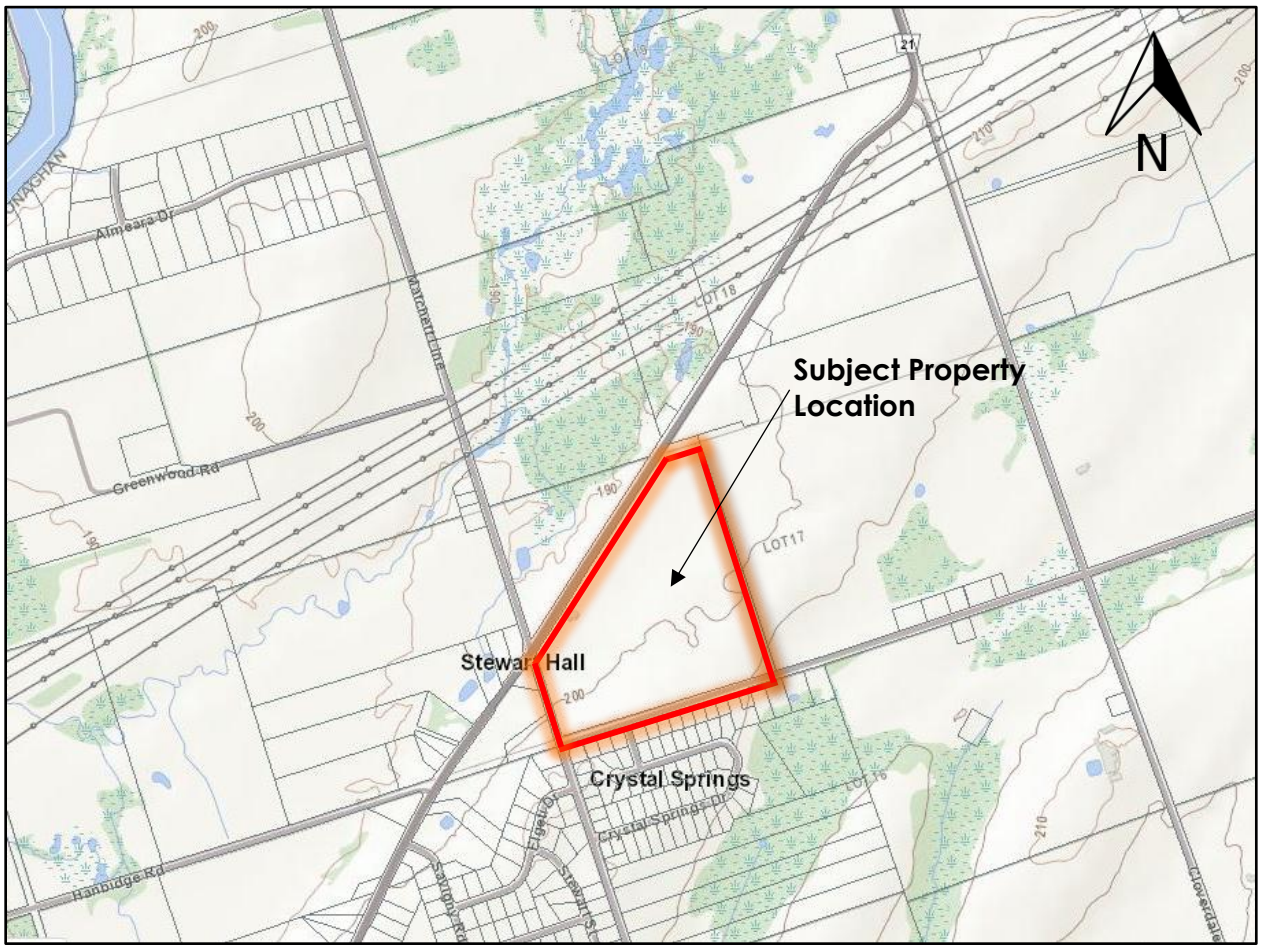
The existing Subject Property is mainly comprised of agricultural lands with a single-family dwelling, two farming structures, and three silos adjacent to Wallace Point Road. The high point of the property is located approximately 200 m east from the intersection of Matchett Line and Base Line at the southern boundary of the Subject Property. The entire Subject Property drains from south to north to a culvert located near the northwest Subject Property boundary. This culvert outlets to the Stewart Hall Wetland Complex located northwest of Wallace Point Road. The agricultural lands within the Subject Property drain towards the Wallace Point Road centreline culvert. The surrounding properties include agricultural land to the north, east and west, and a mix of agricultural and residential lands to the south.

The change in land use includes the removal of agricultural areas to allow for the construction of a proposed residential subdivision. This will also include removal of the existing single-family dwelling, two farming structures, and the three silos. The proposed development will alter the stormwater runoff rate leaving the Subject Property; however, the purpose of this report is to explore alternatives to mitigate the excess runoff. The proposed development will be serviced by municipal water services, however sanitary services are not located in proximity to the Subject Property, therefore wastewater will be managed by private septic systems.

The Plan of Survey for the Subject Property was completed by Elliott and Parr on October 6, 2022. This data was used to determine the elevations and locations of

existing Subject Property features, on-site drainage patterns and establish the proposed grades.

Figure 1 – Subject Property Location



3.0 Stormwater Management

The objectives of SWM design identified in the SWM Planning and Design Manual are to:

- Prevent any increase in flood risk potential.
- Protect water quality.
- Preserve groundwater and baseflow characteristics.
- Prevent undesirable and costly geomorphic change to a watercourse.
- Maintain an appropriate diversity of aquatic life and opportunities for human use.

The present hierarchy of watershed planning in Ontario can be described by the following descending order: Watershed Plans, Sub-watershed Plans and individual SWM

Plans. Since there is no Watershed or Sub-watershed Plan for this area, the proposed development was prepared as an individual Preliminary SWM Plan.

The following list summarizes the design strategy utilized for the development:

- Provide stormwater quantity control by maintaining post-development flows at or below pre-development levels.
- Provide water quality control to Enhanced (Level 1) protection.
- To promote the developmental inclusion of Low Impact Development (LID) features, based on the site constraints, to preserve the natural hydrologic cycle.
- Provide erosion and sediment controls to prevent undesirable changes to downstream watercourses.
- Appropriate development layout to preserve natural heritage and hydrological features of the site.

3.1 Drainage

Under pre-development (existing) and post-development conditions, the Subject Property has been broken down into different catchments based on site topography and land use.

Under the existing condition, the Subject Property has been divided into three catchment areas, direct to two outlet locations. In addition, one external area has been identified draining onto the Subject Property from the south. The existing condition drainage plan is shown in **Figure 2** with additional catchment information described below and details provided in **Appendix A**.

OUT-1 Wallace Point Road Centerline Culvert

- Catchment **EX-101** consists predominantly of agricultural lands, small wooded areas, and a single-family dwelling with two farming structures and three silos located on the west side of the Subject Property. This catchment area slopes south to north, discharging all surface runoff into the PSW through the Wallace Point Road centerline culvert.
- Catchment **WL-102** is the wetland area located on the northern portion of the Subject Property. It receives runoff from the upstream catchments (**EX-101** and **EXT-103**). The site's single discharge point, the Wallace Point Road centerline culvert (**OUT-1**), is located within this catchment.
- Catchment **EXT-100** consists of an external area that drains onto the Subject Property. This catchment consists of a section of Base Line and several residential properties, which drain onto the site based on the natural topography in this area.

OUT-2 Base Line

- Catchment **EX-201** consists predominantly of agricultural lands located on the southeast corner of the Subject Property. This catchment area slopes northwest to southeast, discharging all surface runoff into the existing roadside ditches along Base Line.

For the post-development condition, the site has been divided into 10 drainage areas based on the proposed grading of the Subject Property. The external drainage area will be maintained as part of the proposed development. The proposed drainage areas are shown on **Figure 3**, described below and further details provided in **Appendix A**.

- Catchment **PR-101** is located in the southwest corner of the Subject Property. This catchment is proposed to contain four residential lots and a small area of the proposed right-of-way. All residential lots within this catchment will contain lot level stormwater controls to infiltrate runoff generated by each individual lot. Due to the geographic constraints, this area will drain uncontrolled to **OUT-1**.
- Catchment **PR-Comb** is comprised of sub-catchments PR-102 to PR-108, as detailed below.
    - Catchment **PR-102** consists of 10 residential lots adjacent to Base Line, along the south boundary of the Subject Property. All residential lots within this catchment will contain lot level stormwater controls to infiltrate runoff generated by each individual lot.
    - Catchment **PR-103** contains nine residential lots located along the east side of the Subject Property. All residential lots within this catchment will contain lot level stormwater controls to infiltrate runoff generated by each individual lot.
    - Catchment **PR-104** contains 14 residential lots. All residential lots within this catchment will contain lot level stormwater controls to infiltrate runoff generated by each individual lot.
    - Catchment **PR-105** consists of six residential lots located in the west side of the Subject Property. All residential lots within this catchment will contain lot level stormwater controls to infiltrate runoff generated by each individual lot.
    - Catchment **PR-106** consists of seven residential lots located in between of the Catchment PR-104 and PR-109. All residential lots within this catchment will contain lot level stormwater controls to infiltrate runoff generated by each individual lot.
    - Catchment **PR-107** consists of a commercial block, located on the west side of the Subject Property at the intersection of Matchett Line and Wallace Point Road. It is assumed that this catchment will contain a greater amount of impervious area than the residential lots; therefore, a larger lot level SWM facility will be implemented.

- Catchment **PR-108** consists of the proposed road right-of-way throughout the subdivision and the SWM block. This catchment will contain a SWM facility to detain any runoff not captured by the lot-level facilities and discharge it at controlled rates comparable to existing conditions. The stormwater will be discharged to a culvert that conveys flow under Wallace Point Road into the PSW (**OUT-1**). The outlet is the same as in the existing conditions, and its location will not change for the proposed development.

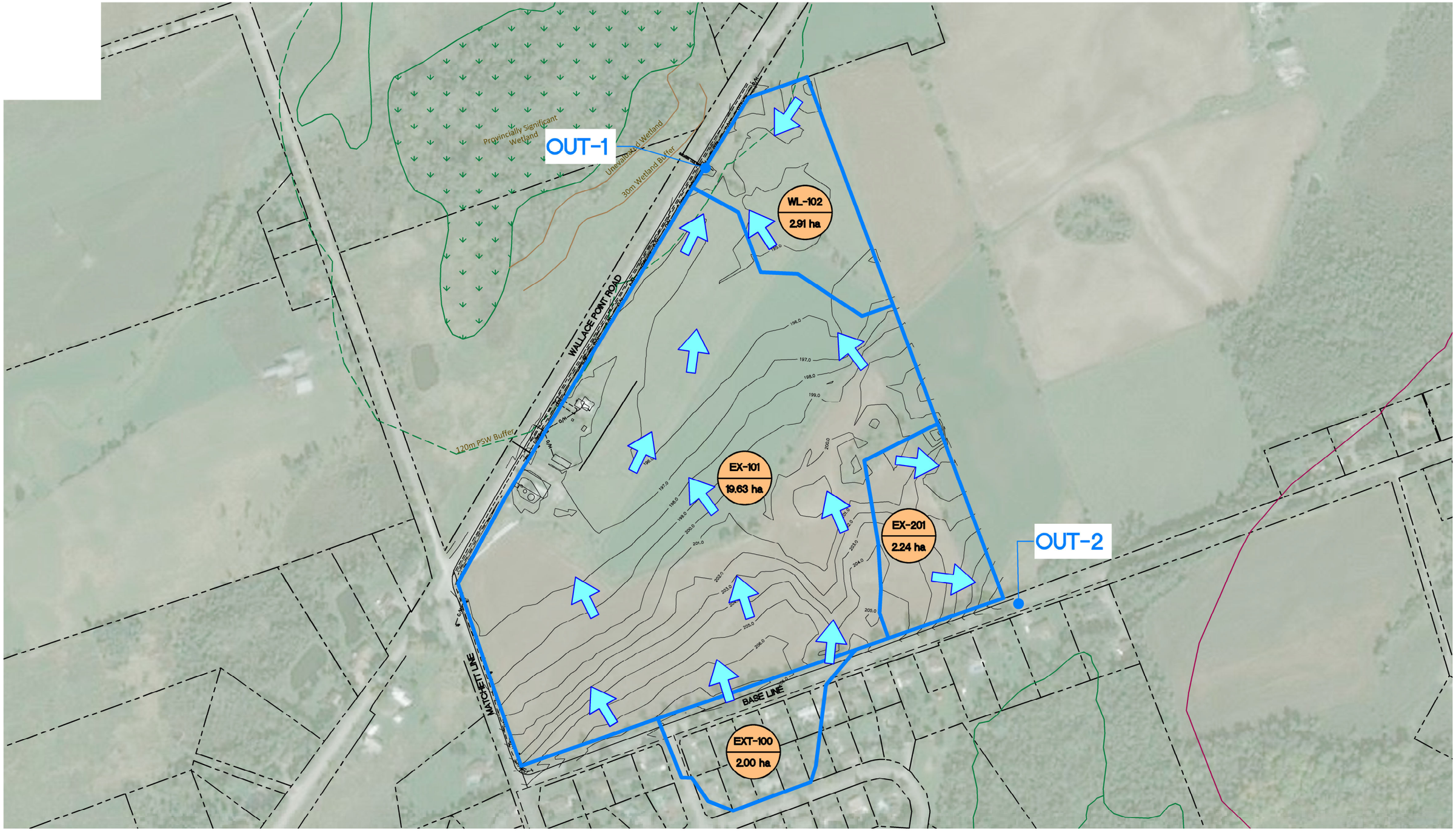
The existing and proposed runoff characteristics were analyzed using individual sub-catchments. Hydrologic parameters, land use and runoff response were determined based on literature review and satellite images. Topographic mapping and AutoCAD Civil 3D software were used to establish sub-watershed areas, land use and slope. On-site soils were assessed using the Ministry of Agriculture Agricultural Information Atlas. The Subject Property was identified as containing Bondhead Loam with a Hydrologic Soil Group of B. The hydrologic parameters for each catchment are summarized in **Table 1** and full details are documented in **Appendix A**.

Table 1 – Hydrologic Parameters

Standhyd[1]							
Catchment ID	**Area (ha)**	**Impervious %**	**CN*[2]**	**Ia[3]**	**Pervious Length (m)**	**Pervious Slope (%)**	**Impervious Slope (%)**
PR-Comb	20.19	27	60.5	5.0	585	1.5	1.5

Nashyd[1]					
Catchment ID	**Area (ha)**	**Impervious %**	**CN*[2]**	**Ia[3]**	**Tp[4] (hrs)**
EX-101	19.63	1.0	76.1	6.1	0.56
WL-102	2.91	0.0	52.3	10.0	0.58
EXT-100	2	20.0	69.4	4.4	0.49
EX-201	2.24	0.0	76.8	6.0	0.43
PR-101	4.59	9.2	58.5	7.9	0.29

Notes:
1. CN* refers to the modified CN number adjusted to Antecedent Moisture Conditions II. Excludes Impervious Area for Standhyd.
2. Ia refers to Initial Abstraction. Excludes Impervious Area for Standhyd.
3. Tp refers to Time to Peak.



EX-100 / 0.22 ha — CATCHMENT ID / CATCHMENT AREA

CATCHMENT BOUNDARY

OVERLAND FLOW DIRECTION

STORM SEWER FLOW DIRECTION

OUT — OUTLET LOCATION

Sketch No.

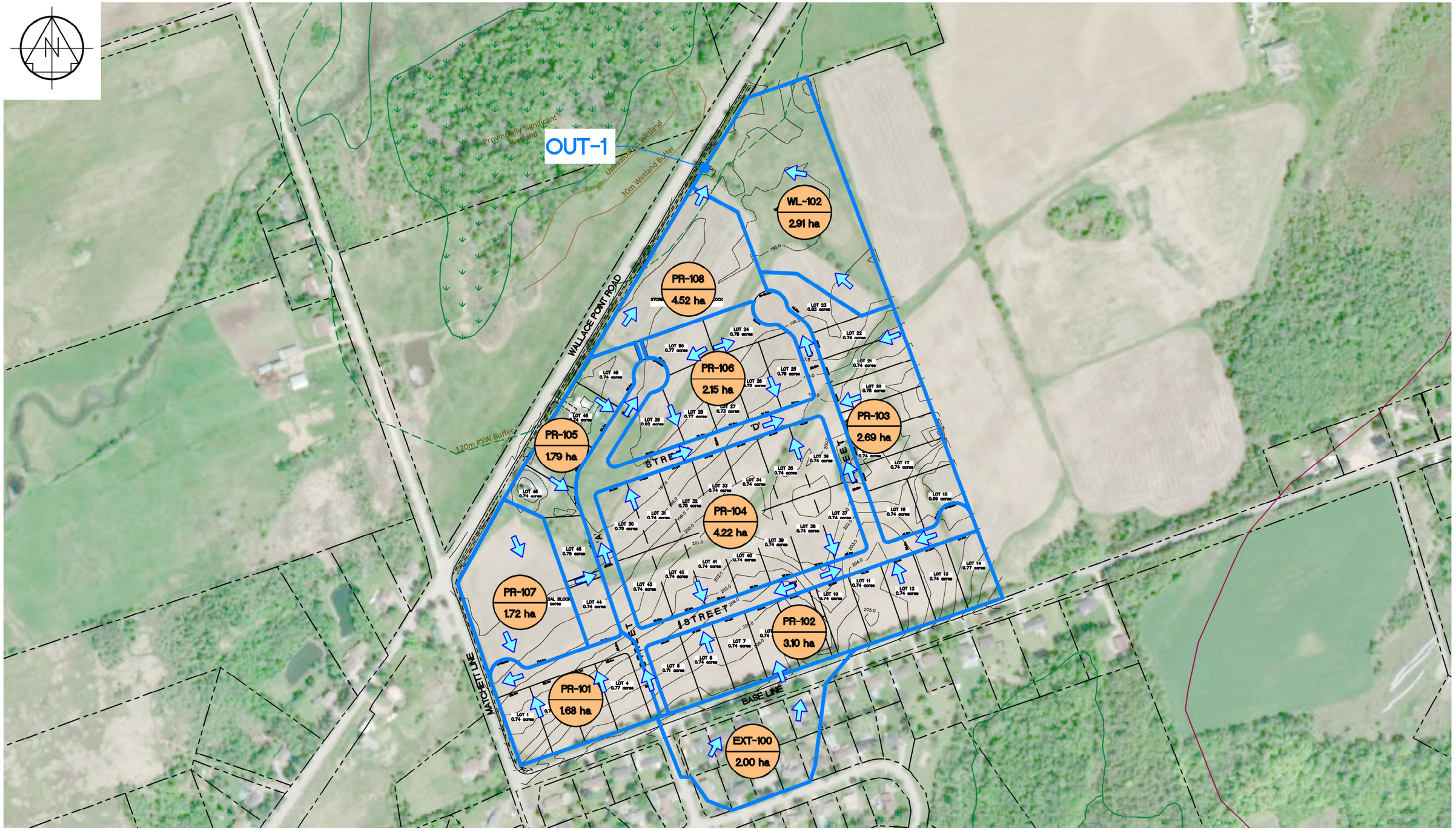
FIGURE 2
3491 WALLACE POINT RD
PRE-DEVELOPMENT
DRAINAGE AREA PLAN

WILLS

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.741.3568
E. wills@dmwills.com

Drawn By: SC	Scale: 1: 4000
Designed By: SC	Plot Date: JAN 2026
Checked By: CP	Project No.: 85162
Engineer: CP	Drawing File No.: 85162-PRE



EX-100 / 0.22 ha — CATCHMENT ID / CATCHMENT AREA

CATCHMENT BOUNDARY

OVERLAND FLOW DIRECTION

OUT — OUTLET LOCATION

Sketch No.
FIGURE 3
3491 WALLACE POINT RD
POST-DEVELOPMENT
DRAINAGE AREA PLAN

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.741.3568
E. wills@dmwills.com

Drawn By: SC	Scale: 1: 4000
Designed By: SC	Plot Date: JAN 2026
Checked By: CP	Project No.: 85162
Engineer: CP	Drawing File No.: 85162-POST

3.2 Justification of Preliminary Imperviousness Parameter

A baseline calculation was performed for both the residential and commercial blocks to substantiate the parameters selected for the preliminary hydrologic model.

3.2.1 Residential Lots

The analysis is based on the proposed typical lot configuration.

Calculation Parameters:

- Typical Lot Area: 0.74 acres (2994.7 m^2)
- Proposed Building Footprint: 250 m^2
- Driveway Area: 6.0 m x 20.0 m (120 m^2)

Impervious Area Calculation:

The primary impervious surfaces consist of the building footprint and the driveway.

- Total Impervious Area = Building Footprint + Driveway Area
- Total Impervious Area = 250 m^2 + 120 m^2 = 370 m^2

Impervious Percentage Calculation:

- Imperviousness (%) = (Total Impervious Area / Total Lot Area) × 100
- Imperviousness (%) = (370.0 m^2 / 2994.7 m^2) × 100 = 12.4%

Conclusion (Residential):

The baseline calculation, considering only the primary building and driveway, results in an imperviousness of 12.4%. To adopt a conservative approach for this preliminary design stage and to account for miscellaneous hardscaping that may be added by homeowners (e.g., walkways, small patios), the impervious parameter has been set at **15%.** This value provides a reasonable buffer and aligns with the Township's preference for conservative initial parameters. The imperviousness will be precisely recalculated and finalized during the detailed design stage when architectural concepts and site grading plans are available.

3.2.2 Commercial Block

The analysis for the commercial block considers a more intensive development scenario to justify the selected parameter.

Assumptions for a Typical Rural Commercial Lot:

- Total Lot Area: 4.31 acres (17,442 m^2)
- Proposed Building Footprint: 42,000 ft^2 (3,900 m^2)

- Parking & Maneuvering Area: 4,500 m^2
- Driveway/ Main Access Roads: 1,200 m^2
- Loading Docks & Service Areas: 550 m^2
- Walkways & Pedestrian Plazas: 300 m^2

Impervious Area Calculation:

- Total Impervious Area = 3,900 m^2+4500 m^2+1,200 m^2+550 m^2+300 m^2=10,450 m^2

Impervious Percentage Calculation:

- Imperviousness (%) = (10,452 m^2 / 17,442 m^2) × 100 = 59.9%

Conclusion (Commercial):

The calculation for intensive rural commercial development shows an imperviousness of 59.9%. This demonstrates that adopting an impervious parameter of 60% for the preliminary design stage is a reasonable and conservative value, accounting for the infrastructure required for viable commercial use.

All imperviousness parameters will be finalized during the detailed design stage once definitive site plans are available.

3.3 Groundwater Implications on Stormwater Management

This section outlines the influence of site-specific groundwater conditions on the overall stormwater management strategy. It details the design approach for quantity control and infiltration features in consideration of these conditions and describes how recommendations from the hydrogeological report have been incorporated into the design.

3.3.1 Site Groundwater Conditions

As confirmed by the most recent Hydrogeological Investigation, the seasonal high groundwater table (SHGWT) across the project site is very near or at the existing ground surface, with artesian conditions observed within several monitoring wells. This condition is the primary constraint governing the SWM strategy for the development.

3.3.2 Incorporation of Hydrogeological Recommendations

To ensure the functionality and regulatory compliance of all SWM features, the design strictly adheres to the recommendations outlined in the hydrogeological reports. The key recommendation is that the bottom of any subsurface infiltration facility must maintain a minimum vertical clearance of 1.0 metre from the SHGWT.

As all lots within this development will be serviced by private septic systems, providing supplementary infiltration is mandatory to meet water balance targets and to achieve

the required dilution of nitrate. To satisfy this requirement under the site-wide high groundwater constraint, the following critical design measure has been adopted:

- **Site Grading Raise:** For all catchments requiring infiltration facilities (Catchments PR-101 to PR-107), a site grading raise will be implemented. This approach creates the vertical separation to install infiltration features an achieve the 1.0 m vertical clearance from the SHGWT.

4.5.3 Implications for Quantity Control (Wet Pond)

The hydrogeological investigation confirms a high unconfined surficial aquifer at the low point of the site. To prevent interaction with groundwater, the a wet pond facility will be constructed, with impermeable liner.

The wet pond is designed to meet two primary objectives:

- **Quantity Control:** Higher-stage outlets are designed to manage and attenuate peak flows from larger storm events, ranging from the 2-year to the 100-year return period.
- **Quality Control:** The facility will provide 'Enhanced' Level 1 protection using extended detention (ED). The ED storage is sized to capture runoff from a 25 mm storm event and release it over 24 hours through a dedicated low-flow orifice in the outlet structure.

3.4 Stormwater Quantity Control

The alteration of the existing site area from agricultural lands into a combined commercial / residential development will increase the imperviousness and the corresponding stormwater runoff leaving the Subject Property. To ensure that the development does not increase downstream flooding potential, SWM facilities are required to maintain post-development peak flow rates to existing conditions.

Peak flow calculations were completed using Visual Otthymo, version 6.2 (VO6). Peak flows were calculated for each of the 2 to 100-year design storms. As the Preliminary Stormwater Management Report has established that the 6-hour SCS storm event generates the higher runoff values, and by consulting with the township, the VO model will only require running the 6-hour SCS storm for detail design. The flow chart and the VO6 model are presented in **Appendix C.**

For the quantity analysis, the lot level controls were ignored to provide a worst-case scenario for the pond block.

OUT-1 Wallace Point Road Centreline Culvert

For the post-development condition catchments, all catchments will discharge directly into the SWM facility before discharging to the Wallace Point Road centreline culvert. The peak flows discharging to this outlet location for pre-development conditions and the post-development conditions, without any quantity controls, are summarized in **Table 2**.

Table 2 – OUT-1 Existing and Proposed Uncontrolled Peak Flows

Return Period (Year)	Peak Flows (m^3/sec)		
	6 Hour SCS		
	Pre	Post (UNC)	Diff
2	0.337	**0.902**	**0.563**
5	0.626	**1.276**	**0.649**
10	0.852	**1.538**	**0.686**
25	1.155	**1.879**	**0.724**
50	1.400	**2.141**	**0.742**
100	1.654	**2.410**	**0.756**

Notes:
1. Pre refers to the pre-development condition (AddHyd 1100). Refer to VO6 Hydrograph in Appendix C.
2. Post (UNC) refers to the post-development (uncontrolled) condition (AddHyd 2100). Refer to VO6 Hydrograph in Appendix C.
3. Diff refers to the difference in peak flow between the pre-development conditions and the post-development (uncontrolled) conditions.

A review of **Table 2** indicates the uncontrolled post-development condition exceeds the pre-development condition. As such, the increase in imperviousness under the proposed conditions will increase the peak flow rates and runoff volumes leaving the Subject Property. In order to ensure the downstream PSW is not adversely impacted, a SWM facility is proposed to provided the necessary quantity controls.

A wet pond is proposed to provide an area for stormwater storage and slowly be discharged at controlled rates to maintain pre-development flow rates. The proposed wet pond will be located in catchment **PR-108**. A theoretical stage-discharge relationship is presented to provide guidance during the detailed design phases of the project. The stage-storage-discharge values for the theoretical wet pond facility are summarized in **Table 3**.

Table 3 – Stage-Storage-Discharge – Wet Pond

Elev. (m)	Storage Depth (m)	Peak Flows (m^3/s)	Storage Volume (m^3)	Remarks
195.05	0.00	0.000	0	Bottom of Wet Pond
196.05	1.00	0.000	0	Top of Permanent Pool & Orifice Invert
196.23	1.18	0.004	1480	25 mm (1474 m^3)
196.25	1.20	0.005	1650	Riser Pipe Invert
196.29	1.24	0.087	1993	2-year (1941 m^3)
196.32	1.27	0.196	2251	5-year (2200 m^3)
196.35	1.30	0.332	2511	10-year (2430 m^3)
196.38	1.33	0.491	2773	25-year (2693 m^3)
196.40	1.35	0.608	2948	50-year (2919 m^3)
196.43	1.38	0.800	3212	100-year (3155 m^3)
196.50	1.45	1.316	3836	Bottom of Weir
196.75	1.70			Top of Pond

Notes:

1. Design storms noted in the discharge column are for the 6-hour SCS Type II design storm.

The theoretical wet pond will provide 3,836 m^3 in the active storage portion of the pond. The wet pond will provide additional storage in the 0.3 m zone of freeboard. A multi-stage outlet system will be designed to achieve the quantity targets required and will outlet directly into Wallace Point Road right-of-way. An emergency spillway will be provided at the outlet end of the pond to provide relief in the event that the outlet becomes obstructed. The spillway will be designed to convey the maximum inflow to the facility during the detailed design stage.

A review of the pond block indicates that the theoretical pond can be constructed within the pond block provided. Based on the preliminary pond grading plan, an active storage volume of 3,836 m^3 is provided, exceeding the minimum storage requirement stated above. Design calculations of this configuration are provided in **Appendix B** and the effect of the wet pond on proposed flow rates is presented in **Table 4**.

Table 4 – OUT-1 Controlled Peak Flow Summary

Return Period (Year)	Peak Flows (m^3/sec)		
	6 Hour SCS		
	Pre	Post	Diff
2	0.337	0.077	**-0.260**
5	0.626	0.237	**-0.389**
10	0.852	0.399	**-0.453**
25	1.155	0.640	**-0.515**
50	1.400	0.845	**-0.555**
100	1.654	1.061	**-0.593**

Notes:
1. Pre refers to the pre-development condition (AddHyd 1100). Refer to VO6 Hydrograph in Appendix C.
2. Post refers to the post-development (controlled) condition (AddHyd 3100). Refer to VO6 Hydrograph in Appendix C.
3. Diff refers to the difference in peak flow between the pre-development conditions and the post-development conditions.

A review of **Table 4** indicates that the controlled post-development peak flow rates for **OUT-1,** up to the 100-year design storm will be maintained below the pre-development peak flows.

3.4.1 Existing Culvert Capacity Analysis

An existing 800 mm diameter corrugated steel pipe (CSP) culvert is located downstream of the subject site, conveying flows under Wallace Point Road. A hydraulic analysis was conducted using the HY-8 model to assess the capacity of this existing culvert and determine the headwater elevations during various storm events. The detailed HY-8 report is available in **Appendix E**.

The critical elevation for overtopping is 193.81 m, which corresponds to the highest point of the existing ditch located approximately 25 m north of the culvert. Should the headwater elevation exceed this level, flows will overtop the ditch and continue to travel north along the existing drainage path.

The analysis indicates that under the Pre-development conditions, the existing culvert and ditch system can convey runoff from storm events up to and including 5-year storm without overtopping, while in the post-development condition, the subject existing system has the capacity to convey runoff from storm events up to and including the 10-year storm without overtopping. For the 25-year, 50-year and 100-year storm events, the headwater elevations vary from 193.82 m to 193.86 m, exceeding the ditch crest elevation of 193.81 m. This results in direct overtopping into the ditch, with flows of

0.01m^3/s, 0.19 m^3/s, and 0.39 m^3/s for the 25-year, 50-year and 100-year events. This overtopping flow is contained by the existing ditch and continues to flow north.

The proposed development is designed to control post-development flows to pre-development levels up to the 100-year storm. Based on hydraulic analysis, the proposed development will improve existing drainage conditions.

3.5 Stormwater Quality and Low Impact Development Control

The development of the Subject Property will result in increased impervious areas, which may cause additional pollutants to be conveyed off-site if not properly mitigated. This is particularly important due to the wetland areas located directly downstream of the site. The selection and sizing of the water quality measures have been completed based on the procedures set out in the Stormwater Management Planning and Design Manual (MOE, March 2003) for Enhanced (Level 1) protection.

According to the SWMP Planning and Design Manual, the goal of SWM is to preserve the natural hydrologic cycle. The manual also states that SWM measures should be assessed in the following order:

- Stormwater lot level controls.
- Stormwater conveyance controls.
- End-of-pipe SWM facilities.

Stormwater lot level controls represent measures which are implemented at the individual lot level (soak-a-way pits, flatter grading, etc.). Stormwater conveyance controls represent the conveyance systems used to transport stormwater runoff from the lots to the receiving waters (pervious pipes, grassed swales, etc.). End-of-pipe SWM facilities represent the common urban SWM measures used to service numerous lots or whole subdivisions (wet ponds, wetlands, infiltration basins, etc.).

3.5.1 Lot Level Controls

The runoff from catchments **PR-101**, **PR-102**, **PR-103**, **PR-104**, **PR-105** and **PR-106** is generated from roofs and grassed areas and is considered clean. The runoff from catchments **PR-107** will require their own quality control plan as part of the site plan approval stage.

As part of the Water Balance for the site, surface runoff from the lots will be captured and infiltrated. Under extreme conditions, excess runoff that cannot infiltrate will flow toward the ditch in the road right-of-way and ultimately flow into the SWM pond then into **OUT-1**.

Additional detail on the overall water balance of the site is provided in **Section 3.6**.

3.5.2 Conveyance Controls

The proposed conveyance control system comprises driveway culverts and roadside ditches of consistent geometry throughout the site. Surface runoff is directed and distributed toward Street A and Street C. As the downstream condition governs the hydraulic performance of the system, the conveyance assessment has been undertaken based on the critical downstream scenario to ensure a conservative evaluation.

Hydrologic outcomes from the VO model indicate that the 10-year and 25-year uncontrolled peak flows of the AddHyd MISC (represent the combination of PR-Comb and EXT-100) are 1.438 L/s and 1.733 L/s respectively. The contributing drainage area is apportioned between Street A and Street C at approximately 47% and 53%, respectively. To simplify the conveyance assessment, the design flows for the driveway culverts and roadside ditches have been proportioned in accordance with these drainage area ratios.

3.5.2.1 Driveway Culvert Sizing

Table 5 – Peak Flow Rate Summary – Driveway Culvert Sizing

Culvert ID	Peak Flow				Calculation Method
	Design (L/s)[1]	Drainage Area (ha)	Drainage Area Ratio (%)	Check (L/s)[2]	
Street A	1.438	10.43	47%	0.338	Visual Otthymo V6.0
Street C		11.76	53%	0.381	

Notes:

1. Design Peak flows are derived from AddHyd (ID: 2 MISC) within Visual Otthymo.
2. Check peak flows are proportionally allocated based on drainage area ratios.
3. Design Storm defined as the 10-year storm event.

The proposed culvert performance was assessed using the HY-8 program. The HY-8 results were evaluated with respect to the freeboard, flood depth and overtopping criteria. In addition, the outlet velocity at the crossing is checked whether it exceeds the erosion threshold value of 1.5 m/s.

Hydraulic elements calculations are provided in **Appendix E.** The culvert characteristics for the proposed culverts are summarized in **Table 6** and **Table 7**.

Table 6 – Culvert Characteristics

Culvert ID	Shape	No. of Barrels	Material	Span / Dia. (mm)	Length (m)	Slope (m/m)	Invert Elev. (m)	
							US	DS
Street A	Circular	1	HDPE	675	8	0.005	197.48	197.44
Street C	Circular	1	HDPE	675	8	0.005	197.11	197.07

Table 7 – Culvert Hydraulic Performance

Culvert ID	Design Storm HW Elev. (m)	Available Freeboard (m)	HW Depth (m)	HW/D	Downstream Velocity (m/s)	Rec. Rip-Rap Size (mm)	Meets Criteria	
							HW/D	Free-board
Street A	198.06	0.48	0.58	0.86	1.81	200	Yes	Yes
Street C	197.75	0.42	0.64	0.94	1.87	200	Yes	Yes

A review of **Table 7** indicates that the proposed pipes will meet the HDDS criteria for headwater to depth ratio. A review of **Table 7** also indicates that both proposed pipes will meet the HDDS criteria for Freeboard.

Erosion protection is required at the outlet of either pipe as the velocity exceeds the erosion threshold of 1.5 m/s.

3.5.2.2 Roadside Ditch Capacity Verification

Table 8 – Peak Flow Rate Summary – Roadside Ditch

Culvert ID	Peak Flow				Calculation Method
	Design (L/s)[1]	Drainage Area (ha)	Drainage Area Ratio (%)	Check (L/s)[2]	
Street A	1.733	10.43	47%	0.405	Visual Otthymo V6.0
Street C		11.76	53%	0.462	

Notes:

1. Design Peak flows are derived from AddHyd (ID: 2 MISC) within Visual Otthymo.
2. Check peak flows are proportionally allocated based on drainage area ratios.
3. Design Storm defined as the 25-year storm event.

Based on the hydraulic calculations, the roadside ditches are capable of conveying the 25-year design flow, and Erosion protection is not required as the velocity does not exceed the erosion threshold of 1.5 m/s. Detailed ditch and culvert sizing calculations are provided in **Appendix E**.

3.5.3 End of Pipe Controls – Wet Pond Facility

The proposed stormwater management strategy includes the implementation of a wet pond facility designed to provide comprehensive water quality treatment. Wet ponds are highly effective at managing both the quantity and quality of stormwater runoff. This facility will incorporate several key measures to treat stormwater and improve water quality before it is released downstream. The wet pond facility will be located at the northern limit of the property and will release controlled flows to Outlet 1 (**OUT 1**).

One of the primary features of the pond is the **sediment forebay**, located at the inlet end. The forebay plays a crucial role in improving pollutant removal by capturing larger particles close to the inlet and preventing them from entering the main pond. In addition to its pollutant removal function, the forebay also reduces inflow velocities and minimizes the potential for re-suspending sediment within the pond.

Another key quality treatment measure is the **permanent pool**, which forms the central part of the facility. The permanent pool has a depth of 1.0 meters. During storm events, the pool serves as a buffer, ensuring that any water released from the facility is either clean or diluted. Following a storm event, pollutants are trapped in the permanent pool, allowing them to settle out over an average period of 72 hours before the next rainfall. This inter-event settling period is one of the reasons wet ponds are most effective in removing pollutants from stormwater runoff.

The wet pond facility has been sized to capture flows from the proposed development area (**PR-101 to PR-108**) and will also receive additional flows from catchment **EXT-100**. The required permanent pool storage volumes are based on the guidelines in Table 3.2 of the SWMP Planning and Design Manual. The features of the proposed pond are detailed in **Table 9**.

Table 9 – Extended Detention Wet Pond Features

Feature	Remarks
Level of Protection	Enhanced (Level 1)
Contributing Area	22.19 ha (PR-102 to PR-108 + EXT-103)
Percent Impervious	26.0%
Storage Volumes	• 140 m^3/ha for 26.0% impervious. • 100 m^3/ha for permanent pool.
Permanent Pool Design	• Volume required is 2,219 m^3. • Volume provided is 6,932 m^3. • Ponding depth is 1.0 meters and side slopes are 5:1 with a 1.0 m flat safety bench at the permanent pool level.
Forebay Design	• Length to width ratio is 7.5 to 1. • Required settling length (L_f) is 32 m. • Required dispersion length (L_d) is 77 m. • Forebay length provided is 77 m.
Extended Detention Design	• Volume required is 1,440 m^3 (for the subject development site) for quality control based on the 25 mm, 4-hour Chicago Distribution (for min. of 24-hour drawdown). • Note that total volume provided in the wet pond is 1,474 m^3 at a depth of 0.18 m (above permanent pool level). • Side slopes are 5:1
Outlet Design	2-stage outlet system: • 75 mm dia. orifice plate (196.05 to 196.25 m). • 1800 mm dia. riser pipe (196.25). 25 mm drawdown time = 102.3 hours > Min. of 24 hours

A review of **Table 9** confirms that the proposed stormwater facility exceeds the water quality objectives. The design of the proposed stormwater management will be further refined in the detailed SWM Report, as a condition of Draft Plan Approval.

3.5.4 Quality Control Summary

As detailed in the preceding sections, the quality control strategy relies on the Wet Pond Facility as the primary means of water quality control for the development. The primary objective is to achieve an 'Enhanced' level of protection as outlined in the Ministry of the Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual, which requires a minimum long-term removal of 80% of Total Suspended Solids (TSS).

The overall strategy separates the treatment responsibilities for the commercial and residential blocks. The commercial block will implement its own on-site stormwater quality control system to achieve the 80% TSS removal target. Specific details for this system will be provided during the commercial block's Site Plan Approval (SPA) process.

3.6 Water Balance

An existing and proposed condition water balance for the Subject Property has been prepared in accordance with the Conservation Authority Guidelines for Hydrogeological Assessment, prepared by Conservation Ontario in June 2013.

As previously mentioned, municipal sanitary services are not located in close proximity to the Subject Property, therefore private septic systems will be required to manage wastewater. Because of this, nitrate concentration will be of particular concern.

According to the regulations stipulated in the D-5-4 Individual on-site Sewage Systems: Water Quality Impact Risk Assessment (Ministry of Environment and Energy, 1996), a nitrate-nitrogen groundwater loading rate of 10 mg/L is used as an indicator of groundwater impact potential. Various pollutants including nitrate can be introduced into soil and nearby groundwater from stormwater runoff. Therefore, it is important to appropriately size lot level controls for each residential lot to remain below the nitrate loading threshold when lot level stormwater controls and septic systems are used in conjunction. Detailed descriptions of the Nitrate Loadings can be found in the Hydrogeological Study Report prepared by Wills in March 2026.

Each residential lot will be required to have two infiltration systems. The first infiltration system will capture any runoff generated from the roof of each dwelling in an underground system. Each underground system will be required to have a minimum volume of 4.3 m^3. The second infiltration system will capture runoff generated from the remainder of the lot in an above ground system. Each above ground facility will be required to have a minimum volume of 9.0 m^3.

In addition, an infiltration system will be required for the commercial block. The commercial block will require an individual water balance plan as part of the site plan approval process. For the purposes of Draft Plan Approval, the water balance analysis assumes an aboveground facility with a minimum volume of 120 m^3.

The configurations of the above and below ground features within the lots will be refined as a condition of Draft Plan Approval and the final design for each lot will be the responsibility of the individual lot owner as part of the building permit stage.

Preliminary water balance calculations were completed using Visual Otthymo, version 6.2 (VO6). The water balance modelling for the infiltration features has been completed assuming the annual volume of water captured by each feature and applying that to the total infiltration volume of the site. For the underground systems, infiltration has been assumed to occur year-round as the base of these features will be below the frost depth. However, above ground systems are assumed to only provide infiltration during months with average temperatures above freezing. Water balance calculations are

provided in **Appendix D** and the results are summarized in **Table 10.** V06 model files can be made available to the reviewer upon request.

Table 10 – Water Balance

Catchment Parameters	Existing	Proposed		Percent Change
		Without LID	With LID	
Precipitation (mm/year)	852.9			0%
Precipitation (m^3/year)	211,350			
Evapotranspiration (mm/year)	356.9	307.4	307.4	-13.9%
Evapotranspiration (m^3/year)	88,441	76,138	76,138	
Infiltration (mm/year)	319.2	282.6	366.7	14.9%
Infiltration (m^3/year)	79,100	70,030	90,681	
Runoff (mm/year)	172.5	257.5	183.3	6.3%
Runoff (m^3/year)	42,756	66,261	45,429	

A review of **Table 10** indicates that the proposed development will maintain the existing annual infiltration volume using infiltration features. Based on the above, infiltration into will increase by 14.9% from the existing condition and the total runoff leaving the site will be increased by 6.3%, on an average annual basis.

The total drainage area contributing to the existing wetland on the west side of Wallace Point Road was estimated to be approximately 29.6 km^2 based on the Ontario Flow Assessment Tool, as illustrated in **Appendix D**. As the total site area is only 24.78 ha, the minor changes in infiltration and runoff volume will have a negligible impact on the characteristics of the wetland.

4.0 Conclusion

The purpose of this report is to evaluate the drainage characteristics of the proposed development and to recommend preliminary SWM solutions that proceed with no adverse impacts to the receiving drainage system.

The proposed development will increase the on-site impervious area, and the corresponding stormwater flows of the development. Therefore, stormwater quantity and quality control measures are required to ensure that the receiving drainage system will not be adversely affected.

Stormwater quantity control will be achieved by storing flows within a wet pond located in the northernmost catchment of the Subject Property. This control measure will reduce the post-development peak flow rates to less than pre-development levels for the 2 to 100-year storm events.

Stormwater quality control will be achieved through a treatment train approach, with lot level LID controls, and implementation of wet pond.

Lot level controls will be implemented in each residential lot under the post-development condition of the Subject Property. Underground chamber and above ground infiltration facilities (within the frost layer) are proposed to mitigate the runoff generated by the dwellings and other impervious features on each lot.

Full details of all stormwater features will be provided during the detailed design phase.

Respectfully submitted,

Sheng Cai, P.Eng.
Water Resources Engineer
Land Development Engineering

Chris Proctor, P.Eng.
Department Manager
Land Development Engineering

SC/CP/jh

Statement of Limitations

This report has been prepared by D.M. Wills Associates Limited has been retained by the Client to prepare a Preliminary Stormwater Management Report in support of the Draft Plan of Subdivision application and the Zoning By-law Amendment for the Wallace Point Subdivision located at 3491 Wallace Point Road, Township of Otonabee-South Monaghan, Ontario.

The purpose of this report is to evaluate the drainage characteristics of the proposed drainage characteristics and develop a preliminary plan for stormwater management that will permit the development to proceed with no adverse impacts to the receiving drainage system. This report has been prepared to address the requirements of the Municipality of Otonabee-South Monaghan and the Otonabee Region Conservation Authority (Conservation Authority).

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

Any use which a third party makes of this report other than a Stormwater Management Report for the Wallace Point Subdivision is the responsibility of such third parties. D.M. Wills Associates Limited accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or action taken based on using this report for purposes other than a Stormwater Management Report for the Wallace Point Subdivision.

Appendix A

Hydrology and Rainfall

Design Chart 1.05: SCS Type II Distribution

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

Source: Ministry of Natural Resources - MNR (1986)

Table B.1: AES 12 Hour Distributions

Elapsed Time [Hours]	10%		30%		50%		70%		90%	
	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %	Cumul. %	Incr. %
0	0	0	0	0	0	0	0	0	0	0
1	45	45	13	13	4	4	3	3	1	1
2	85	40	39	26	18	14	8	5	3	2
3	98	13	59	20	30	12	14	6	4	1
4	100	2	74	15	42	12	24	10	10	6
5	100	0	88	14	60	18	39	15	14	4
6	100	0	96	8	75	15	50	11	27	13
7	100	0	99	3	84	9	60	10	36	9
8	100	0	100	1	91	7	72	12	44	8
9	100	0	100	0	96	5	84	12	58	14
10	100	0	100	0	100	4	92	8	61	3
11	100	0	100	0	100	0	96	4	92	31
12	100	0	100	0	100	0	100	4	100	8

Hydrologic Parameters for EX-101

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	EX-101	
Agriculture	17.31	ha
Range	1.55	ha
Grass	0.41	ha
Woods	0.00	ha
Wetland	0.16	ha
Gravel	0.00	ha
Impervious	0.20	ha
SUM	**19.63**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.31
CN (Nashyd)	73.1

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**19.63**	ha
Impervious Area	**0.20**	ha
Percent Impervious	**1.0%**	
Connected Impervious	1.0%	

	Pervious	
Length	609	m
US Elev	207.00	m
DS Elev	194.75	m
Slope	2.0	%
	Rolling	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	B	0.32	0.22	0.13	0.11	0.05	0.76	0.90	0.31	n.a.
SCS Curve No.[3], CN	B	74	65	61	58	50	85	98	73.1	72.8
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	6.1	6.2

Time of Concentration[6]

Total Length	609	m	
Average Slope	2.0	%	
Airport	**50.3**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	22.4	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	33.7	min.	
	0.56	**hr.**	

Composite Parameters

Drainage Area	19.63 ha	
Runoff Coefficient	0.31	
SCS Curve No.	73.1	72.8
Modified Curve No.[4], CN*	**76.1**	75.7
Initial Abstraction.	**6.1**	6.2

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for WL-102

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	102 Wetland	
Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	2.91	ha
Gravel	0.00	ha
Impervious	0.00	ha
SUM	**2.91**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.05
CN (Nashyd)	50.0

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**2.91**	ha
Impervious Area	**0.00**	ha
Percent Impervious	**0.0%**	
Connected Impervious	0.0%	

Pervious

Length	258	m
US Elev	197.00	m
DS Elev	194.00	m
Slope	1.2	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.05	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	50.0	50.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	10.0	10.0

Time of Concentration[6]

Total Length	258	m	
Average Slope	1.2	%	
Airport	**52.3**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	12.8	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	35.0	min.	
	0.58	**hr.**	

Composite Parameters

Drainage Area	2.91 ha	
Runoff Coefficient	0.05	
SCS Curve No.	50.0	50.0
Modified Curve No.[4], CN*	**52.3**	52.3
Initial Abstraction.	**10.0**	10.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for EX-201

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	EX-201	
Agriculture	2.24	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.00	ha
SUM	**2.24**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.26
CN (Nashyd)	74.0

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**2.24**	ha
Impervious Area	**0.00**	ha
Percent Impervious	**0.0%**	
Connected Impervious	0.0%	

Pervious

Length	215	m
US Elev	200.00	m
DS Elev	197.60	m
Slope	1.1	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.26	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	74.0	74.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	6.0	6.0

Time of Concentration[6]

Total Length	215	m	
Average Slope	1.1	%	
Airport	**38.7**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	11.1	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	25.9	min.	
	0.43	**hr.**	

Composite Parameters

Drainage Area	2.24 ha	
Runoff Coefficient	0.26	
SCS Curve No.	74.0	74.0
Modified Curve No.[4], CN*	**76.8**	76.8
Initial Abstraction.	**6.0**	6.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for EXT-100

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	External Area	
Agriculture	0.00	ha
Range	0.00	ha
Grass	1.60	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	0.40	ha
SUM	**2.00**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.24
CN (Nashyd)	68.4

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**2.00**	ha
Impervious Area	**0.40**	ha
Percent Impervious	**20.0%**	
Connected Impervious	20.0%	

Pervious		
Length	300	m
US Elev	208.50	m
DS Elev	204.50	m
Slope	1.3	%
	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.24	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	68.4	61.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.4	5.0

Time of Concentration[6]

Total Length	300	m	
Average Slope	1.3	%	
Airport	**44.0**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	15.1	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	29.5	min.	
	0.49	**hr.**	

Composite Parameters

Drainage Area	2.00 ha	
Runoff Coefficient	0.24	
SCS Curve No.	68.4	61.0
Modified Curve No.[4], CN*	**69.4**	60.5
Initial Abstraction.	**4.4**	5.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for PR-101

Sheet 1 of 1

WILLS

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	Res.in PR-101	ROW. In PR-101	WL-102	
Agriculture	0.00	0.00	0.00	ha
Range	0.00	0.00	0.00	ha
Grass	1.02	0.24	0.00	ha
Woods	0.00	0.00	0.00	ha
Wetland	0.00	0.00	2.91	ha
Gravel	0.00	0.00	0.00	ha
Impervious	0.18	0.24	0.00	ha
SUM	**1.20**	**0.48**	**2.91**	
Hydrologic Soil Group[1]	B	B	B	
Soil Type	Bondhead Loam	Bondhead Loam	0	
C	0.25	0.52	0.05	
CN (Nashyd)	66.6	79.5	50.0	

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**4.59**		ha
Impervious Area	**0.42**		ha
Percent Impervious	**9.2%**		
Connected Impervious	9.2%		

	Pervious	Impervious	
Length	170	45	m
US Elev	205.00	202.45	m
DS Elev	196.00	200.20	m
Slope	5.3	5.0	%
	Rolling	Rolling	

Parameter	Soil Group	Land Use: Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Weighted Value: Incl. Imperv. NASHYD	Weighted Value: Not Incl. Imperv. STANDHYD
Runoff Coefficient[2]**, C**	**B**	0.32	0.22	0.13	0.11	0.05	0.76	0.90	0.25	n.a.
	B	0.32	0.22	0.13	0.11	0.05	0.76	0.90	0.52	
	B	0.32	0.22	0.13	0.11	0.05	0.76	0.90	0.05	
SCS Curve No.[3]**, CN**	**B**	74	65	61	58	50	85	98	66.6	61.0
	B	74	65	61	58	50	85	98	79.5	61.0
	B	74	65	61	58	50	85	98	50.0	50.0
Initial Abstraction[5]**, mm**		6.0	8.0	5.0	10.0	10.0	2.5	2.0	7.9	8.5

Time of Concentration[6]

Total Length	215	m	
Average Slope	5.2	%	
Airport	**26.3**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	7.6	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	17.6	min.	
	0.29	**hr.**	

Composite Parameters

Drainage Area	4.59 ha	
Runoff Coefficient	0.15	
SCS Curve No.	57.4	53.3
Modified Curve No.[4]**, CN***	**58.5**	54.2
Initial Abstraction.	**7.9**	8.5

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for PR-Comb

Sheet 1 of 1

WILLS

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	PR-102 to 106	PR-107	PR-108	
Agriculture	0.00	0.00	0.00	ha
Range	0.00	0.00	0.00	ha
Grass	11.86	0.69	2.26	ha
Woods	0.00	0.00	0.00	ha
Wetland	0.00	0.00	0.00	ha
Gravel	0.00	0.00	0.00	ha
Impervious	2.09	1.03	2.26	ha
SUM	**13.95**	**1.72**	**4.52**	
Hydrologic Soil Group[1]	B	B	B	
Soil Type	Bondhead Loam	Bondhead Loam	Bondhead Loam	
C	0.20	0.57	0.49	
CN (Nashyd)	66.6	83.2	79.5	

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**20.19**	ha
Impervious Area	**5.38**	ha
Percent Impervious	**26.7%**	
Connected Impervious	26.7%	

	Pervious	Impervious	
Length	585	585	m
US Elev	205.00	205.00	m
DS Elev	196.00	196.00	m
Slope	1.5	1.5	%
	Flat	Flat	

Parameter	Soil Group	Land Use: Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Weighted Value: Incl. Imperv. NASHYD	Weighted Value: Not Incl. Imperv. STANDHYD
Runoff Coefficient[2]**, C**	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.20	
	B	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.57	n.a.
	B	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.49	
SCS Curve No.[3]**, CN**	**B**	74	65	61	58	50	85	98	66.6	61.0
	B	74	65	61	58	50	85	98	83.2	61.0
	B	74	65	61	58	50	85	98	79.5	61.0
Initial Abstraction[5]**, mm**		6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.2	5.0

Time of Concentration[6]

Total Length	1170	m	
Average Slope	1.5	%	
Airport	**77.5**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	45.3	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	51.9	min.	
	0.87	**hr.**	

Composite Parameters

Drainage Area	20.19 ha	
Runoff Coefficient	0.30	
SCS Curve No.	70.9	61.0
Modified Curve No.[4]**, CN***	71.7	**60.5**
Initial Abstraction.	4.2	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for WB-101

Sheet 1 of 1

WILLS

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	101-106 Bldg	
Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	1.25	ha
SUM	**1.25**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.00
CN (Nashyd)	98.0

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**1.25**	ha
Impervious Area	**1.25**	ha
Percent Impervious	**100.0%**	
Connected Impervious	100.0%	

		Impervious	
Length	**0**	20	m
US Elev	**0.00**	202.10	m
DS Elev	**0.00**	201.85	m
Slope	**#DIV/0!**	1.3	%
	#DIV/0!	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**								0.00	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	98.0	61.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	2.0	5.0

Time of Concentration[6]

Total Length	20	m	
Average Slope	1.3	%	
Airport	**14.9**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	1.1	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	10.0	min.	
	0.17	**hr.**	

Composite Parameters

Drainage Area	1.25 ha	
Runoff Coefficient	0.00	
SCS Curve No.	98.0	61.0
Modified Curve No.[4], CN*	99.9	**60.5**
Initial Abstraction.	2.0	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for WB-102

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	101-106 No Blc	
Agriculture	0.00	ha
Range	0.00	ha
Grass	12.88	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	1.02	ha
SUM	**13.90**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.14
CN (Nashyd)	63.7

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**13.90**	ha
Impervious Area	**1.02**	ha
Percent Impervious	**7.4%**	
Connected Impervious	7.4%	

	Pervious	Impervious	
Length	125	20	m
US Elev	203.15	202.10	m
DS Elev	201.85	201.85	m
Slope	1.0	1.3	%
	Flat	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.14	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	63.7	61.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	4.8	5.0

Time of Concentration[6]

Total Length	145	m	
Average Slope	1.1	%	
Airport	**36.9**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	6.3	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	24.7	min.	
	0.41	**hr.**	

Composite Parameters

Drainage Area	13.90 ha	
Runoff Coefficient	0.14	
SCS Curve No.	63.7	61.0
Modified Curve No.[4], CN*	**63.9**	60.5
Initial Abstraction.	**4.8**	5.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for WB-103

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	Comm.107	
Agriculture	0.00	ha
Range	0.00	ha
Grass	0.69	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	1.03	ha
SUM	**1.72**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.57
CN (Nashyd)	83.2

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**1.72**	ha
Impervious Area	**1.03**	ha
Percent Impervious	**60.0%**	
Connected Impervious	60.0%	

	Pervious	Impervious	
Length	200	200	m
US Elev	201.15	201.15	m
DS Elev	197.45	197.45	m
Slope	1.9	1.9	%
	Flat	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.57	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	83.2	61.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	3.2	5.0

Time of Concentration[6]

Total Length	400	m	
Average Slope	1.9	%	
Airport	28.1	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	**19.1**	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	12.8	min.	
	0.21	**hr.**	

Composite Parameters

Drainage Area	1.72 ha	
Runoff Coefficient	0.57	
SCS Curve No.	83.2	61.0
Modified Curve No.[4], CN*	83.5	**60.5**
Initial Abstraction.	3.2	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for WB-104

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	ROW.101/108	
Agriculture	0.00	ha
Range	0.00	ha
Grass	2.50	ha
Woods	0.00	ha
Wetland	0.00	ha
Gravel	0.00	ha
Impervious	2.50	ha
SUM	**5.00**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.49
CN (Nashyd)	79.5

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**5.00**	ha
Impervious Area	**2.50**	ha
Percent Impervious	**50.0%**	
Connected Impervious	50.0%	

	Pervious	Impervious	
Length	10	6	m
US Elev	200.00	200.00	m
DS Elev	199.80	199.90	m
Slope	2.0	1.7	%
	Flat	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.49	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	79.5	61.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	3.5	5.0

Time of Concentration[6]

Pervious Length	10	m	
Slope	2.0	%	
Airport	5.0	min.	
Bransby - Williams	0.4	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Applicable Minimum[7]	**10.0**	min.	
Time to Peak	6.7	min.	
	0.11	**hr.**	

Composite Parameters

Drainage Area	5.00 ha	
Runoff Coefficient	0.49	
SCS Curve No.	79.5	61.0
Modified Curve No.[4], CN*	79.8	**60.5**
Initial Abstraction.	3.5	**5.0**

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Hydrologic Parameters for WB-105

Sheet 1 of 1

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC / CP
Date: 8-Jan-26

Land Use

	102 Wetland	
Agriculture	0.00	ha
Range	0.00	ha
Grass	0.00	ha
Woods	0.00	ha
Wetland	2.91	ha
Gravel	0.00	ha
Impervious	0.00	ha
SUM	**2.91**	

Hydrologic Soil Group[1]	B
Soil Type	Bondhead Loam
C	0.05
CN (Nashyd)	50.0

Rainfall Data

Gauging Station = Peterborough
12 hr, 100 Yr Rainfall = 90.4 mm

Drainage Area	**2.91**	ha
Impervious Area	**0.00**	ha
Percent Impervious	**0.0%**	
Connected Impervious	0.0%	

	Pervious	Impervious	
Length	585	585	m
US Elev	205.04	205.04	m
DS Elev	196.00	196.00	m
Slope	1.5	1.5	%
	Flat	Flat	

Parameter	Soil Group	Land Use							Weighted Value	
		Agriculture	Range	Grass	Woods	Wetland	Gravel	Impervious	Incl. Imperv. NASHYD	Not Incl. Imperv. STANDHYD
Runoff Coefficient[2], C	**B**	0.26	0.14	0.08	0.08	0.05	0.76	0.90	0.05	n.a.
SCS Curve No.[3], CN	**B**	74	65	61	58	50	85	98	50.0	50.0
Initial Abstraction[5], mm		6.0	8.0	5.0	10.0	10.0	2.5	2.0	10.0	10.0

Time of Concentration[6]

Total Length	1170	m	
Average Slope	1.5	%	
Airport	**101.4**	min.	Flat: 0-2% Slopes Rolling: 2-6% Slopes Hilly: >6% Slopes
Bransby - Williams	54.9	min.	
Applicable Minimum[7]	10.0	min.	
Time to Peak	68.0	min.	
	1.13	**hr.**	

Composite Parameters

Drainage Area	2.91 ha	
Runoff Coefficient	0.05	
SCS Curve No.	50.0	50.0
Modified Curve No.[4], CN*	**52.3**	52.3
Initial Abstraction.	**10.0**	10.0

Notes:

1. Hydrologic Soil Group obtained from Design Chart H2-6A, M.T.O. Drainage Manual, 1980.
2. Runoff coefficient obtained from M.T.O. Design Chart 1.07, M.T.O. Drainage Management Manual, 1997, Hydrologic Analysis and Design, McCuen 2004 and New Jersey Technical Manual for Stream Encroachment, 1984.
3. SCS Curve No. obtained from M.T.O. Design Chart 1.09, M.T.O. Drainage Management Manual, 1997, and Table 2-2a, TR-55, page 2-5.
4. The modified curve number is adjusted as per Paul Wisner & Associates (1982) and represents anticedent moisture conditions Type II
5. Initial Abstraction values taken from the Environmental and Engineering Services Department, The Corporation of the City of London, Dec 2005
6. Use Airport Equation to calculate time of concentration for C <= 0.4, and Bransby-Williams for C > 0.4.
7. Minimum Time of Concentration for use in the Rational Method and Hydrologic Model has been set to 10 minutes
8. All impervious areas have been assumed to be directly connected.

Appendix B

Stormwater Management Pond

Stage-Storage-Discharge: Proposed Wet Pond

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC/CP
Date: January 7, 2026

Storage Summary		
Top of Permanent Pool:	196.05	m
Permanent Pool Volume:	6931.9	m^3
Active Storage Volume:	3835.6	m^3

Outlet Capacity Summary				
Type	Diameter	Slope	Peak Flow	% Full

Discharge Summary				
Stage	Type	Invert Elev (m)	Diameter / Width (mm)	(m)
1	Orifice Plate: Vertical	196.05	75	
2	Riser Pipe	196.25	1800	

100 Year Uncontrolled Peak Flow into the Pond = 2.18 cms, conveyed by a 10 m
At a depth of 0.25 m (Elev. 196.75 m) assuming blockage of the outlet system

Stage-Storage-Discharge Summary Table

Elevation	Stage	Stage 1 Orifice Plate	Stage 2 Riser					Active Storage	Total Discharge	Notes
m	m	m^3/s						ha*m	m^3/s	
196.050	0.000	**0.000**	0.000					**0.0000**	**0.000**	
196.060	0.010	**0.000**	0.000					**0.0064**	**0.000**	
196.070	0.020	**0.000**	0.000					**0.0146**	**0.000**	
196.080	0.030	**0.001**	0.000					**0.0228**	**0.001**	
196.090	0.040	**0.001**	0.000					**0.0310**	**0.001**	
196.100	0.050	**0.001**	0.000					**0.0393**	**0.001**	
196.110	0.060	**0.002**	0.000					**0.0475**	**0.002**	
196.120	0.070	**0.002**	0.000					**0.0558**	**0.002**	
196.130	0.080	**0.002**	0.000					**0.0641**	**0.002**	
196.140	0.090	**0.003**	0.000					**0.0724**	**0.003**	
196.150	0.100	**0.003**	0.000					**0.0808**	**0.003**	
196.160	0.110	**0.003**	0.000					**0.0891**	**0.003**	
196.170	0.120	**0.003**	0.000					**0.0975**	**0.003**	
196.180	0.130	**0.004**	0.000					**0.1059**	**0.004**	
196.190	0.140	**0.004**	0.000					**0.1143**	**0.004**	
196.200	0.150	**0.004**	0.000					**0.1227**	**0.004**	
196.210	0.160	**0.004**	0.000					**0.1311**	**0.004**	
196.220	0.170	**0.004**	0.000					**0.1396**	**0.004**	
196.230	0.180	**0.004**	0.000					**0.1480**	**0.004**	<= 25 mm: 1474 m^3 (196.23m)
196.240	0.190	**0.005**	0.000					**0.1565**	**0.005**	
196.250	0.200	**0.005**	**0.000**					**0.1650**	**0.005**	
196.260	0.210	**0.005**	**0.010**					**0.1736**	**0.015**	
196.270	0.220	**0.005**	**0.029**					**0.1821**	**0.034**	
196.280	0.230	**0.005**	**0.053**					**0.1907**	**0.058**	
196.290	0.240	**0.005**	**0.082**					**0.1993**	**0.087**	<= 2 Yr: 1941 m^3 (196.29m)
196.300	0.250	**0.005**	**0.115**					**0.2079**	**0.120**	
196.310	0.260	**0.006**	**0.151**					**0.2165**	**0.156**	
196.320	0.270	**0.006**	**0.190**					**0.2251**	**0.196**	<= 5 Yr: 2200 m^3 (196.32m)
196.330	0.280	**0.006**	**0.233**					**0.2338**	**0.238**	
196.340	0.290	**0.006**	**0.278**					**0.2424**	**0.284**	
196.350	0.300	**0.006**	**0.326**					**0.2511**	**0.332**	<= 10 Yr: 2430 m^3 (196.35m)
196.360	0.31	**0.006**	**0.376**					**0.2598**	**0.382**	
196.370	0.32	**0.006**	**0.429**					**0.2685**	**0.435**	
196.380	0.33	**0.006**	**0.484**					**0.2773**	**0.491**	<= 25 Yr: 2693 m^3 (196.38m)
196.390	0.34	**0.006**	**0.542**					**0.2860**	**0.548**	
196.400	0.35	**0.007**	**0.601**					**0.2948**	**0.608**	<= 50 Yr: 2919 m^3 (196.4m)
196.410	0.36	**0.007**	**0.663**					**0.3036**	**0.670**	
196.420	0.37	**0.007**	**0.727**					**0.3124**	**0.734**	
196.430	0.38	**0.007**	**0.793**					**0.3212**	**0.800**	<= 100 Yr: 3155 m^3 (196.43m)
196.440	0.39	**0.007**	**0.861**					**0.3301**	**0.868**	
196.450	0.40	**0.007**	**0.931**					**0.3390**	**0.938**	
196.460	0.41	**0.007**	**1.003**					**0.3478**	**1.010**	
196.470	0.42	**0.007**	**1.076**					**0.3567**	**1.084**	
196.480	0.43	**0.007**	**1.152**					**0.3657**	**1.159**	
196.490	0.44	**0.007**	**1.229**					**0.3746**	**1.237**	
196.500	0.45	**0.008**	**1.308**					**0.3836**	**1.316**	

Quality Control Requirements - Pond

Project No: 85162
Project Name: Wallace Point Rd Subdivision
Designed/Checked By: SC/CP
Date: January 7, 2026

1. Site Data

Area	=	22.19	ha
% Imp Calculated	=	26.0	%
Imp Area	=	5.77	ha

2. Storage Requirements

Facility Type: Wet Pond
Level of Protection: Enhanced

3. Req'd Storage Volume

Vs =	140	m^3/ha	(Table 3.2, p. 3-10, SWMP Manual) 35% taken as minimum
Vs =	3107	m^3	

4. Req'd Extended Detention Volume

Ved =	40	m^3/ha	(Table 3.2, p. 3-10, SWMP Manual)
Ved =	888	m^3	
Ved_{25mm} =	1440	m^3	
Ved Provided =	1474	m^3	

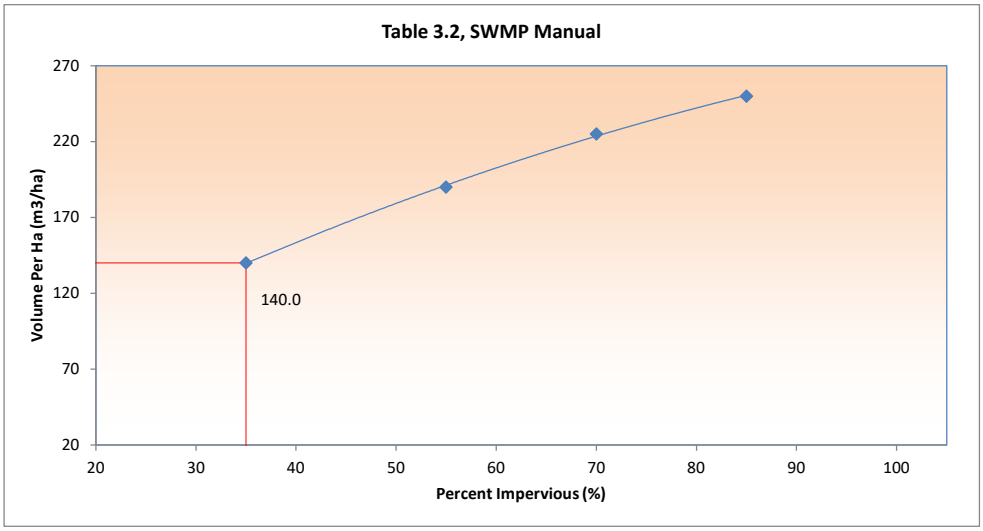
5. Req'd Perm. Pool Volume

Vpp =	100	m^3/ha	(Table 3.2, p. 3-10, SWMP Manual)
Vpp =	2219	m^3	
Vpp Provided =	6932	m^3	

6. From Table 3.2 of the SWMPD Manual

Enhanced - Wet Pond

Impervious Level	Storage Volume (m^3/ha)
35%	140
55%	190
70%	225
85%	250



Quality Control Requirements - Pond Forebay

WILLS

Project No: 85162
Project Name: Wallace Point Rd Subdivision
Designed/Checked By: SC/CP
Date: January 7, 2026

1 Settling Length, Lf (min.)

r =	7.5	: 1	(length to width ratio)	
Minimum =	2.0	: 1		
Contributing Area =	22.2	ha		
Q=	0.004	m^3/s	(25 mm storm pond outflow)	
Q=	0.348	m^3/s	(Eq'n 4.8 & 4.9, p. 4-57)	
Vs =	0.0003	m/s	(settling velocity for 150 micron particles see page 4-55 in SWMP Manual)	
Lf =	**10**	m	Equation 4.5, p. 4-55, SWMP Manual	
Provided =	77	m		

2 Dispersion Length, Ld (min.)

Qi =	1.44	m^3/s	(10 year storm or inlet pipe capacity)	6 Hour SCS Type II
d =	1.00	m	(perm. pool depth)	
Vf =	0.15	m/s	(desired velocity prior to erosion see page 4-56 in SWMP Manual)	
Ld =	**77**	m	Equation 4.6, p. 4-56, SWMP Manual	
Provided =	77	m		

3 Bottom Width, Wb (min.)

Dist. =	77	m	(Length at surface)
Wb =	**10**	m	Equation 4.7, p. 4-56, SWMP Manual
Provided =	10	m	

4 Surface Area, As (max.)

At =	2712	m^2	(total perm. pool surface area)
As =	300	m^2	(Sediment Forebay Area)
Maximum =	33%		(Maximum surface Area of Forebay)
Provided =	11%		
Vt =	6931.7	m^3	(Total perm. pool Volume)
Vs =	1005	m^3	(Forebay perm. pool Volume)
Maximum =	20%		(Maximum Volume of Forebay)
Provided =	14%		

Quality Control Requirements - Pond Clean Out Frequency

WILLS

Project No: 85162
Project Name: Wallace Point Rd Subdivision
Designed/Checked By: SC/CP
Date: January 7, 2026

1 TSS Removal Efficiency

Level of Protection = Enhanced
TSS Removal is = 80 %

2 Target Maintenance Removal

Target Rate = Level 1 - 5%
Target Rate = 75 %

3 Annual Sediment Production

Avg. Removal Rate = (Level 2 + Target Rate) / 2
Avg. = 77.5 %

From Table 6.3 in SWMP Manual, the annual sediment loading for 35% imperviousness is:

Imp. %	Loading	
35	0.6	m^3/ha
55	1.9	m^3/ha
70	2.8	m^3/ha
85	3.8	m^3/ha

% Imp Calculated = 35 %
Facility Type = Wet Pond
Sl = **0.60** m^3/ha

Annual Sediment Production is:

Sa = Area x Sl x Avg. Removal Rate
Contributing Area = 22.19 ha
Sa = 10.32 m^3

4 Permissible Accumulated Sediment

Volume Permitted = Total Permanent Pool - Target Volume

Permanent Pool Provided = 6932 m^3
Storage Volume per Hectare = 312
Target Volume for 75% Removal = **115.0** m^3/ha

Target Volume = 1664 m^3 (Interpolated from Table 3.2 - SWMP)
Sediment Vol. Permitted = 5267 m^3

5a Cleanout Frequency by Sediment Production Calculations

Removal Frequency = 510 years

5b Cleanout Frequency by Storage Volume vs. Removal Frequency Curves

Sediment Removal Frequency = **50.0** years

Interpolated from Figures 6.1 6.2 and 6.3, pages 6-11, 6-12 Operation, Maintenance and Monitoring
Sediment Accumulated B/W Cleanout = 516 m^3

6 Drying Area Required

Recommended Sediment Removal Frequency = **10.0** years

Sediment Volume Accumulated Between Cleanout = 103 m^3
Depth of Sediment to be Dryed = 0.15 m
Minimum Drying Area Required = 688 m^2

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================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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:
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DATE: 01/07/2026                          TIME: 11:30:00

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : 01_2-Year_6 hour SCS          **
  ***********************************************


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

```
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\049d4f1a
| Ptotal= 38.60 mm |    Comments: 01_2-Year_6 hour SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.50 |  1.50    3.90 |  3.00    8.50 |  4.50    2.30
                0.25    1.50 |  1.75    3.90 |  3.25    8.50 |  4.75    2.30
                0.50    2.30 |  2.00    4.60 |  3.50    3.90 |  5.00    1.50
                0.75    2.30 |  2.25    4.60 |  3.75    3.90 |  5.25    1.50
                1.00    2.30 |  2.50   23.20 |  4.00    3.10 |  5.50    1.50
                1.25    2.30 |  2.75   60.40 |  4.25    3.10 |  5.75    1.50

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


--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    1.50 | 1.583    3.90 | 3.083    8.50 |  4.58    2.30
               0.167    1.50 | 1.667    3.90 | 3.167    8.50 |  4.67    2.30
               0.250    1.50 | 1.750    3.90 | 3.250    8.50 |  4.75    2.30
               0.333    1.50 | 1.833    3.90 | 3.333    8.50 |  4.83    2.30
               0.417    1.50 | 1.917    3.90 | 3.417    8.50 |  4.92    2.30
               0.500    1.50 | 2.000    3.90 | 3.500    8.50 |  5.00    2.30
               0.583    2.30 | 2.083    4.60 | 3.583    3.90 |  5.08    1.50
               0.667    2.30 | 2.167    4.60 | 3.667    3.90 |  5.17    1.50
               0.750    2.30 | 2.250    4.60 | 3.750    3.90 |  5.25    1.50
               0.833    2.30 | 2.333    4.60 | 3.833    3.90 |  5.33    1.50
               0.917    2.30 | 2.417    4.60 | 3.917    3.90 |  5.42    1.50
               1.000    2.30 | 2.500    4.60 | 4.000    3.90 |  5.50    1.50
               1.083    2.30 | 2.583   23.20 | 4.083    3.10 |  5.58    1.50
               1.167    2.30 | 2.667   23.20 | 4.167    3.10 |  5.67    1.50
               1.250    2.30 | 2.750   23.20 | 4.250    3.10 |  5.75    1.50
               1.333    2.30 | 2.833   60.40 | 4.333    3.10 |  5.83    1.50
               1.417    2.30 | 2.917   60.40 | 4.417    3.10 |  5.92    1.50
               1.500    2.30 | 3.000   60.40 | 4.500    3.10 |  6.00    1.50

    Unit Hyd Qpeak  (cms)=   0.156

    PEAK FLOW       (cms)=   0.028 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=   8.000
```

TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.207

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

CALIB					
NASHYD (2101)	Area (ha)=	4.59	Curve Number (CN)=	58.5	
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.29			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 4.467
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.116

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

CALIB					
STANDHYD (2102)	Area (ha)=	20.19			
ID= 1 DT= 5.0 min	Total Imp(%)=	26.70	Dir. Conn.(%)=	26.70	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

				TOTALS
Max.Eff.Inten.(mm/hr)=	60.40	3.88		
over (min)	5.00	150.00		
Storage Coeff. (min)=	6.04 (ii)	147.20 (ii)		
Unit Hyd. Tpeak (min)=	5.00	150.00		
Unit Hyd. peak (cms)=	0.19	0.01		
PEAK FLOW (cms)=	0.86	0.05		0.858 (iii)
TIME TO PEAK (hrs)=	3.00	5.42		3.00
RUNOFF VOLUME (mm)=	37.60	5.66		14.18
TOTAL RAINFALL (mm)=	38.60	38.60		38.60
RUNOFF COEFFICIENT =	0.97	0.15		0.37

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	4.59	0.049	3.17	4.47
	+ ID2= 2 (2102):	20.19	0.858	3.00	14.18
	ID = 3 (2100):	24.78	0.890	3.00	12.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	0.890	3.00	12.38
	+ ID2= 2 (2110):	2.00	0.028	3.42	8.00
	ID = 1 (2100):	26.78	0.902	3.00	12.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1101) | ID= 1 DT= 5.0 min				
	Area	(ha)=	19.63	Curve Number (CN)= 76.1
	Ia	(mm)=	6.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.56	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 0.297 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 9.408
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.244

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

CALIB NASHYD (1110) | ID= 1 DT= 5.0 min				
	Area	(ha)=	2.00	Curve Number (CN)= 69.4
	Ia	(mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.49	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50

1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.000
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.207

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

CALIB NASHYD (1102) ID= 1 DT= 5.0 min	Area (ha)= 2.91 Curve Number (CN)= 52.3 Ia (mm)= 10.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 3.142
TOTAL RAINFALL (mm)= 38.600

RUNOFF COEFFICIENT = 0.081

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

ADD HYD (1100) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1101):	19.63	0.297	3.58	9.41
+ ID2= 2 (1102):	2.91	0.013	3.67	3.14
ID = 3 (1100):	22.54	0.310	3.58	8.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1100):	22.54	0.310	3.58	8.60
+ ID2= 2 (1110):	2.00	0.028	3.42	8.00
ID = 1 (1100):	24.54	0.337	3.58	8.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1201) ID= 1 DT= 5.0 min	Area (ha)= 2.24 Curve Number (CN)= 76.8 Ia (mm)= 6.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50

0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 9.719
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.252

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

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (1100):	24.54	0.337	3.58	8.55
+	ID2= 2 (1201):	2.24	0.042	3.33	9.72
	ID = 3 (0003):	26.78	0.377	3.50	8.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (3110) ID= 1 DT= 5.0 min				
	Area (ha)=	2.00	Curve Number (CN)=	69.4
	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.000
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.207

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min				
	Area (ha)=	20.19		
	Total Imp(%)=	26.70	Dir. Conn.(%)=	26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50

0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Max.Eff.Inten.(mm/hr)=	60.40	3.88	
over (min)	5.00	150.00	
Storage Coeff. (min)=	6.04 (ii)	147.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	150.00	
Unit Hyd. peak (cms)=	0.19	0.01	
			TOTALS
PEAK FLOW (cms)=	0.86	0.05	0.858 (iii)
TIME TO PEAK (hrs)=	3.00	5.42	3.00
RUNOFF VOLUME (mm)=	37.60	5.66	14.18
TOTAL RAINFALL (mm)=	38.60	38.60	38.60
RUNOFF COEFFICIENT =	0.97	0.15	0.37

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (3102):	20.19	0.858	3.00	14.18
	+ ID2= 2 (3110):	2.00	0.028	3.42	8.00
	ID = 3 (0002):	22.19	0.870	3.00	13.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1957	0.2251
	0.0013	0.0393	0.3822	0.2598
	0.0027	0.0724	0.6700	0.3036
	0.0036	0.1059	1.0099	0.3478
	0.0044	0.1480	1.3156	0.3836
	0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	0.870	3.00	13.63
OUTFLOW: ID= 1 (0001)	22.190	0.072	6.00	12.57

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.26
TIME SHIFT OF PEAK FLOW (min)=180.00
MAXIMUM STORAGE USED (ha.m.)= 0.1941

CALIB			
NASHYD (3101)	Area (ha)=	4.59	Curve Number (CN)= 58.5
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.29	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.049 (i)

```
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=   4.467
     TOTAL RAINFALL   (mm)=  38.600
     RUNOFF COEFFICIENT   =   0.116

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

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--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.072     6.00    12.57
     + ID2= 2 (  3101):     4.59   0.049     3.17     4.47
       ================================================
       ID = 3 (  3100):    26.78   0.077     6.00    11.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b055f61
4-1f34-46a3-8261-2aae849dbdd7\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b055f61
4-1f34-46a3-8261-2aae849dbdd7\scenari

DATE: 01/07/2026                          TIME: 11:30:01

USER:


COMMENTS: _____________________________________________________

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  ********************************************
  ** SIMULATION : 02_5-Year_6 hour SCS          **
  ********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ACai\AppD
|                  |              ata\Local\Temp\
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\d3d0b0a6
| Ptotal= 52.28 mm |    Comments: 02_5-Year_6 hour SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    2.10 |  1.50    5.20 |  3.00   11.50 |  4.50    3.10
                0.25    2.10 |  1.75    5.20 |  3.25   11.50 |  4.75    3.10
                0.50    3.10 |  2.00    6.30 |  3.50    5.20 |  5.00    2.10
                0.75    3.10 |  2.25    6.30 |  3.75    5.20 |  5.25    2.10
                1.00    3.10 |  2.50   31.40 |  4.00    4.20 |  5.50    2.10
                1.25    3.10 |  2.75   81.70 |  4.25    4.20 |  5.75    2.10

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| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.10 | 1.583    5.20 | 3.083   11.50 |  4.58    3.10
               0.167    2.10 | 1.667    5.20 | 3.167   11.50 |  4.67    3.10
               0.250    2.10 | 1.750    5.20 | 3.250   11.50 |  4.75    3.10
               0.333    2.10 | 1.833    5.20 | 3.333   11.50 |  4.83    3.10
```

0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 14.335
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.274

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

CALIB
NASHYD (2101) | Area (ha)= 4.59 Curve Number (CN)= 58.5
ID= 1 DT= 5.0 min | Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.101 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 8.765
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.168

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

CALIB
STANDHYD (2102) | Area (ha)= 20.19
ID= 1 DT= 5.0 min | Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10

1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Max.Eff.Inten.(mm/hr)=	81.70	7.26	
over (min)	5.00	120.00	
Storage Coeff. (min)=	5.35 (ii)	115.21 (ii)	
Unit Hyd. Tpeak (min)=	5.00	120.00	
Unit Hyd. peak (cms)=	0.21	0.01	
			TOTALS
PEAK FLOW (cms)=	1.18	0.11	1.184 (iii)
TIME TO PEAK (hrs)=	3.00	4.92	3.00
RUNOFF VOLUME (mm)=	51.28	10.49	21.37
TOTAL RAINFALL (mm)=	52.28	52.28	52.28
RUNOFF COEFFICIENT =	0.98	0.20	0.41

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (2101):	4.59	0.101	3.17	8.76	
+ ID2= 2 (2102):	20.19	1.184	3.00	21.37	
ID = 3 (2100):	24.78	1.253	3.00	19.04	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (2100):	24.78	1.253	3.00	19.04	
+ ID2= 2 (2110):	2.00	0.051	3.42	14.34	
ID = 1 (2100):	26.78	1.276	3.00	18.69	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (1101)	Area (ha)= 19.63	Curve Number (CN)= 76.1	
ID= 1 DT= 5.0 min	Ia (mm)= 6.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.56		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 0.547 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 16.928
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.324

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

CALIB			
NASHYD (1110)	Area (ha)= 2.00	Curve Number (CN)= 69.4	
ID= 1 DT= 5.0 min	Ia (mm)= 4.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 14.335
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.274

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

CALIB			
NASHYD (1102)	Area (ha)= 2.91	Curve Number (CN)= 52.3	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.58		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 6.523
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.125

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

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (1101):	19.63	0.547	3.50	16.93
	+ ID2= 2 (1102):	2.91	0.029	3.58	6.52
	ID = 3 (1100):	22.54	0.575	3.50	15.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (1100):	22.54	0.575	3.50	15.58
	+ ID2= 2 (1110):	2.00	0.051	3.42	14.34
	ID = 1 (1100):	24.54	0.626	3.50	15.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (1201)	Area (ha)=	2.24	Curve Number (CN)=	76.8
ID= 1 DT= 5.0 min	Ia (mm)=	6.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.43		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.078 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 17.407
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.333

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

ADD HYD (0003)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	24.54	0.626	3.50	15.48
+ ID2= 2 (1201):	2.24	0.078	3.33	17.41
ID = 3 (0003):	26.78	0.699	3.50	15.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (3110)	Area (ha)=	2.00	Curve Number (CN)=	69.4
ID= 1 DT= 5.0 min	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 14.335
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.274

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

CALIB			
STANDHYD (3102)	Area (ha)=	20.19	
ID= 1 DT= 5.0 min	Total Imp(%)=	26.70	Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Max.Eff.Inten.(mm/hr)=		81.70	7.26	
over (min)		5.00	120.00	
Storage Coeff. (min)=		5.35 (ii)	115.21 (ii)	
Unit Hyd. Tpeak (min)=		5.00	120.00	
Unit Hyd. peak (cms)=		0.21	0.01	
				TOTALS
PEAK FLOW	(cms)=	1.18	0.11	1.184 (iii)
TIME TO PEAK	(hrs)=	3.00	4.92	3.00
RUNOFF VOLUME	(mm)=	51.28	10.49	21.37
TOTAL RAINFALL	(mm)=	52.28	52.28	52.28
RUNOFF COEFFICIENT	=	0.98	0.20	0.41

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (3102):	20.19	1.184	3.00	21.37
	+ ID2= 2 (3110):	2.00	0.051	3.42	14.34
	ID = 3 (0002):	22.19	1.207	3.00	20.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1957	0.2251
	0.0013	0.0393	0.3822	0.2598
	0.0027	0.0724	0.6700	0.3036
	0.0036	0.1059	1.0099	0.3478
	0.0044	0.1480	1.3156	0.3836
	0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	1.207	3.00	20.74
OUTFLOW: ID= 1 (0001)	22.190	0.175	3.75	19.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.49
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.2200

CALIB			
NASHYD (3101)	Area (ha)=	4.59	Curve Number (CN)= 58.5
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.29	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10

0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.101 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 8.765
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.168

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

ADD HYD (3100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	22.19	0.175	3.75	19.68
+ ID2= 2 (3101):	4.59	0.101	3.17	8.76
ID = 3 (3100):	26.78	0.237	3.50	17.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\1f5e1774-5eca-4dfe-b338-4d1406f56464\scenari
Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\1f5e1774-5eca-4dfe-b338-4d1406f56464\scenari

DATE: 01/07/2026 TIME: 11:29:59

USER:

COMMENTS: _____

```
  **********************************************
  ** SIMULATION : 03_10-Year_6 hour SCS         **
  **********************************************
```

READ STORM	Filename: C:\Users\ACai\AppData\Local\Temp\b05c3d3f-7381-4e60-ac07-667366527137\efceb0da
Ptotal= 61.57 mm	Comments: 03_10-Year_6 hour SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.50	1.50	6.20	3.00	13.50	4.50	3.70
0.25	2.50	1.75	6.10	3.25	13.50	4.75	3.70
0.50	3.70	2.00	7.40	3.50	6.20	5.00	2.50
0.75	3.70	2.25	7.40	3.75	6.20	5.25	2.50
1.00	3.70	2.50	36.90	4.00	4.90	5.50	2.50

1.25	3.70	2.75	95.90	4.25	4.90	5.75	2.50

```
--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

```
    Unit Hyd Qpeak  (cms)=   0.156

    PEAK FLOW       (cms)=   0.070 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=  19.322
    TOTAL RAINFALL   (mm)=  61.575
    RUNOFF COEFFICIENT   =   0.314

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CALIB            |
| NASHYD   (  2101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

```
    Unit Hyd Qpeak  (cms)=   0.605

    PEAK FLOW       (cms)=   0.144 (i)
    TIME TO PEAK    (hrs)=   3.167
    RUNOFF VOLUME    (mm)=  12.314
    TOTAL RAINFALL   (mm)=  61.575
    RUNOFF COEFFICIENT   =   0.200

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

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--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=  20.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  26.70   Dir. Conn.(%)=  26.70
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.39        14.80
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.50         1.50
     Length            (m)=     366.88       585.00
     Mannings n           =      0.013        0.250
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Max.Eff.Inten.(mm/hr)=	95.90	9.99	
over (min)	5.00	105.00	
Storage Coeff. (min)=	5.02 (ii)	101.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	105.00	
Unit Hyd. peak (cms)=	0.21	0.01	
			TOTALS
PEAK FLOW (cms)=	1.39	0.16	1.406 (iii)
TIME TO PEAK (hrs)=	3.00	4.67	3.00
RUNOFF VOLUME (mm)=	60.57	14.39	26.72
TOTAL RAINFALL (mm)=	61.58	61.58	61.58
RUNOFF COEFFICIENT =	0.98	0.23	0.43

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	4.59	0.144	3.17	12.31
	+ ID2= 2 (2102):	20.19	1.406	3.00	26.72
	ID = 3 (2100):	24.78	1.506	3.00	24.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	1.506	3.00	24.05
	+ ID2= 2 (2110):	2.00	0.070	3.42	19.32
	ID = 1 (2100):	26.78	1.538	3.00	23.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (1101)	Area	(ha)=	19.63	Curve Number	(CN)= 76.1
ID= 1 DT= 5.0 min	Ia	(mm)=	6.10	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.56		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 0.742 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 22.754
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.370

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

CALIB					
NASHYD (1110)	Area (ha)=	2.00	Curve Number (CN)=	69.4	
ID= 1 DT= 5.0 min	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.49			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 19.322
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.314

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

CALIB					
NASHYD (1102)	Area (ha)=	2.91	Curve Number (CN)=	52.3	
ID= 1 DT= 5.0 min	Ia (mm)=	10.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.58			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 9.391
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.153

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

ADD HYD (1100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

```
        ID1= 1 (  1101):    19.63   0.742     3.50    22.75
      + ID2= 2 (  1102):     2.91   0.042     3.58     9.39
        ================================================
        ID = 3 (  1100):    22.54   0.783     3.50    21.03

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

--------------------
| ADD HYD  (  1100)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  1100):    22.54   0.783     3.50    21.03
      + ID2= 2 (  1110):     2.00   0.070     3.42    19.32
        ================================================
        ID = 1 (  1100):    24.54   0.852     3.50    20.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1201)|   Area    (ha)=   2.24   Curve Number   (CN)= 76.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

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


                      ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.50 | 1.583    6.20 | 3.083   13.50 |  4.58    3.70
 0.167    2.50 | 1.667    6.20 | 3.167   13.50 |  4.67    3.70
 0.250    2.50 | 1.750    6.20 | 3.250   13.50 |  4.75    3.70
 0.333    2.50 | 1.833    6.10 | 3.333   13.50 |  4.83    3.70
 0.417    2.50 | 1.917    6.10 | 3.417   13.50 |  4.92    3.70
 0.500    2.50 | 2.000    6.10 | 3.500   13.50 |  5.00    3.70
 0.583    3.70 | 2.083    7.40 | 3.583    6.20 |  5.08    2.50
 0.667    3.70 | 2.167    7.40 | 3.667    6.20 |  5.17    2.50
 0.750    3.70 | 2.250    7.40 | 3.750    6.20 |  5.25    2.50
 0.833    3.70 | 2.333    7.40 | 3.833    6.20 |  5.33    2.50
 0.917    3.70 | 2.417    7.40 | 3.917    6.20 |  5.42    2.50
 1.000    3.70 | 2.500    7.40 | 4.000    6.20 |  5.50    2.50
 1.083    3.70 | 2.583   36.90 | 4.083    4.90 |  5.58    2.50
 1.167    3.70 | 2.667   36.90 | 4.167    4.90 |  5.67    2.50
 1.250    3.70 | 2.750   36.90 | 4.250    4.90 |  5.75    2.50
 1.333    3.70 | 2.833   95.90 | 4.333    4.90 |  5.83    2.50
 1.417    3.70 | 2.917   95.90 | 4.417    4.90 |  5.92    2.50
 1.500    3.70 | 3.000   95.90 | 4.500    4.90 |  6.00    2.50

     Unit Hyd Qpeak  (cms)=   0.199

     PEAK FLOW       (cms)=   0.105 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  23.342
     TOTAL RAINFALL   (mm)=  61.575
     RUNOFF COEFFICIENT   =   0.379

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

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  1100):    24.54   0.852     3.50    20.89
      + ID2= 2 (  1201):     2.24   0.105     3.33    23.34
        ================================================
        ID = 3 (  0003):    26.78   0.950     3.50    21.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


                      ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.50 | 1.583    6.20 | 3.083   13.50 |  4.58    3.70
 0.167    2.50 | 1.667    6.20 | 3.167   13.50 |  4.67    3.70
 0.250    2.50 | 1.750    6.20 | 3.250   13.50 |  4.75    3.70
 0.333    2.50 | 1.833    6.10 | 3.333   13.50 |  4.83    3.70
 0.417    2.50 | 1.917    6.10 | 3.417   13.50 |  4.92    3.70
 0.500    2.50 | 2.000    6.10 | 3.500   13.50 |  5.00    3.70
 0.583    3.70 | 2.083    7.40 | 3.583    6.20 |  5.08    2.50
 0.667    3.70 | 2.167    7.40 | 3.667    6.20 |  5.17    2.50
 0.750    3.70 | 2.250    7.40 | 3.750    6.20 |  5.25    2.50
 0.833    3.70 | 2.333    7.40 | 3.833    6.20 |  5.33    2.50
 0.917    3.70 | 2.417    7.40 | 3.917    6.20 |  5.42    2.50
 1.000    3.70 | 2.500    7.40 | 4.000    6.20 |  5.50    2.50
 1.083    3.70 | 2.583   36.90 | 4.083    4.90 |  5.58    2.50
 1.167    3.70 | 2.667   36.90 | 4.167    4.90 |  5.67    2.50
 1.250    3.70 | 2.750   36.90 | 4.250    4.90 |  5.75    2.50
```

1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 19.322
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.314

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

CALIB
STANDHYD (3102)
ID= 1 DT= 5.0 min

Area (ha)= 20.19
Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	5.39	14.80
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.50	1.50
Length (m)=	366.88	585.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Max.Eff.Inten.(mm/hr)=	95.90	9.99	
over (min)	5.00	105.00	
Storage Coeff. (min)=	5.02 (ii)	101.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	105.00	
Unit Hyd. peak (cms)=	0.21	0.01	
			TOTALS
PEAK FLOW (cms)=	1.39	0.16	1.406 (iii)
TIME TO PEAK (hrs)=	3.00	4.67	3.00
RUNOFF VOLUME (mm)=	60.57	14.39	26.72
TOTAL RAINFALL (mm)=	61.58	61.58	61.58
RUNOFF COEFFICIENT =	0.98	0.23	0.43

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (3102):	20.19	1.406	3.00	26.72
+ ID2= 2 (3110):	2.00	0.070	3.42	19.32
ID = 3 (0002):	22.19	1.438	3.00	26.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1957	0.2251
0.0013	0.0393	0.3822	0.2598
0.0027	0.0724	0.6700	0.3036
0.0036	0.1059	1.0099	0.3478
0.0044	0.1480	1.3156	0.3836
0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	1.438	3.00	26.05
OUTFLOW: ID= 1 (0001)	22.190	0.290	3.58	25.00

```
                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.15
                TIME SHIFT OF PEAK FLOW         (min)= 35.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.2430

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.50 | 1.583    6.20 | 3.083   13.50 |  4.58    3.70
 0.167    2.50 | 1.667    6.20 | 3.167   13.50 |  4.67    3.70
 0.250    2.50 | 1.750    6.20 | 3.250   13.50 |  4.75    3.70
 0.333    2.50 | 1.833    6.10 | 3.333   13.50 |  4.83    3.70
 0.417    2.50 | 1.917    6.10 | 3.417   13.50 |  4.92    3.70
 0.500    2.50 | 2.000    6.10 | 3.500   13.50 |  5.00    3.70
 0.583    3.70 | 2.083    7.40 | 3.583    6.20 |  5.08    2.50
 0.667    3.70 | 2.167    7.40 | 3.667    6.20 |  5.17    2.50
 0.750    3.70 | 2.250    7.40 | 3.750    6.20 |  5.25    2.50
 0.833    3.70 | 2.333    7.40 | 3.833    6.20 |  5.33    2.50
 0.917    3.70 | 2.417    7.40 | 3.917    6.20 |  5.42    2.50
 1.000    3.70 | 2.500    7.40 | 4.000    6.20 |  5.50    2.50
 1.083    3.70 | 2.583   36.90 | 4.083    4.90 |  5.58    2.50
 1.167    3.70 | 2.667   36.90 | 4.167    4.90 |  5.67    2.50
 1.250    3.70 | 2.750   36.90 | 4.250    4.90 |  5.75    2.50
 1.333    3.70 | 2.833   95.90 | 4.333    4.90 |  5.83    2.50
 1.417    3.70 | 2.917   95.90 | 4.417    4.90 |  5.92    2.50
 1.500    3.70 | 3.000   95.90 | 4.500    4.90 |  6.00    2.50

    Unit Hyd Qpeak  (cms)=   0.605

    PEAK FLOW       (cms)=   0.144 (i)
    TIME TO PEAK    (hrs)=   3.167
    RUNOFF VOLUME    (mm)=  12.314
    TOTAL RAINFALL   (mm)=  61.575
    RUNOFF COEFFICIENT   =   0.200

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

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```
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.290     3.58    25.00
     + ID2= 2 (  3101):     4.59   0.144     3.17    12.31
       ================================================
       ID = 3 (  3100):    26.78   0.399     3.33    22.82

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

      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\8f6c961
2-378c-49d4-9a3c-28be0a7baf15\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\8f6c961
2-378c-49d4-9a3c-28be0a7baf15\scenari


DATE: 01/07/2026                          TIME: 11:30:00

USER:


COMMENTS: _____
```

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  ***********************************************
  ** SIMULATION : 04_25-Year_6 hour SCS         **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ACai\AppD
|                  |              ata\Local\Temp\
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\5216bd64
| Ptotal= 72.85 mm |    Comments: 04_25-Year_6 hour SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.90	1.50	7.30	3.00	16.00	4.50	4.40
0.25	2.90	1.75	7.30	3.25	16.00	4.75	4.40
0.50	4.40	2.00	8.70	3.50	7.30	5.00	2.90
0.75	4.40	2.25	8.70	3.75	7.30	5.25	2.90
1.00	4.40	2.50	43.70	4.00	5.80	5.50	2.90
1.25	4.40	2.75	113.70	4.25	5.80	5.75	2.90

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

--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

```
     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.094 (i)
     TIME TO PEAK    (hrs)=   3.417
     RUNOFF VOLUME    (mm)=  25.964
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.356

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

```
     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.204 (i)
```

TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 17.201
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.236

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

CALIB	
STANDHYD (2102)	Area (ha)= 20.19
ID= 1 DT= 5.0 min	Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Max.Eff.Inten.(mm/hr)=		113.70	13.78
over (min)		5.00	90.00
Storage Coeff. (min)=		4.69 (ii)	89.71 (ii)
Unit Hyd. Tpeak (min)=		5.00	90.00
Unit Hyd. peak (cms)=		0.22	0.01

			TOTALS
PEAK FLOW	(cms)=	1.66	0.25	1.689 (iii)
TIME TO PEAK	(hrs)=	3.00	4.42	3.00
RUNOFF VOLUME	(mm)=	71.85	19.70	33.62
TOTAL RAINFALL	(mm)=	72.85	72.85	72.85
RUNOFF COEFFICIENT	=	0.99	0.27	0.46

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	4.59	0.204	3.17	17.20
	+ ID2= 2 (2102):	20.19	1.689	3.00	33.62
	ID = 3 (2100):	24.78	1.834	3.00	30.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	1.834	3.00	30.58
	+ ID2= 2 (2110):	2.00	0.094	3.42	25.96
	ID = 1 (2100):	26.78	1.879	3.00	30.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (1101)	Area (ha)= 19.63 Curve Number (CN)= 76.1
ID= 1 DT= 5.0 min	Ia (mm)= 6.10 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.56

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 1.002 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 30.408
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.417

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

CALIB NASHYD (1110) ID= 1 DT= 5.0 min	Area (ha)= 2.00 Ia (mm)= 4.40 U.H. Tp(hrs)= 0.49	Curve Number (CN)= 69.4 # of Linear Res.(N)= 3.00

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 25.964
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.356

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

CALIB NASHYD (1102) ID= 1 DT= 5.0 min	Area (ha)= 2.91 Ia (mm)= 10.00 U.H. Tp(hrs)= 0.58	Curve Number (CN)= 52.3 # of Linear Res.(N)= 3.00

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90

```
              1.250    4.40 | 2.750   43.70 | 4.250    5.80 |  5.75    2.90
              1.333    4.40 | 2.833  113.70 | 4.333    5.80 |  5.83    2.90
              1.417    4.40 | 2.917  113.70 | 4.417    5.80 |  5.92    2.90
              1.500    4.40 | 3.000  113.70 | 4.500    5.80 |  6.00    2.90

     Unit Hyd Qpeak  (cms)=   0.192

     PEAK FLOW       (cms)=   0.061 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  13.412
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.184

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

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--------------------
| ADD HYD  (  1100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  1101):    19.63   1.002     3.50    30.41
     + ID2= 2 (  1102):     2.91   0.061     3.58    13.41
       ================================================
       ID = 3 (  1100):    22.54   1.062     3.50    28.21

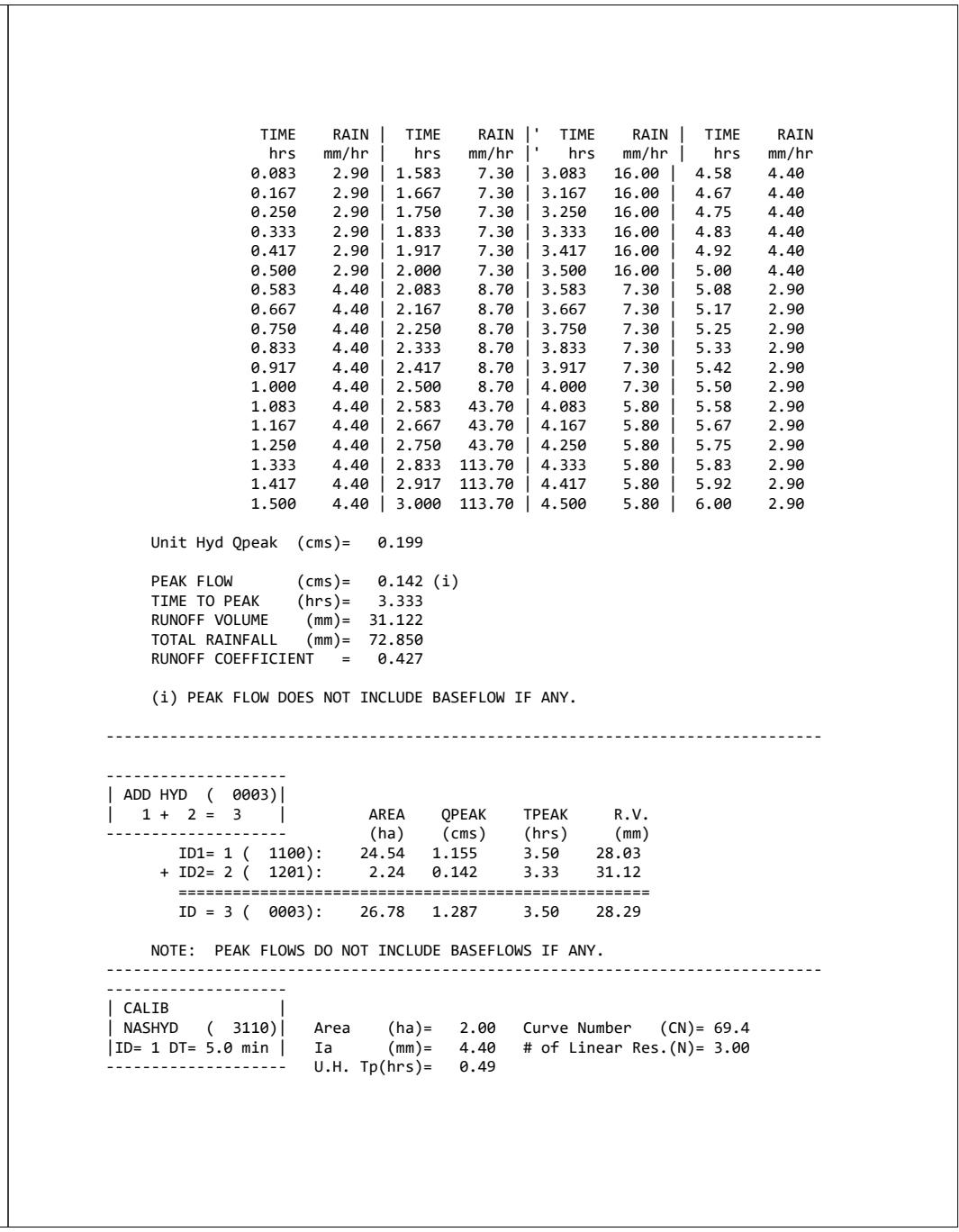
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  1100)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  1100):    22.54   1.062     3.50    28.21
     + ID2= 2 (  1110):     2.00   0.094     3.42    25.96
       ================================================
       ID = 1 (  1100):    24.54   1.155     3.50    28.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1201)|   Area    (ha)=   2.24   Curve Number   (CN)= 76.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

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


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



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                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.90 | 1.583    7.30 | 3.083   16.00 |  4.58    4.40
               0.167    2.90 | 1.667    7.30 | 3.167   16.00 |  4.67    4.40
               0.250    2.90 | 1.750    7.30 | 3.250   16.00 |  4.75    4.40
               0.333    2.90 | 1.833    7.30 | 3.333   16.00 |  4.83    4.40
               0.417    2.90 | 1.917    7.30 | 3.417   16.00 |  4.92    4.40
               0.500    2.90 | 2.000    7.30 | 3.500   16.00 |  5.00    4.40
               0.583    4.40 | 2.083    8.70 | 3.583    7.30 |  5.08    2.90
               0.667    4.40 | 2.167    8.70 | 3.667    7.30 |  5.17    2.90
               0.750    4.40 | 2.250    8.70 | 3.750    7.30 |  5.25    2.90
               0.833    4.40 | 2.333    8.70 | 3.833    7.30 |  5.33    2.90
               0.917    4.40 | 2.417    8.70 | 3.917    7.30 |  5.42    2.90
               1.000    4.40 | 2.500    8.70 | 4.000    7.30 |  5.50    2.90
               1.083    4.40 | 2.583   43.70 | 4.083    5.80 |  5.58    2.90
               1.167    4.40 | 2.667   43.70 | 4.167    5.80 |  5.67    2.90
               1.250    4.40 | 2.750   43.70 | 4.250    5.80 |  5.75    2.90
               1.333    4.40 | 2.833  113.70 | 4.333    5.80 |  5.83    2.90
               1.417    4.40 | 2.917  113.70 | 4.417    5.80 |  5.92    2.90
               1.500    4.40 | 3.000  113.70 | 4.500    5.80 |  6.00    2.90

     Unit Hyd Qpeak  (cms)=   0.199

     PEAK FLOW       (cms)=   0.142 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  31.122
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.427

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

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  1100):    24.54   1.155     3.50    28.03
     + ID2= 2 (  1201):     2.24   0.142     3.33    31.12
       ================================================
       ID = 3 (  0003):    26.78   1.287     3.50    28.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 25.964
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.356

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min	Area (ha)= 20.19 Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	5.39	14.80
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.50	1.50
Length (m)=	366.88	585.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

			TOTALS
Max.Eff.Inten.(mm/hr)=	113.70	13.78	
over (min)	5.00	90.00	
Storage Coeff. (min)=	4.69 (ii)	89.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	90.00	
Unit Hyd. peak (cms)=	0.22	0.01	
PEAK FLOW (cms)=	1.66	0.25	1.689 (iii)
TIME TO PEAK (hrs)=	3.00	4.42	3.00
RUNOFF VOLUME (mm)=	71.85	19.70	33.62
TOTAL RAINFALL (mm)=	72.85	72.85	72.85
RUNOFF COEFFICIENT =	0.99	0.27	0.46

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (3102):	20.19	1.689	3.00	33.62

```
      + ID2= 2 (  3110):     2.00   0.094     3.42    25.96
        ================================================
        ID = 3 (  0002):    22.19   1.733     3.00    32.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     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   |    0.1957      0.2251
                          0.0013      0.0393   |    0.3822      0.2598
                          0.0027      0.0724   |    0.6700      0.3036
                          0.0036      0.1059   |    1.0099      0.3478
                          0.0044      0.1480   |    1.3156      0.3836
                          0.0582      0.1907   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     22.190      1.733      3.00      32.93
   OUTFLOW: ID= 1 (  0001)     22.190      0.444      3.25      31.88

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 25.60
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2693

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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


                       ---- TRANSFORMED HYETOGRAPH ----
              TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
             0.083    2.90 | 1.583    7.30 | 3.083   16.00 |  4.58    4.40
             0.167    2.90 | 1.667    7.30 | 3.167   16.00 |  4.67    4.40
             0.250    2.90 | 1.750    7.30 | 3.250   16.00 |  4.75    4.40
             0.333    2.90 | 1.833    7.30 | 3.333   16.00 |  4.83    4.40
             0.417    2.90 | 1.917    7.30 | 3.417   16.00 |  4.92    4.40
             0.500    2.90 | 2.000    7.30 | 3.500   16.00 |  5.00    4.40
             0.583    4.40 | 2.083    8.70 | 3.583    7.30 |  5.08    2.90
             0.667    4.40 | 2.167    8.70 | 3.667    7.30 |  5.17    2.90
             0.750    4.40 | 2.250    8.70 | 3.750    7.30 |  5.25    2.90
             0.833    4.40 | 2.333    8.70 | 3.833    7.30 |  5.33    2.90
             0.917    4.40 | 2.417    8.70 | 3.917    7.30 |  5.42    2.90
             1.000    4.40 | 2.500    8.70 | 4.000    7.30 |  5.50    2.90
             1.083    4.40 | 2.583   43.70 | 4.083    5.80 |  5.58    2.90
             1.167    4.40 | 2.667   43.70 | 4.167    5.80 |  5.67    2.90
             1.250    4.40 | 2.750   43.70 | 4.250    5.80 |  5.75    2.90
             1.333    4.40 | 2.833  113.70 | 4.333    5.80 |  5.83    2.90
             1.417    4.40 | 2.917  113.70 | 4.417    5.80 |  5.92    2.90
             1.500    4.40 | 3.000  113.70 | 4.500    5.80 |  6.00    2.90

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.204 (i)
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=  17.201
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.236

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    22.19   0.444     3.25    31.88
      + ID2= 2 (  3101):     4.59   0.204     3.17    17.20
        ================================================
        ID = 3 (  3100):    26.78   0.640     3.25    29.36

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\380ad88e-a3fa-4488-86c2-b49d009eb27f\scenari
Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\380ad88e-a3fa-4488-86c2-b49d009eb27f\scenari

DATE: 01/07/2026 TIME: 11:30:00

USER:

COMMENTS: _____

****
** SIMULATION : 05_50-Year_6 hour SCS **
****

READ STORM	Filename: C:\Users\ACai\AppData\Local\Temp\b05c3d3f-7381-4e60-ac07-667366527137\0b9f3ad1
Ptotal= 81.45 mm	Comments: 05_50-Year_6 hour SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	3.30	1.50	8.10	3.00	17.90	4.50	4.90
0.25	3.30	1.75	8.10	3.25	17.90	4.75	4.90
0.50	4.90	2.00	9.80	3.50	8.10	5.00	3.30
0.75	4.90	2.25	9.80	3.75	8.10	5.25	3.30
1.00	4.90	2.50	48.80	4.00	6.50	5.50	3.30
1.25	4.90	2.75	127.00	4.25	6.50	5.75	3.30

CALIB NASHYD (2110) ID= 1 DT= 5.0 min	Area (ha)= 2.00 Ia (mm)= 4.40	Curve Number (CN)= 69.4 # of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 31.402
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.386

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

CALIB NASHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 4.59 Ia (mm)= 7.90	Curve Number (CN)= 58.5 # of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.254 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 21.310
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.262

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

CALIB	
STANDHYD (2102)	Area (ha)= 20.19
ID= 1 DT= 5.0 min	Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Max.Eff.Inten.(mm/hr)=	127.00	16.91		
over (min)	5.00	85.00		
Storage Coeff. (min)=	4.48 (ii)	82.82 (ii)		
Unit Hyd. Tpeak (min)=	5.00	85.00		
Unit Hyd. peak (cms)=	0.23	0.01		
				TOTALS
PEAK FLOW (cms)=	1.86	0.32		1.903 (iii)
TIME TO PEAK (hrs)=	3.00	4.33		3.00
RUNOFF VOLUME (mm)=	80.45	24.12		39.16
TOTAL RAINFALL (mm)=	81.45	81.45		81.45
RUNOFF COEFFICIENT =	0.99	0.30		0.48

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2101):	4.59	0.254	3.17	21.31
+ ID2= 2 (2102):	20.19	1.903	3.00	39.16
ID = 3 (2100):	24.78	2.086	3.00	35.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	2.086	3.00	35.85
	+ ID2= 2 (2110):	2.00	0.115	3.42	31.40
	ID = 1 (2100):	26.78	2.141	3.00	35.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB / NASHYD (1101) / ID= 1 DT= 5.0 min				
	Area	(ha)=	19.63	Curve Number (CN)= 76.1
	Ia	(mm)=	6.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.56	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 1.212 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 36.600
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.449

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

CALIB / NASHYD (1110) / ID= 1 DT= 5.0 min				
	Area	(ha)=	2.00	Curve Number (CN)= 69.4
	Ia	(mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.49	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 31.402
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.386

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

CALIB / NASHYD (1102) / ID= 1 DT= 5.0 min				
	Area	(ha)=	2.91	Curve Number (CN)= 52.3
	Ia	(mm)=	10.00	# of Linear Res.(N)= 3.00

-------------------- U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.077 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 16.842
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.207

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

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (1101):	19.63	1.212	3.50	36.60
	+ ID2= 2 (1102):	2.91	0.077	3.58	16.84
	ID = 3 (1100):	22.54	1.288	3.50	34.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (1100):	22.54	1.288	3.50	34.05
	+ ID2= 2 (1110):	2.00	0.115	3.42	31.40
	ID = 1 (1100):	24.54	1.400	3.50	33.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1201) | ID= 1 DT= 5.0 min				
	Area (ha)=	2.24	Curve Number (CN)=	76.8
	Ia (mm)=	6.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.43		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.171 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 37.404
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.459

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

ADD HYD (0003)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (1100):	24.54	1.400	3.50	33.83
	+ ID2= 2 (1201):	2.24	0.171	3.33	37.40
	ID = 3 (0003):	26.78	1.559	3.50	34.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (3110) ID= 1 DT= 5.0 min				
	Area (ha)= 2.00	Curve Number (CN)= 69.4		
	Ia (mm)= 4.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.49			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.115 (i)

TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 31.402
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.386

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min		
	Area (ha)= 20.19	
	Total Imp(%)= 26.70	Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Max.Eff.Inten.(mm/hr)=	127.00	16.91	
over (min)	5.00	85.00	
Storage Coeff. (min)=	4.48 (ii)	82.82 (ii)	
Unit Hyd. Tpeak (min)=	5.00	85.00	
Unit Hyd. peak (cms)=	0.23	0.01	

```
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.86         0.32          1.903 (iii)
     TIME TO PEAK    (hrs)=       3.00         4.33           3.00
     RUNOFF VOLUME    (mm)=      80.45        24.12          39.16
     TOTAL RAINFALL   (mm)=      81.45        81.45          81.45
     RUNOFF COEFFICIENT   =       0.99         0.30           0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  60.5    Ia = Dep. 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  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  3102):    20.19   1.903     3.00    39.16
     + ID2= 2 (  3110):     2.00   0.115     3.42    31.40
       ================================================
       ID = 3 (  0002):    22.19   1.958     3.00    38.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     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   |    0.1957      0.2251
                          0.0013      0.0393   |    0.3822      0.2598
                          0.0027      0.0724   |    0.6700      0.3036
                          0.0036      0.1059   |    1.0099      0.3478
                          0.0044      0.1480   |    1.3156      0.3836
                          0.0582      0.1907   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     22.190      1.958      3.00      38.46
   OUTFLOW: ID= 1 (  0001)     22.190      0.591      3.17      37.41

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 30.20
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2919

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--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.30 | 1.583    8.10 | 3.083   17.90 |  4.58    4.90
               0.167    3.30 | 1.667    8.10 | 3.167   17.90 |  4.67    4.90
               0.250    3.30 | 1.750    8.10 | 3.250   17.90 |  4.75    4.90
               0.333    3.30 | 1.833    8.10 | 3.333   17.90 |  4.83    4.90
               0.417    3.30 | 1.917    8.10 | 3.417   17.90 |  4.92    4.90
               0.500    3.30 | 2.000    8.10 | 3.500   17.90 |  5.00    4.90
               0.583    4.90 | 2.083    9.80 | 3.583    8.10 |  5.08    3.30
               0.667    4.90 | 2.167    9.80 | 3.667    8.10 |  5.17    3.30
               0.750    4.90 | 2.250    9.80 | 3.750    8.10 |  5.25    3.30
               0.833    4.90 | 2.333    9.80 | 3.833    8.10 |  5.33    3.30
               0.917    4.90 | 2.417    9.80 | 3.917    8.10 |  5.42    3.30
               1.000    4.90 | 2.500    9.80 | 4.000    8.10 |  5.50    3.30
               1.083    4.90 | 2.583   48.80 | 4.083    6.50 |  5.58    3.30
               1.167    4.90 | 2.667   48.80 | 4.167    6.50 |  5.67    3.30
               1.250    4.90 | 2.750   48.80 | 4.250    6.50 |  5.75    3.30
               1.333    4.90 | 2.833  127.00 | 4.333    6.50 |  5.83    3.30
               1.417    4.90 | 2.917  127.00 | 4.417    6.50 |  5.92    3.30
               1.500    4.90 | 3.000  127.00 | 4.500    6.50 |  6.00    3.30

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.254 (i)
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=  21.310
     TOTAL RAINFALL   (mm)=  81.450
     RUNOFF COEFFICIENT   =   0.262

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.591     3.17    37.41
     + ID2= 2 (  3101):     4.59   0.254     3.17    21.31
       ================================================
```

```
        ID = 3 (  3100):    26.78   0.845     3.17    34.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b84cc29
a-8b49-4541-99b1-62acd17169e6\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b84cc29
a-8b49-4541-99b1-62acd17169e6\scenari


DATE: 01/07/2026                          TIME: 11:30:01

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : 06_100-Year_6 hour SCS        **
  ***********************************************
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\ACai\AppD
|                  |              ata\Local\Temp\
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\332e193a
| Ptotal= 89.93 mm |    Comments: 06_100-Year_6 hour SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	3.60	1.50	9.00	3.00	19.80	4.50	5.40
0.25	3.60	1.75	9.00	3.25	19.80	4.75	5.40
0.50	5.40	2.00	10.80	3.50	9.00	5.00	3.60
0.75	5.40	2.25	10.80	3.75	9.00	5.25	3.60
1.00	5.40	2.50	53.90	4.00	7.20	5.50	3.60
1.25	5.40	2.75	140.20	4.25	7.20	5.75	3.60

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--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

```
    Unit Hyd Qpeak  (cms)=   0.156
```

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.412

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

CALIB					
NASHYD (2101)	Area (ha)=	4.59	Curve Number (CN)=	58.5	
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.29			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.308 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 25.647
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.285

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

CALIB					
STANDHYD (2102)	Area (ha)=	20.19			
ID= 1 DT= 5.0 min	Total Imp(%)=	26.70	Dir. Conn.(%)=	26.70	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Max.Eff.Inten.	(mm/hr)=	140.20	20.22	
over	(min)	5.00	80.00	
Storage Coeff.	(min)=	4.31 (ii)	77.24 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	80.00	
Unit Hyd. peak	(cms)=	0.23	0.01	
				TOTALS
PEAK FLOW	(cms)=	2.06	0.41	2.119 (iii)
TIME TO PEAK	(hrs)=	3.00	4.25	3.00
RUNOFF VOLUME	(mm)=	88.93	28.76	44.82
TOTAL RAINFALL	(mm)=	89.93	89.93	89.93
RUNOFF COEFFICIENT	=	0.99	0.32	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		4.59	0.308	3.17	25.65
+ ID2= 2 (2102):		20.19	2.119	3.00	44.82
ID = 3 (2100):		24.78	2.343	3.00	41.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2100):		24.78	2.343	3.00	41.27
+ ID2= 2 (2110):		2.00	0.136	3.42	37.03
ID = 1 (2100):		26.78	2.410	3.00	40.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (1101)	Area	(ha)=	19.63	Curve Number	(CN)= 76.1
ID= 1 DT= 5.0 min	Ia	(mm)=	6.10	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.56		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 1.428 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 42.950
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.478

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

CALIB					
NASHYD (1110)	Area	(ha)=	2.00	Curve Number	(CN)= 69.4
ID= 1 DT= 5.0 min	Ia	(mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60

1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.412

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

CALIB NASHYD (1102) ID= 1 DT= 5.0 min	Area (ha)= 2.91 Curve Number (CN)= 52.3 Ia (mm)= 10.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 20.501
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.228

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

ADD HYD (1100) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1101):	19.63	1.428	3.50	42.95
+ ID2= 2 (1102):	2.91	0.094	3.58	20.50
ID = 3 (1100):	22.54	1.521	3.50	40.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1100):	22.54	1.521	3.50	40.05
+ ID2= 2 (1110):	2.00	0.136	3.42	37.03
ID = 1 (1100):	24.54	1.654	3.50	39.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1201) ID= 1 DT= 5.0 min	Area (ha)= 2.24 Curve Number (CN)= 76.8 Ia (mm)= 6.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40

0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.201 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 43.838
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.487

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

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (1100):	24.54	1.654	3.50	39.81
+	ID2= 2 (1201):	2.24	0.201	3.33	43.84
	ID = 3 (0003):	26.78	1.840	3.50	40.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (3110) ID= 1 DT= 5.0 min				
	Area	(ha)=	2.00	Curve Number (CN)= 69.4
	Ia	(mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.49	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.412

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min				
	Area	(ha)=	20.19	
	Total Imp(%)=		26.70	Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40

0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

			TOTALS
Max.Eff.Inten.(mm/hr)=	140.20	20.22	
over (min)	5.00	80.00	
Storage Coeff. (min)=	4.31 (ii)	77.24 (ii)	
Unit Hyd. Tpeak (min)=	5.00	80.00	
Unit Hyd. peak (cms)=	0.23	0.01	
PEAK FLOW (cms)=	2.06	0.41	2.119 (iii)
TIME TO PEAK (hrs)=	3.00	4.25	3.00
RUNOFF VOLUME (mm)=	88.93	28.76	44.82
TOTAL RAINFALL (mm)=	89.93	89.93	89.93
RUNOFF COEFFICIENT =	0.99	0.32	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (3102):	20.19	2.119	3.00	44.82
	+ ID2= 2 (3110):	2.00	0.136	3.42	37.03
	ID = 3 (0002):	22.19	2.185	3.00	44.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) / IN= 2---> OUT= 1 / DT= 5.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1957	0.2251
	0.0013	0.0393	0.3822	0.2598
	0.0027	0.0724	0.6700	0.3036
	0.0036	0.1059	1.0099	0.3478
	0.0044	0.1480	1.3156	0.3836
	0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	2.185	3.00	44.12
OUTFLOW: ID= 1 (0001)	22.190	0.754	3.17	43.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 34.49
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.3155

CALIB / NASHYD (3101) / ID= 1 DT= 5.0 min				
	Area (ha)=	4.59	Curve Number (CN)=	58.5
	Ia (mm)=	7.90	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.29		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60

```
                1.417    5.40 | 2.917  140.20 | 4.417    7.20 |  5.92    3.60
                1.500    5.40 | 3.000  140.20 | 4.500    7.20 |  6.00    3.60

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.308 (i)
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=  25.647
     TOTAL RAINFALL   (mm)=  89.925
     RUNOFF COEFFICIENT   =   0.285

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    22.19   0.754     3.17    43.07
      + ID2= 2 (  3101):     4.59   0.308     3.17    25.65
        ====================================================
        ID = 3 (  3100):    26.78   1.061     3.17    40.09

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

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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 *****


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  Output  filename:
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4-5511-4090-bb09-b3643ef2c9e8\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\d58dcaa
4-5511-4090-bb09-b3643ef2c9e8\scenari


DATE: 01/07/2026                          TIME: 11:30:01

USER:


COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : 07_25mm, 4 Hour Chicago       **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 405.000
| Ptotal= 24.91 mm |                          B=   3.000
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.76 |  1.00   11.75 |  2.00    3.88 |  3.00    2.07
                0.17    2.00 |  1.17   57.66 |  2.17    3.35 |  3.17    1.93
                0.33    2.32 |  1.33   15.20 |  2.33    2.96 |  3.33    1.81
                0.50    2.81 |  1.50    8.31 |  2.50    2.66 |  3.50    1.71
                0.67    3.61 |  1.67    5.91 |  2.67    2.42 |  3.67    1.62
                0.83    5.28 |  1.83    4.66 |  2.83    2.23 |  3.83    1.54


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 3.173
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.127

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

CALIB	NASHYD (2101)	ID= 1 DT= 5.0 min

Area (ha)= 4.59 Curve Number (CN)= 58.5
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 1.750
RUNOFF VOLUME (mm)= 1.466
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.059

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

CALIB	STANDHYD (2102)	ID= 1 DT= 5.0 min

Area (ha)= 20.19
Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Max.Eff.Inten.(mm/hr)=	57.66	1.38	
over (min)	5.00	220.00	
Storage Coeff. (min)=	6.15 (ii)	219.36 (ii)	
Unit Hyd. Tpeak (min)=	5.00	220.00	

```
     Unit Hyd. peak  (cms)=       0.19         0.01
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.72         0.01          0.724 (iii)
     TIME TO PEAK    (hrs)=       1.33         5.42           1.33
     RUNOFF VOLUME    (mm)=      23.91         2.13           7.94
     TOTAL RAINFALL   (mm)=      24.91        24.91          24.91
     RUNOFF COEFFICIENT   =       0.96         0.09           0.32


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  60.5    Ia = Dep. 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  (  2100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):     4.59   0.012     1.75     1.47
     + ID2= 2 (  2102):    20.19   0.724     1.33     7.94
       ================================================
       ID = 3 (  2100):    24.78   0.726     1.33     6.74

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

--------------------
| ADD HYD  (  2100)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  2100):    24.78   0.726     1.33     6.74
     + ID2= 2 (  2110):     2.00   0.010     2.00     3.17
       ================================================
       ID = 1 (  2100):    26.78   0.728     1.33     6.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1101)|   Area    (ha)=  19.63   Curve Number   (CN)= 76.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.56

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


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

```
     Unit Hyd Qpeak  (cms)=   1.339

     PEAK FLOW       (cms)=   0.095 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=   3.588
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.144

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

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--------------------
| CALIB            |
| NASHYD   (  1110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 3.173
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.127

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

| CALIB | NASHYD (1102) | ID= 1 DT= 5.0 min |

Area (ha)= 2.91 Curve Number (CN)= 52.3
Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 0.901
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.036

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

| ADD HYD (1100) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1101):	19.63	0.095	2.08	3.59
+ ID2= 2 (1102):	2.91	0.003	2.42	0.90
ID = 3 (1100):	22.54	0.098	2.08	3.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1100) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1100):	22.54	0.098	2.08	3.24
+ ID2= 2 (1110):	2.00	0.010	2.00	3.17
ID = 1 (1100):	24.54	0.107	2.08	3.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (1201) | ID= 1 DT= 5.0 min |

Area (ha)= 2.24 Curve Number (CN)= 76.8
Ia (mm)= 6.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.013 (i)

```
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   3.737
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.150

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

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--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  1100):    24.54   0.107     2.08     3.24
     + ID2= 2 (  1201):     2.24   0.013     1.92     3.74
       ================================================
       ID = 3 (  0003):    26.78   0.120     2.08     3.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.76 | 1.083   11.75 | 2.083    3.88 |  3.08    2.07
              0.167    1.76 | 1.167   11.75 | 2.167    3.88 |  3.17    2.07
              0.250    2.00 | 1.250   57.66 | 2.250    3.35 |  3.25    1.93
              0.333    2.00 | 1.333   57.66 | 2.333    3.35 |  3.33    1.93
              0.417    2.32 | 1.417   15.20 | 2.417    2.96 |  3.42    1.81
              0.500    2.32 | 1.500   15.20 | 2.500    2.96 |  3.50    1.81
              0.583    2.81 | 1.583    8.31 | 2.583    2.66 |  3.58    1.71
              0.667    2.81 | 1.667    8.31 | 2.667    2.66 |  3.67    1.71
              0.750    3.61 | 1.750    5.91 | 2.750    2.42 |  3.75    1.62
              0.833    3.61 | 1.833    5.91 | 2.833    2.42 |  3.83    1.62
              0.917    5.28 | 1.917    4.66 | 2.917    2.23 |  3.92    1.54
              1.000    5.28 | 2.000    4.66 | 3.000    2.23 |  4.00    1.54

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=   3.173
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.127

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  3102)|   Area    (ha)=  20.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  26.70   Dir. Conn.(%)=  26.70
--------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.39        14.80
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.50         1.50
     Length            (m)=     366.88       585.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.76 | 1.083   11.75 | 2.083    3.88 |  3.08    2.07
              0.167    1.76 | 1.167   11.75 | 2.167    3.88 |  3.17    2.07
              0.250    2.00 | 1.250   57.66 | 2.250    3.35 |  3.25    1.93
              0.333    2.00 | 1.333   57.66 | 2.333    3.35 |  3.33    1.93
              0.417    2.32 | 1.417   15.20 | 2.417    2.96 |  3.42    1.81
              0.500    2.32 | 1.500   15.20 | 2.500    2.96 |  3.50    1.81
              0.583    2.81 | 1.583    8.31 | 2.583    2.66 |  3.58    1.71
              0.667    2.81 | 1.667    8.31 | 2.667    2.66 |  3.67    1.71
              0.750    3.61 | 1.750    5.91 | 2.750    2.42 |  3.75    1.62
              0.833    3.61 | 1.833    5.91 | 2.833    2.42 |  3.83    1.62
              0.917    5.28 | 1.917    4.66 | 2.917    2.23 |  3.92    1.54
              1.000    5.28 | 2.000    4.66 | 3.000    2.23 |  4.00    1.54

     Max.Eff.Inten.(mm/hr)=      57.66         1.38
               over (min)        5.00       220.00
     Storage Coeff.  (min)=      6.15 (ii)  219.36 (ii)
     Unit Hyd. Tpeak (min)=      5.00       220.00
     Unit Hyd. peak  (cms)=      0.19         0.01
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.72         0.01        0.724 (iii)
     TIME TO PEAK    (hrs)=      1.33         5.42         1.33
     RUNOFF VOLUME    (mm)=     23.91         2.13         7.94
     TOTAL RAINFALL   (mm)=     24.91        24.91        24.91
     RUNOFF COEFFICIENT   =      0.96         0.09         0.32
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  60.5    Ia = Dep. 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  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  3102):    20.19   0.724     1.33     7.94
     + ID2= 2 (  3110):     2.00   0.010     2.00     3.17
       ================================================
       ID = 3 (  0002):    22.19   0.725     1.33     7.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     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   |    0.1957      0.2251
                          0.0013      0.0393   |    0.3822      0.2598
                          0.0027      0.0724   |    0.6700      0.3036
                          0.0036      0.1059   |    1.0099      0.3478
                          0.0044      0.1480   |    1.3156      0.3836
                          0.0582      0.1907   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     22.190      0.725      1.33       7.51
   OUTFLOW: ID= 1 (  0001)     22.190      0.004     10.42       6.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.61
                  TIME SHIFT OF PEAK FLOW         (min)=545.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1474

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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

```
                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    1.76 | 1.083   11.75 | 2.083    3.88 |  3.08    2.07
 0.167    1.76 | 1.167   11.75 | 2.167    3.88 |  3.17    2.07
 0.250    2.00 | 1.250   57.66 | 2.250    3.35 |  3.25    1.93
 0.333    2.00 | 1.333   57.66 | 2.333    3.35 |  3.33    1.93
 0.417    2.32 | 1.417   15.20 | 2.417    2.96 |  3.42    1.81
 0.500    2.32 | 1.500   15.20 | 2.500    2.96 |  3.50    1.81
 0.583    2.81 | 1.583    8.31 | 2.583    2.66 |  3.58    1.71
 0.667    2.81 | 1.667    8.31 | 2.667    2.66 |  3.67    1.71
 0.750    3.61 | 1.750    5.91 | 2.750    2.42 |  3.75    1.62
 0.833    3.61 | 1.833    5.91 | 2.833    2.42 |  3.83    1.62
 0.917    5.28 | 1.917    4.66 | 2.917    2.23 |  3.92    1.54
 1.000    5.28 | 2.000    4.66 | 3.000    2.23 |  4.00    1.54

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=   1.466
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.059

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.004    10.42     6.49
     + ID2= 2 (  3101):     4.59   0.012     1.75     1.47
       ================================================
       ID = 3 (  3100):    26.78   0.015     1.75     5.63

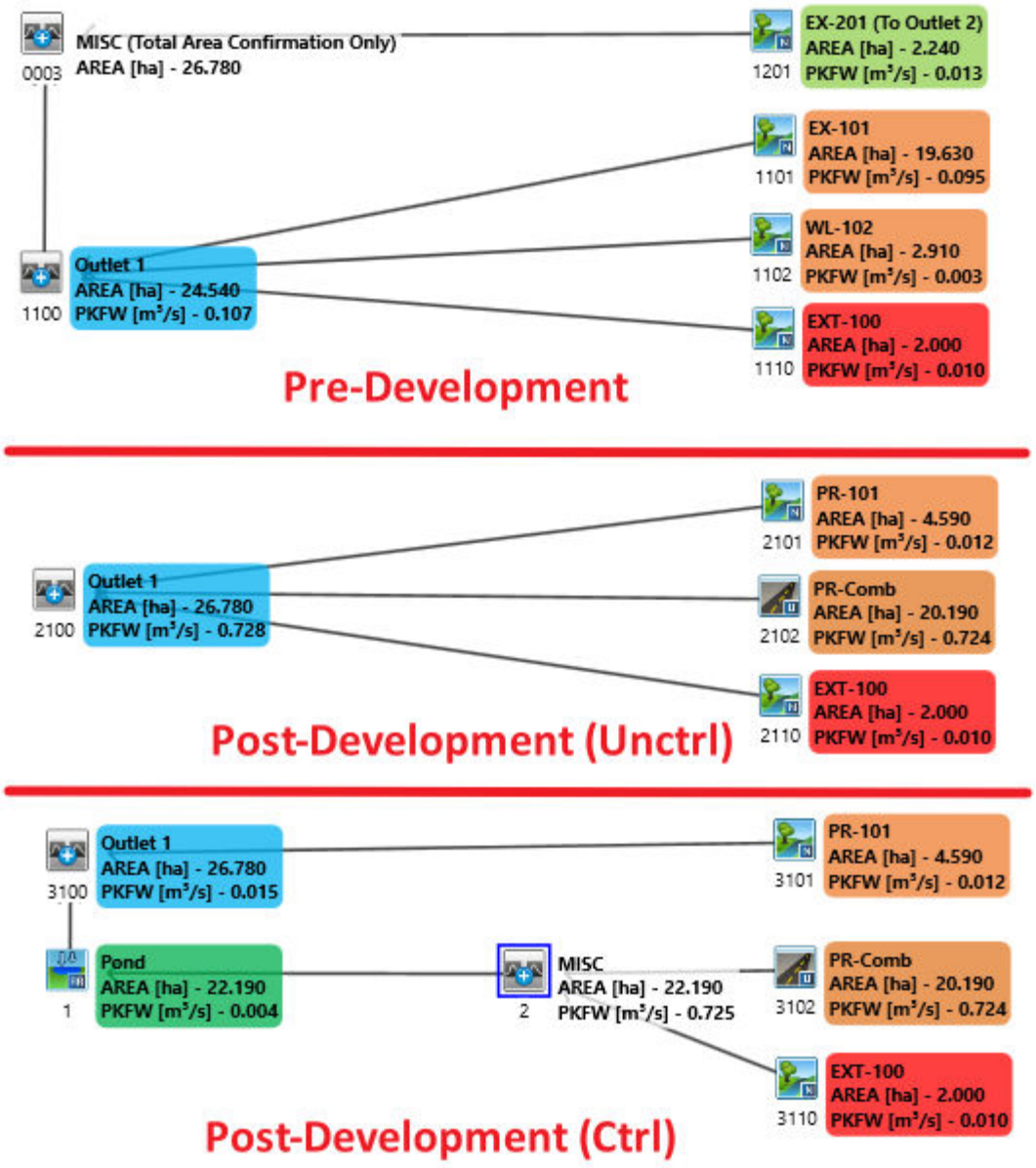
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

 FINISH
================================================================================
========================
```

Appendix C

Hydrologic Model – VO6

Visual Otthymo Model Configuration



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

       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\621a9b0
7-4a69-4bc1-9625-43f38806aa07\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\621a9b0
7-4a69-4bc1-9625-43f38806aa07\scenari


DATE: 01/07/2026                          TIME: 11:30:00

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : 01_2-Year_6 hour SCS          **
  ***********************************************


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

```
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\049d4f1a
| Ptotal= 38.60 mm |    Comments: 01_2-Year_6 hour SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.50 |  1.50    3.90 |  3.00    8.50 |  4.50    2.30
                0.25    1.50 |  1.75    3.90 |  3.25    8.50 |  4.75    2.30
                0.50    2.30 |  2.00    4.60 |  3.50    3.90 |  5.00    1.50
                0.75    2.30 |  2.25    4.60 |  3.75    3.90 |  5.25    1.50
                1.00    2.30 |  2.50   23.20 |  4.00    3.10 |  5.50    1.50
                1.25    2.30 |  2.75   60.40 |  4.25    3.10 |  5.75    1.50

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


--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    1.50 | 1.583    3.90 | 3.083    8.50 |  4.58    2.30
               0.167    1.50 | 1.667    3.90 | 3.167    8.50 |  4.67    2.30
               0.250    1.50 | 1.750    3.90 | 3.250    8.50 |  4.75    2.30
               0.333    1.50 | 1.833    3.90 | 3.333    8.50 |  4.83    2.30
               0.417    1.50 | 1.917    3.90 | 3.417    8.50 |  4.92    2.30
               0.500    1.50 | 2.000    3.90 | 3.500    8.50 |  5.00    2.30
               0.583    2.30 | 2.083    4.60 | 3.583    3.90 |  5.08    1.50
               0.667    2.30 | 2.167    4.60 | 3.667    3.90 |  5.17    1.50
               0.750    2.30 | 2.250    4.60 | 3.750    3.90 |  5.25    1.50
               0.833    2.30 | 2.333    4.60 | 3.833    3.90 |  5.33    1.50
               0.917    2.30 | 2.417    4.60 | 3.917    3.90 |  5.42    1.50
               1.000    2.30 | 2.500    4.60 | 4.000    3.90 |  5.50    1.50
               1.083    2.30 | 2.583   23.20 | 4.083    3.10 |  5.58    1.50
               1.167    2.30 | 2.667   23.20 | 4.167    3.10 |  5.67    1.50
               1.250    2.30 | 2.750   23.20 | 4.250    3.10 |  5.75    1.50
               1.333    2.30 | 2.833   60.40 | 4.333    3.10 |  5.83    1.50
               1.417    2.30 | 2.917   60.40 | 4.417    3.10 |  5.92    1.50
               1.500    2.30 | 3.000   60.40 | 4.500    3.10 |  6.00    1.50

    Unit Hyd Qpeak  (cms)=   0.156

    PEAK FLOW       (cms)=   0.028 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=   8.000
```

TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.207

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

CALIB					
NASHYD (2101)	Area (ha)=	4.59	Curve Number (CN)=	58.5	
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.29			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.049 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 4.467
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.116

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

CALIB					
STANDHYD (2102)	Area (ha)=	20.19			
ID= 1 DT= 5.0 min	Total Imp(%)=	26.70	Dir. Conn.(%)=	26.70	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

				TOTALS
Max.Eff.Inten.(mm/hr)=	60.40	3.88		
over (min)	5.00	150.00		
Storage Coeff. (min)=	6.04 (ii)	147.20 (ii)		
Unit Hyd. Tpeak (min)=	5.00	150.00		
Unit Hyd. peak (cms)=	0.19	0.01		
PEAK FLOW (cms)=	0.86	0.05		0.858 (iii)
TIME TO PEAK (hrs)=	3.00	5.42		3.00
RUNOFF VOLUME (mm)=	37.60	5.66		14.18
TOTAL RAINFALL (mm)=	38.60	38.60		38.60
RUNOFF COEFFICIENT =	0.97	0.15		0.37

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	4.59	0.049	3.17	4.47
	+ ID2= 2 (2102):	20.19	0.858	3.00	14.18
	ID = 3 (2100):	24.78	0.890	3.00	12.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	0.890	3.00	12.38
	+ ID2= 2 (2110):	2.00	0.028	3.42	8.00
	ID = 1 (2100):	26.78	0.902	3.00	12.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1101) | ID= 1 DT= 5.0 min				
	Area	(ha)=	19.63	Curve Number (CN)= 76.1
	Ia	(mm)=	6.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.56	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 0.297 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 9.408
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.244

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

CALIB NASHYD (1110) | ID= 1 DT= 5.0 min				
	Area	(ha)=	2.00	Curve Number (CN)= 69.4
	Ia	(mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.49	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50

1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.000
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.207

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

CALIB NASHYD (1102) ID= 1 DT= 5.0 min	Area (ha)= 2.91 Curve Number (CN)= 52.3 Ia (mm)= 10.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 3.142
TOTAL RAINFALL (mm)= 38.600

RUNOFF COEFFICIENT = 0.081

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

ADD HYD (1100) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1101):	19.63	0.297	3.58	9.41
+ ID2= 2 (1102):	2.91	0.013	3.67	3.14
ID = 3 (1100):	22.54	0.310	3.58	8.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1100):	22.54	0.310	3.58	8.60
+ ID2= 2 (1110):	2.00	0.028	3.42	8.00
ID = 1 (1100):	24.54	0.337	3.58	8.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1201) ID= 1 DT= 5.0 min	Area (ha)= 2.24 Curve Number (CN)= 76.8 Ia (mm)= 6.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50

0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 9.719
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.252

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

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (1100):	24.54	0.337	3.58	8.55
+	ID2= 2 (1201):	2.24	0.042	3.33	9.72
	ID = 3 (0003):	26.78	0.377	3.50	8.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (3110) ID= 1 DT= 5.0 min				
	Area (ha)=	2.00	Curve Number (CN)=	69.4
	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 8.000
TOTAL RAINFALL (mm)= 38.600
RUNOFF COEFFICIENT = 0.207

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min				
	Area (ha)=	20.19		
	Total Imp(%)=	26.70	Dir. Conn.(%)=	26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50

0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Max.Eff.Inten.(mm/hr)=	60.40	3.88	
over (min)	5.00	150.00	
Storage Coeff. (min)=	6.04 (ii)	147.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	150.00	
Unit Hyd. peak (cms)=	0.19	0.01	
			TOTALS
PEAK FLOW (cms)=	0.86	0.05	0.858 (iii)
TIME TO PEAK (hrs)=	3.00	5.42	3.00
RUNOFF VOLUME (mm)=	37.60	5.66	14.18
TOTAL RAINFALL (mm)=	38.60	38.60	38.60
RUNOFF COEFFICIENT =	0.97	0.15	0.37

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (3102):	20.19	0.858	3.00	14.18
	+ ID2= 2 (3110):	2.00	0.028	3.42	8.00
	ID = 3 (0002):	22.19	0.870	3.00	13.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1957	0.2251
	0.0013	0.0393	0.3822	0.2598
	0.0027	0.0724	0.6700	0.3036
	0.0036	0.1059	1.0099	0.3478
	0.0044	0.1480	1.3156	0.3836
	0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	0.870	3.00	13.63
OUTFLOW: ID= 1 (0001)	22.190	0.072	6.00	12.57

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.26
TIME SHIFT OF PEAK FLOW (min)=180.00
MAXIMUM STORAGE USED (ha.m.)= 0.1941

CALIB			
NASHYD (3101)	Area (ha)=	4.59	Curve Number (CN)= 58.5
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.29	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.50	1.583	3.90	3.083	8.50	4.58	2.30
0.167	1.50	1.667	3.90	3.167	8.50	4.67	2.30
0.250	1.50	1.750	3.90	3.250	8.50	4.75	2.30
0.333	1.50	1.833	3.90	3.333	8.50	4.83	2.30
0.417	1.50	1.917	3.90	3.417	8.50	4.92	2.30
0.500	1.50	2.000	3.90	3.500	8.50	5.00	2.30
0.583	2.30	2.083	4.60	3.583	3.90	5.08	1.50
0.667	2.30	2.167	4.60	3.667	3.90	5.17	1.50
0.750	2.30	2.250	4.60	3.750	3.90	5.25	1.50
0.833	2.30	2.333	4.60	3.833	3.90	5.33	1.50
0.917	2.30	2.417	4.60	3.917	3.90	5.42	1.50
1.000	2.30	2.500	4.60	4.000	3.90	5.50	1.50
1.083	2.30	2.583	23.20	4.083	3.10	5.58	1.50
1.167	2.30	2.667	23.20	4.167	3.10	5.67	1.50
1.250	2.30	2.750	23.20	4.250	3.10	5.75	1.50
1.333	2.30	2.833	60.40	4.333	3.10	5.83	1.50
1.417	2.30	2.917	60.40	4.417	3.10	5.92	1.50
1.500	2.30	3.000	60.40	4.500	3.10	6.00	1.50

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.049 (i)

```
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=   4.467
     TOTAL RAINFALL   (mm)=  38.600
     RUNOFF COEFFICIENT   =   0.116

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

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--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.072     6.00    12.57
     + ID2= 2 (  3101):     4.59   0.049     3.17     4.47
       ================================================
       ID = 3 (  3100):    26.78   0.077     6.00    11.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b055f61
4-1f34-46a3-8261-2aae849dbdd7\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b055f61
4-1f34-46a3-8261-2aae849dbdd7\scenari

DATE: 01/07/2026                          TIME: 11:30:01

USER:


COMMENTS: _____________________________________________________

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  ********************************************
  ** SIMULATION : 02_5-Year_6 hour SCS          **
  ********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ACai\AppD
|                  |              ata\Local\Temp\
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\d3d0b0a6
| Ptotal= 52.28 mm |    Comments: 02_5-Year_6 hour SCS
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    2.10 |  1.50    5.20 |  3.00   11.50 |  4.50    3.10
                0.25    2.10 |  1.75    5.20 |  3.25   11.50 |  4.75    3.10
                0.50    3.10 |  2.00    6.30 |  3.50    5.20 |  5.00    2.10
                0.75    3.10 |  2.25    6.30 |  3.75    5.20 |  5.25    2.10
                1.00    3.10 |  2.50   31.40 |  4.00    4.20 |  5.50    2.10
                1.25    3.10 |  2.75   81.70 |  4.25    4.20 |  5.75    2.10

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| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.10 | 1.583    5.20 | 3.083   11.50 |  4.58    3.10
               0.167    2.10 | 1.667    5.20 | 3.167   11.50 |  4.67    3.10
               0.250    2.10 | 1.750    5.20 | 3.250   11.50 |  4.75    3.10
               0.333    2.10 | 1.833    5.20 | 3.333   11.50 |  4.83    3.10
```

0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 14.335
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.274

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

CALIB
NASHYD (2101) | Area (ha)= 4.59 Curve Number (CN)= 58.5
ID= 1 DT= 5.0 min | Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.101 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 8.765
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.168

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

CALIB
STANDHYD (2102) | Area (ha)= 20.19
ID= 1 DT= 5.0 min | Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10

1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Max.Eff.Inten.(mm/hr)=	81.70	7.26	
over (min)	5.00	120.00	
Storage Coeff. (min)=	5.35 (ii)	115.21 (ii)	
Unit Hyd. Tpeak (min)=	5.00	120.00	
Unit Hyd. peak (cms)=	0.21	0.01	
			TOTALS
PEAK FLOW (cms)=	1.18	0.11	1.184 (iii)
TIME TO PEAK (hrs)=	3.00	4.92	3.00
RUNOFF VOLUME (mm)=	51.28	10.49	21.37
TOTAL RAINFALL (mm)=	52.28	52.28	52.28
RUNOFF COEFFICIENT =	0.98	0.20	0.41

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (2101):	4.59	0.101	3.17	8.76	
+ ID2= 2 (2102):	20.19	1.184	3.00	21.37	
ID = 3 (2100):	24.78	1.253	3.00	19.04	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (2100):	24.78	1.253	3.00	19.04	
+ ID2= 2 (2110):	2.00	0.051	3.42	14.34	
ID = 1 (2100):	26.78	1.276	3.00	18.69	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (1101)	Area (ha)= 19.63	Curve Number (CN)= 76.1	
ID= 1 DT= 5.0 min	Ia (mm)= 6.10	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.56		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 0.547 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 16.928
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.324

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

CALIB			
NASHYD (1110)	Area (ha)= 2.00	Curve Number (CN)= 69.4	
ID= 1 DT= 5.0 min	Ia (mm)= 4.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 14.335
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.274

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

CALIB			
NASHYD (1102)	Area (ha)= 2.91	Curve Number (CN)= 52.3	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.58		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 6.523
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.125

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

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (1101):	19.63	0.547	3.50	16.93
	+ ID2= 2 (1102):	2.91	0.029	3.58	6.52
	ID = 3 (1100):	22.54	0.575	3.50	15.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (1100):	22.54	0.575	3.50	15.58
	+ ID2= 2 (1110):	2.00	0.051	3.42	14.34
	ID = 1 (1100):	24.54	0.626	3.50	15.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (1201)	Area (ha)=	2.24	Curve Number (CN)=	76.8
ID= 1 DT= 5.0 min	Ia (mm)=	6.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.43		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.078 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 17.407
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.333

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

ADD HYD (0003)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1100):	24.54	0.626	3.50	15.48
+ ID2= 2 (1201):	2.24	0.078	3.33	17.41
ID = 3 (0003):	26.78	0.699	3.50	15.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (3110)	Area (ha)=	2.00	Curve Number (CN)=	69.4
ID= 1 DT= 5.0 min	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.051 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 14.335
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.274

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

CALIB			
STANDHYD (3102)	Area (ha)=	20.19	
ID= 1 DT= 5.0 min	Total Imp(%)=	26.70	Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10
0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Max.Eff.Inten.(mm/hr)=		81.70	7.26	
over (min)		5.00	120.00	
Storage Coeff. (min)=		5.35 (ii)	115.21 (ii)	
Unit Hyd. Tpeak (min)=		5.00	120.00	
Unit Hyd. peak (cms)=		0.21	0.01	
				TOTALS
PEAK FLOW	(cms)=	1.18	0.11	1.184 (iii)
TIME TO PEAK	(hrs)=	3.00	4.92	3.00
RUNOFF VOLUME	(mm)=	51.28	10.49	21.37
TOTAL RAINFALL	(mm)=	52.28	52.28	52.28
RUNOFF COEFFICIENT	=	0.98	0.20	0.41

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (3102):	20.19	1.184	3.00	21.37
	+ ID2= 2 (3110):	2.00	0.051	3.42	14.34
	ID = 3 (0002):	22.19	1.207	3.00	20.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1957	0.2251
	0.0013	0.0393	0.3822	0.2598
	0.0027	0.0724	0.6700	0.3036
	0.0036	0.1059	1.0099	0.3478
	0.0044	0.1480	1.3156	0.3836
	0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	1.207	3.00	20.74
OUTFLOW: ID= 1 (0001)	22.190	0.175	3.75	19.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.49
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.2200

CALIB			
NASHYD (3101)	Area (ha)=	4.59	Curve Number (CN)= 58.5
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.29	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.10	1.583	5.20	3.083	11.50	4.58	3.10
0.167	2.10	1.667	5.20	3.167	11.50	4.67	3.10

0.250	2.10	1.750	5.20	3.250	11.50	4.75	3.10
0.333	2.10	1.833	5.20	3.333	11.50	4.83	3.10
0.417	2.10	1.917	5.20	3.417	11.50	4.92	3.10
0.500	2.10	2.000	5.20	3.500	11.50	5.00	3.10
0.583	3.10	2.083	6.30	3.583	5.20	5.08	2.10
0.667	3.10	2.167	6.30	3.667	5.20	5.17	2.10
0.750	3.10	2.250	6.30	3.750	5.20	5.25	2.10
0.833	3.10	2.333	6.30	3.833	5.20	5.33	2.10
0.917	3.10	2.417	6.30	3.917	5.20	5.42	2.10
1.000	3.10	2.500	6.30	4.000	5.20	5.50	2.10
1.083	3.10	2.583	31.40	4.083	4.20	5.58	2.10
1.167	3.10	2.667	31.40	4.167	4.20	5.67	2.10
1.250	3.10	2.750	31.40	4.250	4.20	5.75	2.10
1.333	3.10	2.833	81.70	4.333	4.20	5.83	2.10
1.417	3.10	2.917	81.70	4.417	4.20	5.92	2.10
1.500	3.10	3.000	81.70	4.500	4.20	6.00	2.10

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.101 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 8.765
TOTAL RAINFALL (mm)= 52.275
RUNOFF COEFFICIENT = 0.168

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

ADD HYD (3100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	22.19	0.175	3.75	19.68
+ ID2= 2 (3101):	4.59	0.101	3.17	8.76
ID = 3 (3100):	26.78	0.237	3.50	17.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\1f5e1774-5eca-4dfe-b338-4d1406f56464\scenari
Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\1f5e1774-5eca-4dfe-b338-4d1406f56464\scenari

DATE: 01/07/2026 TIME: 11:29:59

USER:

COMMENTS: _____

```
  **********************************************
  ** SIMULATION : 03_10-Year_6 hour SCS         **
  **********************************************
```

READ STORM	Filename: C:\Users\ACai\AppData\Local\Temp\b05c3d3f-7381-4e60-ac07-667366527137\efceb0da
Ptotal= 61.57 mm	Comments: 03_10-Year_6 hour SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.50	1.50	6.20	3.00	13.50	4.50	3.70
0.25	2.50	1.75	6.10	3.25	13.50	4.75	3.70
0.50	3.70	2.00	7.40	3.50	6.20	5.00	2.50
0.75	3.70	2.25	7.40	3.75	6.20	5.25	2.50
1.00	3.70	2.50	36.90	4.00	4.90	5.50	2.50

1.25	3.70	2.75	95.90	4.25	4.90	5.75	2.50

```
--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

```
    Unit Hyd Qpeak  (cms)=   0.156

    PEAK FLOW       (cms)=   0.070 (i)
    TIME TO PEAK    (hrs)=   3.417
    RUNOFF VOLUME    (mm)=  19.322
    TOTAL RAINFALL   (mm)=  61.575
    RUNOFF COEFFICIENT   =   0.314

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

```
--------------------
| CALIB            |
| NASHYD   (  2101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

```
    Unit Hyd Qpeak  (cms)=   0.605

    PEAK FLOW       (cms)=   0.144 (i)
    TIME TO PEAK    (hrs)=   3.167
    RUNOFF VOLUME    (mm)=  12.314
    TOTAL RAINFALL   (mm)=  61.575
    RUNOFF COEFFICIENT   =   0.200

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

```
--------------------
| CALIB            |
| STANDHYD (  2102)|   Area    (ha)=  20.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  26.70   Dir. Conn.(%)=  26.70
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.39        14.80
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.50         1.50
     Length            (m)=     366.88       585.00
     Mannings n           =      0.013        0.250
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Max.Eff.Inten.(mm/hr)=	95.90	9.99	
over (min)	5.00	105.00	
Storage Coeff. (min)=	5.02 (ii)	101.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	105.00	
Unit Hyd. peak (cms)=	0.21	0.01	
			TOTALS
PEAK FLOW (cms)=	1.39	0.16	1.406 (iii)
TIME TO PEAK (hrs)=	3.00	4.67	3.00
RUNOFF VOLUME (mm)=	60.57	14.39	26.72
TOTAL RAINFALL (mm)=	61.58	61.58	61.58
RUNOFF COEFFICIENT =	0.98	0.23	0.43

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	4.59	0.144	3.17	12.31
	+ ID2= 2 (2102):	20.19	1.406	3.00	26.72
	ID = 3 (2100):	24.78	1.506	3.00	24.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	1.506	3.00	24.05
	+ ID2= 2 (2110):	2.00	0.070	3.42	19.32
	ID = 1 (2100):	26.78	1.538	3.00	23.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (1101)	Area	(ha)=	19.63	Curve Number	(CN)= 76.1
ID= 1 DT= 5.0 min	Ia	(mm)=	6.10	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.56		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 0.742 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 22.754
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.370

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

CALIB					
NASHYD (1110)	Area (ha)=	2.00	Curve Number (CN)=	69.4	
ID= 1 DT= 5.0 min	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.49			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 19.322
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.314

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

CALIB					
NASHYD (1102)	Area (ha)=	2.91	Curve Number (CN)=	52.3	
ID= 1 DT= 5.0 min	Ia (mm)=	10.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.58			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.042 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 9.391
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.153

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

ADD HYD (1100)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)

```
        ID1= 1 (  1101):    19.63   0.742     3.50    22.75
      + ID2= 2 (  1102):     2.91   0.042     3.58     9.39
        ================================================
        ID = 3 (  1100):    22.54   0.783     3.50    21.03

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

--------------------
| ADD HYD  (  1100)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  1100):    22.54   0.783     3.50    21.03
      + ID2= 2 (  1110):     2.00   0.070     3.42    19.32
        ================================================
        ID = 1 (  1100):    24.54   0.852     3.50    20.89

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1201)|   Area    (ha)=   2.24   Curve Number   (CN)= 76.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

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


                      ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.50 | 1.583    6.20 | 3.083   13.50 |  4.58    3.70
 0.167    2.50 | 1.667    6.20 | 3.167   13.50 |  4.67    3.70
 0.250    2.50 | 1.750    6.20 | 3.250   13.50 |  4.75    3.70
 0.333    2.50 | 1.833    6.10 | 3.333   13.50 |  4.83    3.70
 0.417    2.50 | 1.917    6.10 | 3.417   13.50 |  4.92    3.70
 0.500    2.50 | 2.000    6.10 | 3.500   13.50 |  5.00    3.70
 0.583    3.70 | 2.083    7.40 | 3.583    6.20 |  5.08    2.50
 0.667    3.70 | 2.167    7.40 | 3.667    6.20 |  5.17    2.50
 0.750    3.70 | 2.250    7.40 | 3.750    6.20 |  5.25    2.50
 0.833    3.70 | 2.333    7.40 | 3.833    6.20 |  5.33    2.50
 0.917    3.70 | 2.417    7.40 | 3.917    6.20 |  5.42    2.50
 1.000    3.70 | 2.500    7.40 | 4.000    6.20 |  5.50    2.50
 1.083    3.70 | 2.583   36.90 | 4.083    4.90 |  5.58    2.50
 1.167    3.70 | 2.667   36.90 | 4.167    4.90 |  5.67    2.50
 1.250    3.70 | 2.750   36.90 | 4.250    4.90 |  5.75    2.50
 1.333    3.70 | 2.833   95.90 | 4.333    4.90 |  5.83    2.50
 1.417    3.70 | 2.917   95.90 | 4.417    4.90 |  5.92    2.50
 1.500    3.70 | 3.000   95.90 | 4.500    4.90 |  6.00    2.50

     Unit Hyd Qpeak  (cms)=   0.199

     PEAK FLOW       (cms)=   0.105 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  23.342
     TOTAL RAINFALL   (mm)=  61.575
     RUNOFF COEFFICIENT   =   0.379

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

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--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  1100):    24.54   0.852     3.50    20.89
      + ID2= 2 (  1201):     2.24   0.105     3.33    23.34
        ================================================
        ID = 3 (  0003):    26.78   0.950     3.50    21.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


                      ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.50 | 1.583    6.20 | 3.083   13.50 |  4.58    3.70
 0.167    2.50 | 1.667    6.20 | 3.167   13.50 |  4.67    3.70
 0.250    2.50 | 1.750    6.20 | 3.250   13.50 |  4.75    3.70
 0.333    2.50 | 1.833    6.10 | 3.333   13.50 |  4.83    3.70
 0.417    2.50 | 1.917    6.10 | 3.417   13.50 |  4.92    3.70
 0.500    2.50 | 2.000    6.10 | 3.500   13.50 |  5.00    3.70
 0.583    3.70 | 2.083    7.40 | 3.583    6.20 |  5.08    2.50
 0.667    3.70 | 2.167    7.40 | 3.667    6.20 |  5.17    2.50
 0.750    3.70 | 2.250    7.40 | 3.750    6.20 |  5.25    2.50
 0.833    3.70 | 2.333    7.40 | 3.833    6.20 |  5.33    2.50
 0.917    3.70 | 2.417    7.40 | 3.917    6.20 |  5.42    2.50
 1.000    3.70 | 2.500    7.40 | 4.000    6.20 |  5.50    2.50
 1.083    3.70 | 2.583   36.90 | 4.083    4.90 |  5.58    2.50
 1.167    3.70 | 2.667   36.90 | 4.167    4.90 |  5.67    2.50
 1.250    3.70 | 2.750   36.90 | 4.250    4.90 |  5.75    2.50
```

1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.070 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 19.322
TOTAL RAINFALL (mm)= 61.575
RUNOFF COEFFICIENT = 0.314

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

CALIB
STANDHYD (3102)
ID= 1 DT= 5.0 min

Area (ha)= 20.19
Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	5.39	14.80
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.50	1.50
Length (m)=	366.88	585.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.50	1.583	6.20	3.083	13.50	4.58	3.70
0.167	2.50	1.667	6.20	3.167	13.50	4.67	3.70
0.250	2.50	1.750	6.20	3.250	13.50	4.75	3.70
0.333	2.50	1.833	6.10	3.333	13.50	4.83	3.70
0.417	2.50	1.917	6.10	3.417	13.50	4.92	3.70
0.500	2.50	2.000	6.10	3.500	13.50	5.00	3.70
0.583	3.70	2.083	7.40	3.583	6.20	5.08	2.50
0.667	3.70	2.167	7.40	3.667	6.20	5.17	2.50
0.750	3.70	2.250	7.40	3.750	6.20	5.25	2.50
0.833	3.70	2.333	7.40	3.833	6.20	5.33	2.50
0.917	3.70	2.417	7.40	3.917	6.20	5.42	2.50
1.000	3.70	2.500	7.40	4.000	6.20	5.50	2.50
1.083	3.70	2.583	36.90	4.083	4.90	5.58	2.50
1.167	3.70	2.667	36.90	4.167	4.90	5.67	2.50
1.250	3.70	2.750	36.90	4.250	4.90	5.75	2.50
1.333	3.70	2.833	95.90	4.333	4.90	5.83	2.50
1.417	3.70	2.917	95.90	4.417	4.90	5.92	2.50
1.500	3.70	3.000	95.90	4.500	4.90	6.00	2.50

Max.Eff.Inten.(mm/hr)=	95.90	9.99	
over (min)	5.00	105.00	
Storage Coeff. (min)=	5.02 (ii)	101.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	105.00	
Unit Hyd. peak (cms)=	0.21	0.01	
			TOTALS
PEAK FLOW (cms)=	1.39	0.16	1.406 (iii)
TIME TO PEAK (hrs)=	3.00	4.67	3.00
RUNOFF VOLUME (mm)=	60.57	14.39	26.72
TOTAL RAINFALL (mm)=	61.58	61.58	61.58
RUNOFF COEFFICIENT =	0.98	0.23	0.43

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (3102):	20.19	1.406	3.00	26.72
+ ID2= 2 (3110):	2.00	0.070	3.42	19.32
ID = 3 (0002):	22.19	1.438	3.00	26.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1957	0.2251
0.0013	0.0393	0.3822	0.2598
0.0027	0.0724	0.6700	0.3036
0.0036	0.1059	1.0099	0.3478
0.0044	0.1480	1.3156	0.3836
0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	1.438	3.00	26.05
OUTFLOW: ID= 1 (0001)	22.190	0.290	3.58	25.00

```
                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.15
                TIME SHIFT OF PEAK FLOW         (min)= 35.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.2430

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    2.50 | 1.583    6.20 | 3.083   13.50 |  4.58    3.70
 0.167    2.50 | 1.667    6.20 | 3.167   13.50 |  4.67    3.70
 0.250    2.50 | 1.750    6.20 | 3.250   13.50 |  4.75    3.70
 0.333    2.50 | 1.833    6.10 | 3.333   13.50 |  4.83    3.70
 0.417    2.50 | 1.917    6.10 | 3.417   13.50 |  4.92    3.70
 0.500    2.50 | 2.000    6.10 | 3.500   13.50 |  5.00    3.70
 0.583    3.70 | 2.083    7.40 | 3.583    6.20 |  5.08    2.50
 0.667    3.70 | 2.167    7.40 | 3.667    6.20 |  5.17    2.50
 0.750    3.70 | 2.250    7.40 | 3.750    6.20 |  5.25    2.50
 0.833    3.70 | 2.333    7.40 | 3.833    6.20 |  5.33    2.50
 0.917    3.70 | 2.417    7.40 | 3.917    6.20 |  5.42    2.50
 1.000    3.70 | 2.500    7.40 | 4.000    6.20 |  5.50    2.50
 1.083    3.70 | 2.583   36.90 | 4.083    4.90 |  5.58    2.50
 1.167    3.70 | 2.667   36.90 | 4.167    4.90 |  5.67    2.50
 1.250    3.70 | 2.750   36.90 | 4.250    4.90 |  5.75    2.50
 1.333    3.70 | 2.833   95.90 | 4.333    4.90 |  5.83    2.50
 1.417    3.70 | 2.917   95.90 | 4.417    4.90 |  5.92    2.50
 1.500    3.70 | 3.000   95.90 | 4.500    4.90 |  6.00    2.50

    Unit Hyd Qpeak  (cms)=   0.605

    PEAK FLOW       (cms)=   0.144 (i)
    TIME TO PEAK    (hrs)=   3.167
    RUNOFF VOLUME    (mm)=  12.314
    TOTAL RAINFALL   (mm)=  61.575
    RUNOFF COEFFICIENT   =   0.200

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

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| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.290     3.58    25.00
     + ID2= 2 (  3101):     4.59   0.144     3.17    12.31
       ================================================
       ID = 3 (  3100):    26.78   0.399     3.33    22.82

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
      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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\8f6c961
2-378c-49d4-9a3c-28be0a7baf15\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\8f6c961
2-378c-49d4-9a3c-28be0a7baf15\scenari


DATE: 01/07/2026                          TIME: 11:30:00

USER:


COMMENTS: _____
```

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  ***********************************************
  ** SIMULATION : 04_25-Year_6 hour SCS         **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\ACai\AppD
|                  |              ata\Local\Temp\
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\5216bd64
| Ptotal= 72.85 mm |    Comments: 04_25-Year_6 hour SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	2.90	1.50	7.30	3.00	16.00	4.50	4.40
0.25	2.90	1.75	7.30	3.25	16.00	4.75	4.40
0.50	4.40	2.00	8.70	3.50	7.30	5.00	2.90
0.75	4.40	2.25	8.70	3.75	7.30	5.25	2.90
1.00	4.40	2.50	43.70	4.00	5.80	5.50	2.90
1.25	4.40	2.75	113.70	4.25	5.80	5.75	2.90

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--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

```
     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.094 (i)
     TIME TO PEAK    (hrs)=   3.417
     RUNOFF VOLUME    (mm)=  25.964
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.356

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

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--------------------
| CALIB            |
| NASHYD   (  2101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

```
     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.204 (i)
```

TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 17.201
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.236

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

CALIB	
STANDHYD (2102)	Area (ha)= 20.19
ID= 1 DT= 5.0 min	Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Max.Eff.Inten.(mm/hr)=		113.70	13.78
over (min)		5.00	90.00
Storage Coeff. (min)=		4.69 (ii)	89.71 (ii)
Unit Hyd. Tpeak (min)=		5.00	90.00
Unit Hyd. peak (cms)=		0.22	0.01

			TOTALS
PEAK FLOW	(cms)=	1.66	0.25	1.689 (iii)
TIME TO PEAK	(hrs)=	3.00	4.42	3.00
RUNOFF VOLUME	(mm)=	71.85	19.70	33.62
TOTAL RAINFALL	(mm)=	72.85	72.85	72.85
RUNOFF COEFFICIENT	=	0.99	0.27	0.46

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2101):	4.59	0.204	3.17	17.20
	+ ID2= 2 (2102):	20.19	1.689	3.00	33.62
	ID = 3 (2100):	24.78	1.834	3.00	30.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	1.834	3.00	30.58
	+ ID2= 2 (2110):	2.00	0.094	3.42	25.96
	ID = 1 (2100):	26.78	1.879	3.00	30.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	
NASHYD (1101)	Area (ha)= 19.63 Curve Number (CN)= 76.1
ID= 1 DT= 5.0 min	Ia (mm)= 6.10 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.56

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 1.002 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 30.408
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.417

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

CALIB NASHYD (1110) ID= 1 DT= 5.0 min	Area (ha)= 2.00 Ia (mm)= 4.40 U.H. Tp(hrs)= 0.49	Curve Number (CN)= 69.4 # of Linear Res.(N)= 3.00

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 25.964
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.356

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

CALIB NASHYD (1102) ID= 1 DT= 5.0 min	Area (ha)= 2.91 Ia (mm)= 10.00 U.H. Tp(hrs)= 0.58	Curve Number (CN)= 52.3 # of Linear Res.(N)= 3.00

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90

```
              1.250    4.40 | 2.750   43.70 | 4.250    5.80 |  5.75    2.90
              1.333    4.40 | 2.833  113.70 | 4.333    5.80 |  5.83    2.90
              1.417    4.40 | 2.917  113.70 | 4.417    5.80 |  5.92    2.90
              1.500    4.40 | 3.000  113.70 | 4.500    5.80 |  6.00    2.90

     Unit Hyd Qpeak  (cms)=   0.192

     PEAK FLOW       (cms)=   0.061 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  13.412
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.184

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

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

--------------------
| ADD HYD  (  1100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  1101):    19.63   1.002     3.50    30.41
     + ID2= 2 (  1102):     2.91   0.061     3.58    13.41
       ================================================
       ID = 3 (  1100):    22.54   1.062     3.50    28.21

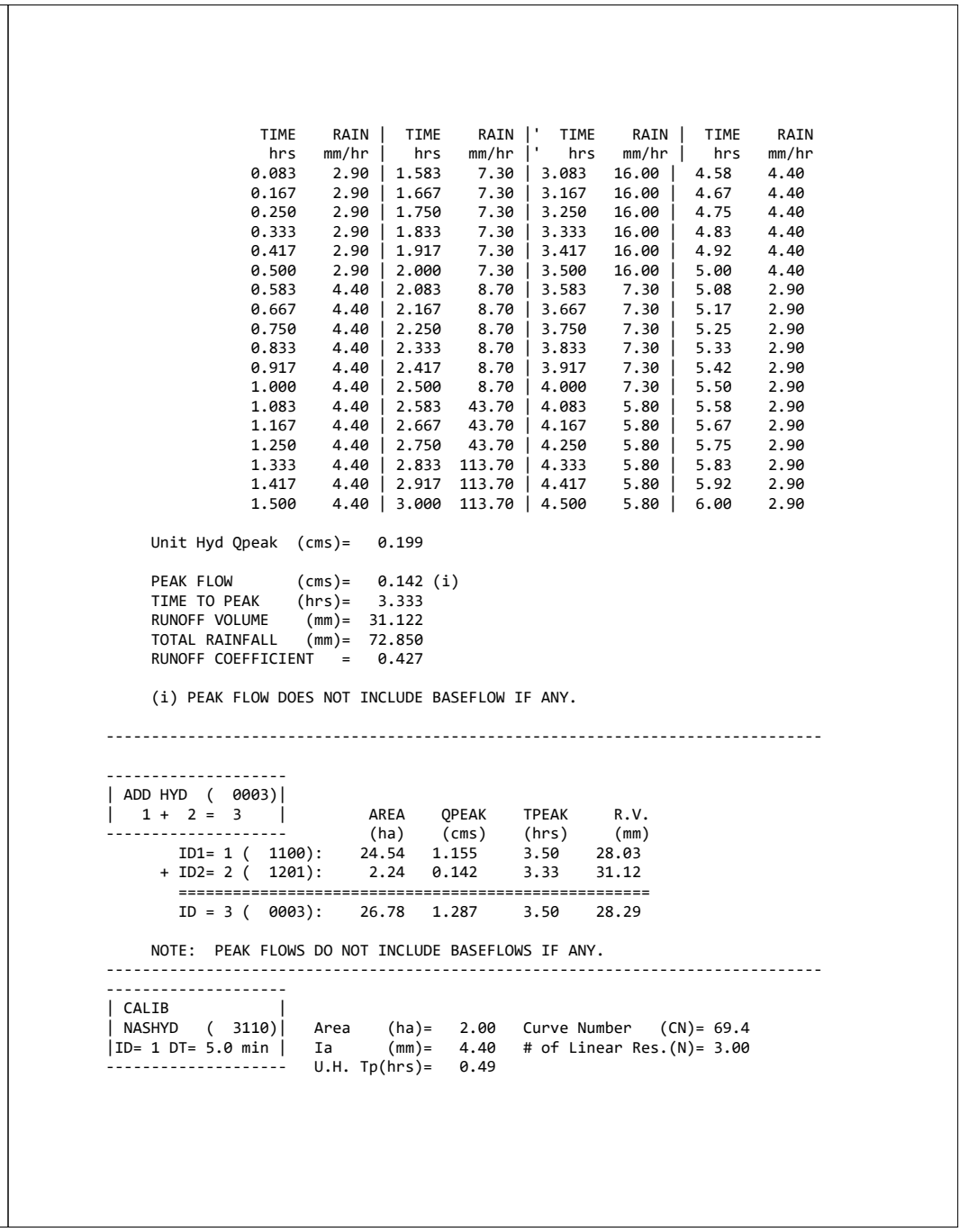
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------

--------------------
| ADD HYD  (  1100)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  1100):    22.54   1.062     3.50    28.21
     + ID2= 2 (  1110):     2.00   0.094     3.42    25.96
       ================================================
       ID = 1 (  1100):    24.54   1.155     3.50    28.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1201)|   Area    (ha)=   2.24   Curve Number   (CN)= 76.8
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.43

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


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



```
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.90 | 1.583    7.30 | 3.083   16.00 |  4.58    4.40
               0.167    2.90 | 1.667    7.30 | 3.167   16.00 |  4.67    4.40
               0.250    2.90 | 1.750    7.30 | 3.250   16.00 |  4.75    4.40
               0.333    2.90 | 1.833    7.30 | 3.333   16.00 |  4.83    4.40
               0.417    2.90 | 1.917    7.30 | 3.417   16.00 |  4.92    4.40
               0.500    2.90 | 2.000    7.30 | 3.500   16.00 |  5.00    4.40
               0.583    4.40 | 2.083    8.70 | 3.583    7.30 |  5.08    2.90
               0.667    4.40 | 2.167    8.70 | 3.667    7.30 |  5.17    2.90
               0.750    4.40 | 2.250    8.70 | 3.750    7.30 |  5.25    2.90
               0.833    4.40 | 2.333    8.70 | 3.833    7.30 |  5.33    2.90
               0.917    4.40 | 2.417    8.70 | 3.917    7.30 |  5.42    2.90
               1.000    4.40 | 2.500    8.70 | 4.000    7.30 |  5.50    2.90
               1.083    4.40 | 2.583   43.70 | 4.083    5.80 |  5.58    2.90
               1.167    4.40 | 2.667   43.70 | 4.167    5.80 |  5.67    2.90
               1.250    4.40 | 2.750   43.70 | 4.250    5.80 |  5.75    2.90
               1.333    4.40 | 2.833  113.70 | 4.333    5.80 |  5.83    2.90
               1.417    4.40 | 2.917  113.70 | 4.417    5.80 |  5.92    2.90
               1.500    4.40 | 3.000  113.70 | 4.500    5.80 |  6.00    2.90

     Unit Hyd Qpeak  (cms)=   0.199

     PEAK FLOW       (cms)=   0.142 (i)
     TIME TO PEAK    (hrs)=   3.333
     RUNOFF VOLUME    (mm)=  31.122
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.427

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

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  1100):    24.54   1.155     3.50    28.03
     + ID2= 2 (  1201):     2.24   0.142     3.33    31.12
       ================================================
       ID = 3 (  0003):    26.78   1.287     3.50    28.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 25.964
TOTAL RAINFALL (mm)= 72.850
RUNOFF COEFFICIENT = 0.356

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min	Area (ha)= 20.19 Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	5.39	14.80
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.50	1.50
Length (m)=	366.88	585.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.90	1.583	7.30	3.083	16.00	4.58	4.40
0.167	2.90	1.667	7.30	3.167	16.00	4.67	4.40
0.250	2.90	1.750	7.30	3.250	16.00	4.75	4.40
0.333	2.90	1.833	7.30	3.333	16.00	4.83	4.40
0.417	2.90	1.917	7.30	3.417	16.00	4.92	4.40
0.500	2.90	2.000	7.30	3.500	16.00	5.00	4.40
0.583	4.40	2.083	8.70	3.583	7.30	5.08	2.90
0.667	4.40	2.167	8.70	3.667	7.30	5.17	2.90
0.750	4.40	2.250	8.70	3.750	7.30	5.25	2.90
0.833	4.40	2.333	8.70	3.833	7.30	5.33	2.90
0.917	4.40	2.417	8.70	3.917	7.30	5.42	2.90
1.000	4.40	2.500	8.70	4.000	7.30	5.50	2.90
1.083	4.40	2.583	43.70	4.083	5.80	5.58	2.90
1.167	4.40	2.667	43.70	4.167	5.80	5.67	2.90
1.250	4.40	2.750	43.70	4.250	5.80	5.75	2.90
1.333	4.40	2.833	113.70	4.333	5.80	5.83	2.90
1.417	4.40	2.917	113.70	4.417	5.80	5.92	2.90
1.500	4.40	3.000	113.70	4.500	5.80	6.00	2.90

			TOTALS
Max.Eff.Inten.(mm/hr)=	113.70	13.78	
over (min)	5.00	90.00	
Storage Coeff. (min)=	4.69 (ii)	89.71 (ii)	
Unit Hyd. Tpeak (min)=	5.00	90.00	
Unit Hyd. peak (cms)=	0.22	0.01	
PEAK FLOW (cms)=	1.66	0.25	1.689 (iii)
TIME TO PEAK (hrs)=	3.00	4.42	3.00
RUNOFF VOLUME (mm)=	71.85	19.70	33.62
TOTAL RAINFALL (mm)=	72.85	72.85	72.85
RUNOFF COEFFICIENT =	0.99	0.27	0.46

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (3102):	20.19	1.689	3.00	33.62

```
      + ID2= 2 (  3110):     2.00   0.094     3.42    25.96
        ================================================
        ID = 3 (  0002):    22.19   1.733     3.00    32.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     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   |    0.1957      0.2251
                          0.0013      0.0393   |    0.3822      0.2598
                          0.0027      0.0724   |    0.6700      0.3036
                          0.0036      0.1059   |    1.0099      0.3478
                          0.0044      0.1480   |    1.3156      0.3836
                          0.0582      0.1907   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     22.190      1.733      3.00      32.93
   OUTFLOW: ID= 1 (  0001)     22.190      0.444      3.25      31.88

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 25.60
                  TIME SHIFT OF PEAK FLOW         (min)= 15.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2693

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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


                       ---- TRANSFORMED HYETOGRAPH ----
              TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
             0.083    2.90 | 1.583    7.30 | 3.083   16.00 |  4.58    4.40
             0.167    2.90 | 1.667    7.30 | 3.167   16.00 |  4.67    4.40
             0.250    2.90 | 1.750    7.30 | 3.250   16.00 |  4.75    4.40
             0.333    2.90 | 1.833    7.30 | 3.333   16.00 |  4.83    4.40
             0.417    2.90 | 1.917    7.30 | 3.417   16.00 |  4.92    4.40
             0.500    2.90 | 2.000    7.30 | 3.500   16.00 |  5.00    4.40
             0.583    4.40 | 2.083    8.70 | 3.583    7.30 |  5.08    2.90
             0.667    4.40 | 2.167    8.70 | 3.667    7.30 |  5.17    2.90
             0.750    4.40 | 2.250    8.70 | 3.750    7.30 |  5.25    2.90
             0.833    4.40 | 2.333    8.70 | 3.833    7.30 |  5.33    2.90
             0.917    4.40 | 2.417    8.70 | 3.917    7.30 |  5.42    2.90
             1.000    4.40 | 2.500    8.70 | 4.000    7.30 |  5.50    2.90
             1.083    4.40 | 2.583   43.70 | 4.083    5.80 |  5.58    2.90
             1.167    4.40 | 2.667   43.70 | 4.167    5.80 |  5.67    2.90
             1.250    4.40 | 2.750   43.70 | 4.250    5.80 |  5.75    2.90
             1.333    4.40 | 2.833  113.70 | 4.333    5.80 |  5.83    2.90
             1.417    4.40 | 2.917  113.70 | 4.417    5.80 |  5.92    2.90
             1.500    4.40 | 3.000  113.70 | 4.500    5.80 |  6.00    2.90

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.204 (i)
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=  17.201
     TOTAL RAINFALL   (mm)=  72.850
     RUNOFF COEFFICIENT   =   0.236

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    22.19   0.444     3.25    31.88
      + ID2= 2 (  3101):     4.59   0.204     3.17    17.20
        ================================================
        ID = 3 (  3100):    26.78   0.640     3.25    29.36

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

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\380ad88e-a3fa-4488-86c2-b49d009eb27f\scenari
Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\380ad88e-a3fa-4488-86c2-b49d009eb27f\scenari

DATE: 01/07/2026 TIME: 11:30:00

USER:

COMMENTS: _____

****
** SIMULATION : 05_50-Year_6 hour SCS **
****

READ STORM	Filename: C:\Users\ACai\AppData\Local\Temp\b05c3d3f-7381-4e60-ac07-667366527137\0b9f3ad1
Ptotal= 81.45 mm	Comments: 05_50-Year_6 hour SCS

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	3.30	1.50	8.10	3.00	17.90	4.50	4.90
0.25	3.30	1.75	8.10	3.25	17.90	4.75	4.90
0.50	4.90	2.00	9.80	3.50	8.10	5.00	3.30
0.75	4.90	2.25	9.80	3.75	8.10	5.25	3.30
1.00	4.90	2.50	48.80	4.00	6.50	5.50	3.30
1.25	4.90	2.75	127.00	4.25	6.50	5.75	3.30

CALIB NASHYD (2110) ID= 1 DT= 5.0 min	Area (ha)= 2.00 Ia (mm)= 4.40	Curve Number (CN)= 69.4 # of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 31.402
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.386

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

CALIB NASHYD (2101) ID= 1 DT= 5.0 min	Area (ha)= 4.59 Ia (mm)= 7.90	Curve Number (CN)= 58.5 # of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.254 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 21.310
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.262

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

CALIB	
STANDHYD (2102)	Area (ha)= 20.19
ID= 1 DT= 5.0 min	Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Max.Eff.Inten.(mm/hr)=	127.00	16.91		
over (min)	5.00	85.00		
Storage Coeff. (min)=	4.48 (ii)	82.82 (ii)		
Unit Hyd. Tpeak (min)=	5.00	85.00		
Unit Hyd. peak (cms)=	0.23	0.01		
				TOTALS
PEAK FLOW (cms)=	1.86	0.32		1.903 (iii)
TIME TO PEAK (hrs)=	3.00	4.33		3.00
RUNOFF VOLUME (mm)=	80.45	24.12		39.16
TOTAL RAINFALL (mm)=	81.45	81.45		81.45
RUNOFF COEFFICIENT =	0.99	0.30		0.48

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (2101):	4.59	0.254	3.17	21.31
+ ID2= 2 (2102):	20.19	1.903	3.00	39.16
ID = 3 (2100):	24.78	2.086	3.00	35.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2100):	24.78	2.086	3.00	35.85
	+ ID2= 2 (2110):	2.00	0.115	3.42	31.40
	ID = 1 (2100):	26.78	2.141	3.00	35.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB / NASHYD (1101) / ID= 1 DT= 5.0 min				
	Area	(ha)=	19.63	Curve Number (CN)= 76.1
	Ia	(mm)=	6.10	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.56	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 1.212 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 36.600
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.449

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

CALIB / NASHYD (1110) / ID= 1 DT= 5.0 min				
	Area	(ha)=	2.00	Curve Number (CN)= 69.4
	Ia	(mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.49	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.115 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 31.402
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.386

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

CALIB / NASHYD (1102) / ID= 1 DT= 5.0 min				
	Area	(ha)=	2.91	Curve Number (CN)= 52.3
	Ia	(mm)=	10.00	# of Linear Res.(N)= 3.00

-------------------- U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.077 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 16.842
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.207

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

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (1101):	19.63	1.212	3.50	36.60
	+ ID2= 2 (1102):	2.91	0.077	3.58	16.84
	ID = 3 (1100):	22.54	1.288	3.50	34.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (1100):	22.54	1.288	3.50	34.05
	+ ID2= 2 (1110):	2.00	0.115	3.42	31.40
	ID = 1 (1100):	24.54	1.400	3.50	33.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1201) | ID= 1 DT= 5.0 min				
	Area (ha)=	2.24	Curve Number (CN)=	76.8
	Ia (mm)=	6.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.43		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.171 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 37.404
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.459

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

ADD HYD (0003)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (1100):	24.54	1.400	3.50	33.83
	+ ID2= 2 (1201):	2.24	0.171	3.33	37.40
	ID = 3 (0003):	26.78	1.559	3.50	34.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (3110) ID= 1 DT= 5.0 min				
	Area (ha)= 2.00	Curve Number (CN)= 69.4		
	Ia (mm)= 4.40	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.49			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.115 (i)

TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 31.402
TOTAL RAINFALL (mm)= 81.450
RUNOFF COEFFICIENT = 0.386

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min		
	Area (ha)= 20.19	
	Total Imp(%)= 26.70	Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.30	1.583	8.10	3.083	17.90	4.58	4.90
0.167	3.30	1.667	8.10	3.167	17.90	4.67	4.90
0.250	3.30	1.750	8.10	3.250	17.90	4.75	4.90
0.333	3.30	1.833	8.10	3.333	17.90	4.83	4.90
0.417	3.30	1.917	8.10	3.417	17.90	4.92	4.90
0.500	3.30	2.000	8.10	3.500	17.90	5.00	4.90
0.583	4.90	2.083	9.80	3.583	8.10	5.08	3.30
0.667	4.90	2.167	9.80	3.667	8.10	5.17	3.30
0.750	4.90	2.250	9.80	3.750	8.10	5.25	3.30
0.833	4.90	2.333	9.80	3.833	8.10	5.33	3.30
0.917	4.90	2.417	9.80	3.917	8.10	5.42	3.30
1.000	4.90	2.500	9.80	4.000	8.10	5.50	3.30
1.083	4.90	2.583	48.80	4.083	6.50	5.58	3.30
1.167	4.90	2.667	48.80	4.167	6.50	5.67	3.30
1.250	4.90	2.750	48.80	4.250	6.50	5.75	3.30
1.333	4.90	2.833	127.00	4.333	6.50	5.83	3.30
1.417	4.90	2.917	127.00	4.417	6.50	5.92	3.30
1.500	4.90	3.000	127.00	4.500	6.50	6.00	3.30

Max.Eff.Inten.(mm/hr)=	127.00	16.91	
over (min)	5.00	85.00	
Storage Coeff. (min)=	4.48 (ii)	82.82 (ii)	
Unit Hyd. Tpeak (min)=	5.00	85.00	
Unit Hyd. peak (cms)=	0.23	0.01	

```
                                                    *TOTALS*
     PEAK FLOW       (cms)=       1.86         0.32          1.903 (iii)
     TIME TO PEAK    (hrs)=       3.00         4.33           3.00
     RUNOFF VOLUME    (mm)=      80.45        24.12          39.16
     TOTAL RAINFALL   (mm)=      81.45        81.45          81.45
     RUNOFF COEFFICIENT   =       0.99         0.30           0.48

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  60.5    Ia = Dep. 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  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  3102):    20.19   1.903     3.00    39.16
     + ID2= 2 (  3110):     2.00   0.115     3.42    31.40
       ================================================
       ID = 3 (  0002):    22.19   1.958     3.00    38.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     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   |    0.1957      0.2251
                          0.0013      0.0393   |    0.3822      0.2598
                          0.0027      0.0724   |    0.6700      0.3036
                          0.0036      0.1059   |    1.0099      0.3478
                          0.0044      0.1480   |    1.3156      0.3836
                          0.0582      0.1907   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     22.190      1.958      3.00      38.46
   OUTFLOW: ID= 1 (  0001)     22.190      0.591      3.17      37.41

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 30.20
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2919

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

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--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.30 | 1.583    8.10 | 3.083   17.90 |  4.58    4.90
               0.167    3.30 | 1.667    8.10 | 3.167   17.90 |  4.67    4.90
               0.250    3.30 | 1.750    8.10 | 3.250   17.90 |  4.75    4.90
               0.333    3.30 | 1.833    8.10 | 3.333   17.90 |  4.83    4.90
               0.417    3.30 | 1.917    8.10 | 3.417   17.90 |  4.92    4.90
               0.500    3.30 | 2.000    8.10 | 3.500   17.90 |  5.00    4.90
               0.583    4.90 | 2.083    9.80 | 3.583    8.10 |  5.08    3.30
               0.667    4.90 | 2.167    9.80 | 3.667    8.10 |  5.17    3.30
               0.750    4.90 | 2.250    9.80 | 3.750    8.10 |  5.25    3.30
               0.833    4.90 | 2.333    9.80 | 3.833    8.10 |  5.33    3.30
               0.917    4.90 | 2.417    9.80 | 3.917    8.10 |  5.42    3.30
               1.000    4.90 | 2.500    9.80 | 4.000    8.10 |  5.50    3.30
               1.083    4.90 | 2.583   48.80 | 4.083    6.50 |  5.58    3.30
               1.167    4.90 | 2.667   48.80 | 4.167    6.50 |  5.67    3.30
               1.250    4.90 | 2.750   48.80 | 4.250    6.50 |  5.75    3.30
               1.333    4.90 | 2.833  127.00 | 4.333    6.50 |  5.83    3.30
               1.417    4.90 | 2.917  127.00 | 4.417    6.50 |  5.92    3.30
               1.500    4.90 | 3.000  127.00 | 4.500    6.50 |  6.00    3.30

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.254 (i)
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=  21.310
     TOTAL RAINFALL   (mm)=  81.450
     RUNOFF COEFFICIENT   =   0.262

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.591     3.17    37.41
     + ID2= 2 (  3101):     4.59   0.254     3.17    21.31
       ================================================
```

```
        ID = 3 (  3100):    26.78   0.845     3.17    34.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b84cc29
a-8b49-4541-99b1-62acd17169e6\scenari
  Summary filename:
C:\Users\ACai\AppData\Local\Civica\VH5\5ff0b908-2f8f-423d-a8e6-1139e7496029\b84cc29
a-8b49-4541-99b1-62acd17169e6\scenari


DATE: 01/07/2026                          TIME: 11:30:01

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : 06_100-Year_6 hour SCS        **
  ***********************************************
```

```
--------------------
|    READ STORM    |    Filename: C:\Users\ACai\AppD
|                  |              ata\Local\Temp\
|                  |              b05c3d3f-7381-4e60-ac07-667366527137\332e193a
| Ptotal= 89.93 mm |    Comments: 06_100-Year_6 hour SCS
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	3.60	1.50	9.00	3.00	19.80	4.50	5.40
0.25	3.60	1.75	9.00	3.25	19.80	4.75	5.40
0.50	5.40	2.00	10.80	3.50	9.00	5.00	3.60
0.75	5.40	2.25	10.80	3.75	9.00	5.25	3.60
1.00	5.40	2.50	53.90	4.00	7.20	5.50	3.60
1.25	5.40	2.75	140.20	4.25	7.20	5.75	3.60

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--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

```
    Unit Hyd Qpeak  (cms)=   0.156
```

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.412

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

CALIB					
NASHYD (2101)	Area (ha)=	4.59	Curve Number (CN)=	58.5	
ID= 1 DT= 5.0 min	Ia (mm)=	7.90	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.29			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.308 (i)
TIME TO PEAK (hrs)= 3.167
RUNOFF VOLUME (mm)= 25.647
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.285

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

CALIB					
STANDHYD (2102)	Area (ha)=	20.19			
ID= 1 DT= 5.0 min	Total Imp(%)=	26.70	Dir. Conn.(%)=	26.70	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Max.Eff.Inten.	(mm/hr)=	140.20	20.22	
over	(min)	5.00	80.00	
Storage Coeff.	(min)=	4.31 (ii)	77.24 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	80.00	
Unit Hyd. peak	(cms)=	0.23	0.01	
				TOTALS
PEAK FLOW	(cms)=	2.06	0.41	2.119 (iii)
TIME TO PEAK	(hrs)=	3.00	4.25	3.00
RUNOFF VOLUME	(mm)=	88.93	28.76	44.82
TOTAL RAINFALL	(mm)=	89.93	89.93	89.93
RUNOFF COEFFICIENT	=	0.99	0.32	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (2100)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (2101):		4.59	0.308	3.17	25.65
+ ID2= 2 (2102):		20.19	2.119	3.00	44.82
ID = 3 (2100):		24.78	2.343	3.00	41.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2100)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2100):		24.78	2.343	3.00	41.27
+ ID2= 2 (2110):		2.00	0.136	3.42	37.03
ID = 1 (2100):		26.78	2.410	3.00	40.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (1101)	Area	(ha)=	19.63	Curve Number	(CN)= 76.1
ID= 1 DT= 5.0 min	Ia	(mm)=	6.10	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.56		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 1.339

PEAK FLOW (cms)= 1.428 (i)
TIME TO PEAK (hrs)= 3.500
RUNOFF VOLUME (mm)= 42.950
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.478

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

CALIB					
NASHYD (1110)	Area	(ha)=	2.00	Curve Number	(CN)= 69.4
ID= 1 DT= 5.0 min	Ia	(mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.49		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60

1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.412

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

CALIB NASHYD (1102) ID= 1 DT= 5.0 min	Area (ha)= 2.91 Curve Number (CN)= 52.3 Ia (mm)= 10.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.094 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 20.501
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.228

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

ADD HYD (1100) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1101):	19.63	1.428	3.50	42.95
+ ID2= 2 (1102):	2.91	0.094	3.58	20.50
ID = 3 (1100):	22.54	1.521	3.50	40.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (1100) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1100):	22.54	1.521	3.50	40.05
+ ID2= 2 (1110):	2.00	0.136	3.42	37.03
ID = 1 (1100):	24.54	1.654	3.50	39.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (1201) ID= 1 DT= 5.0 min	Area (ha)= 2.24 Curve Number (CN)= 76.8 Ia (mm)= 6.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40

0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.201 (i)
TIME TO PEAK (hrs)= 3.333
RUNOFF VOLUME (mm)= 43.838
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.487

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

ADD HYD (0003)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (1100):	24.54	1.654	3.50	39.81
+	ID2= 2 (1201):	2.24	0.201	3.33	43.84
	ID = 3 (0003):	26.78	1.840	3.50	40.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (3110) ID= 1 DT= 5.0 min				
	Area	(ha)=	2.00	Curve Number (CN)= 69.4
	Ia	(mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.49	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 3.417
RUNOFF VOLUME (mm)= 37.029
TOTAL RAINFALL (mm)= 89.925
RUNOFF COEFFICIENT = 0.412

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

CALIB STANDHYD (3102) ID= 1 DT= 5.0 min				
	Area	(ha)=	20.19	
	Total Imp(%)=		26.70	Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40

0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60
1.417	5.40	2.917	140.20	4.417	7.20	5.92	3.60
1.500	5.40	3.000	140.20	4.500	7.20	6.00	3.60

			TOTALS
Max.Eff.Inten.(mm/hr)=	140.20	20.22	
over (min)	5.00	80.00	
Storage Coeff. (min)=	4.31 (ii)	77.24 (ii)	
Unit Hyd. Tpeak (min)=	5.00	80.00	
Unit Hyd. peak (cms)=	0.23	0.01	
PEAK FLOW (cms)=	2.06	0.41	2.119 (iii)
TIME TO PEAK (hrs)=	3.00	4.25	3.00
RUNOFF VOLUME (mm)=	88.93	28.76	44.82
TOTAL RAINFALL (mm)=	89.93	89.93	89.93
RUNOFF COEFFICIENT =	0.99	0.32	0.50

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 60.5 Ia = Dep. 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 (0002)		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
1 + 2 = 3	ID1= 1 (3102):	20.19	2.119	3.00	44.82
	+ ID2= 2 (3110):	2.00	0.136	3.42	37.03
	ID = 3 (0002):	22.19	2.185	3.00	44.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0001) / IN= 2---> OUT= 1 / DT= 5.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1957	0.2251
	0.0013	0.0393	0.3822	0.2598
	0.0027	0.0724	0.6700	0.3036
	0.0036	0.1059	1.0099	0.3478
	0.0044	0.1480	1.3156	0.3836
	0.0582	0.1907	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	22.190	2.185	3.00	44.12
OUTFLOW: ID= 1 (0001)	22.190	0.754	3.17	43.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 34.49
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.3155

CALIB / NASHYD (3101) / ID= 1 DT= 5.0 min				
	Area (ha)=	4.59	Curve Number (CN)=	58.5
	Ia (mm)=	7.90	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.29		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.60	1.583	9.00	3.083	19.80	4.58	5.40
0.167	3.60	1.667	9.00	3.167	19.80	4.67	5.40
0.250	3.60	1.750	9.00	3.250	19.80	4.75	5.40
0.333	3.60	1.833	9.00	3.333	19.80	4.83	5.40
0.417	3.60	1.917	9.00	3.417	19.80	4.92	5.40
0.500	3.60	2.000	9.00	3.500	19.80	5.00	5.40
0.583	5.40	2.083	10.80	3.583	9.00	5.08	3.60
0.667	5.40	2.167	10.80	3.667	9.00	5.17	3.60
0.750	5.40	2.250	10.80	3.750	9.00	5.25	3.60
0.833	5.40	2.333	10.80	3.833	9.00	5.33	3.60
0.917	5.40	2.417	10.80	3.917	9.00	5.42	3.60
1.000	5.40	2.500	10.80	4.000	9.00	5.50	3.60
1.083	5.40	2.583	53.90	4.083	7.20	5.58	3.60
1.167	5.40	2.667	53.90	4.167	7.20	5.67	3.60
1.250	5.40	2.750	53.90	4.250	7.20	5.75	3.60
1.333	5.40	2.833	140.20	4.333	7.20	5.83	3.60

```
                1.417    5.40 | 2.917  140.20 | 4.417    7.20 |  5.92    3.60
                1.500    5.40 | 3.000  140.20 | 4.500    7.20 |  6.00    3.60

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.308 (i)
     TIME TO PEAK    (hrs)=   3.167
     RUNOFF VOLUME    (mm)=  25.647
     TOTAL RAINFALL   (mm)=  89.925
     RUNOFF COEFFICIENT   =   0.285

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

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--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0001):    22.19   0.754     3.17    43.07
      + ID2= 2 (  3101):     4.59   0.308     3.17    25.65
        ====================================================
        ID = 3 (  3100):    26.78   1.061     3.17    40.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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================================================================================
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       V    V   I    SSSSS  U   U    A    L             (v 6.2.2017)
       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:
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DATE: 01/07/2026                          TIME: 11:30:01

USER:


COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : 07_25mm, 4 Hour Chicago       **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 405.000
| Ptotal= 24.91 mm |                          B=   3.000
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.76 |  1.00   11.75 |  2.00    3.88 |  3.00    2.07
                0.17    2.00 |  1.17   57.66 |  2.17    3.35 |  3.17    1.93
                0.33    2.32 |  1.33   15.20 |  2.33    2.96 |  3.33    1.81
                0.50    2.81 |  1.50    8.31 |  2.50    2.66 |  3.50    1.71
                0.67    3.61 |  1.67    5.91 |  2.67    2.42 |  3.67    1.62
                0.83    5.28 |  1.83    4.66 |  2.83    2.23 |  3.83    1.54


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--------------------
| CALIB            |
| NASHYD   (  2110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 3.173
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.127

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

CALIB	NASHYD (2101)	ID= 1 DT= 5.0 min

Area (ha)= 4.59 Curve Number (CN)= 58.5
Ia (mm)= 7.90 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.29

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.605

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 1.750
RUNOFF VOLUME (mm)= 1.466
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.059

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

CALIB	STANDHYD (2102)	ID= 1 DT= 5.0 min

Area (ha)= 20.19
Total Imp(%)= 26.70 Dir. Conn.(%)= 26.70

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	5.39	14.80
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.50	1.50
Length	(m)=	366.88	585.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Max.Eff.Inten.(mm/hr)=	57.66	1.38	
over (min)	5.00	220.00	
Storage Coeff. (min)=	6.15 (ii)	219.36 (ii)	
Unit Hyd. Tpeak (min)=	5.00	220.00	

```
     Unit Hyd. peak  (cms)=       0.19         0.01
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.72         0.01          0.724 (iii)
     TIME TO PEAK    (hrs)=       1.33         5.42           1.33
     RUNOFF VOLUME    (mm)=      23.91         2.13           7.94
     TOTAL RAINFALL   (mm)=      24.91        24.91          24.91
     RUNOFF COEFFICIENT   =       0.96         0.09           0.32


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  60.5    Ia = Dep. 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  (  2100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  2101):     4.59   0.012     1.75     1.47
     + ID2= 2 (  2102):    20.19   0.724     1.33     7.94
       ================================================
       ID = 3 (  2100):    24.78   0.726     1.33     6.74

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

--------------------
| ADD HYD  (  2100)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  2100):    24.78   0.726     1.33     6.74
     + ID2= 2 (  2110):     2.00   0.010     2.00     3.17
       ================================================
       ID = 1 (  2100):    26.78   0.728     1.33     6.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1101)|   Area    (ha)=  19.63   Curve Number   (CN)= 76.1
|ID= 1 DT= 5.0 min |   Ia      (mm)=   6.10   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.56

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


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

```
     Unit Hyd Qpeak  (cms)=   1.339

     PEAK FLOW       (cms)=   0.095 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=   3.588
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.144

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

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--------------------
| CALIB            |
| NASHYD   (  1110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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


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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.156

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 2.000
RUNOFF VOLUME (mm)= 3.173
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.127

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

| CALIB | NASHYD (1102) | ID= 1 DT= 5.0 min |

Area (ha)= 2.91 Curve Number (CN)= 52.3
Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.58

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 2.417
RUNOFF VOLUME (mm)= 0.901
TOTAL RAINFALL (mm)= 24.906
RUNOFF COEFFICIENT = 0.036

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

| ADD HYD (1100) | 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (1101):	19.63	0.095	2.08	3.59
+ ID2= 2 (1102):	2.91	0.003	2.42	0.90
ID = 3 (1100):	22.54	0.098	2.08	3.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (1100) | 3 + 2 = 1 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (1100):	22.54	0.098	2.08	3.24
+ ID2= 2 (1110):	2.00	0.010	2.00	3.17
ID = 1 (1100):	24.54	0.107	2.08	3.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | NASHYD (1201) | ID= 1 DT= 5.0 min |

Area (ha)= 2.24 Curve Number (CN)= 76.8
Ia (mm)= 6.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.76	1.083	11.75	2.083	3.88	3.08	2.07
0.167	1.76	1.167	11.75	2.167	3.88	3.17	2.07
0.250	2.00	1.250	57.66	2.250	3.35	3.25	1.93
0.333	2.00	1.333	57.66	2.333	3.35	3.33	1.93
0.417	2.32	1.417	15.20	2.417	2.96	3.42	1.81
0.500	2.32	1.500	15.20	2.500	2.96	3.50	1.81
0.583	2.81	1.583	8.31	2.583	2.66	3.58	1.71
0.667	2.81	1.667	8.31	2.667	2.66	3.67	1.71
0.750	3.61	1.750	5.91	2.750	2.42	3.75	1.62
0.833	3.61	1.833	5.91	2.833	2.42	3.83	1.62
0.917	5.28	1.917	4.66	2.917	2.23	3.92	1.54
1.000	5.28	2.000	4.66	3.000	2.23	4.00	1.54

Unit Hyd Qpeak (cms)= 0.199

PEAK FLOW (cms)= 0.013 (i)

```
     TIME TO PEAK    (hrs)=   1.917
     RUNOFF VOLUME    (mm)=   3.737
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.150

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

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  1100):    24.54   0.107     2.08     3.24
     + ID2= 2 (  1201):     2.24   0.013     1.92     3.74
       ================================================
       ID = 3 (  0003):    26.78   0.120     2.08     3.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3110)|   Area    (ha)=   2.00   Curve Number   (CN)= 69.4
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.49

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.76 | 1.083   11.75 | 2.083    3.88 |  3.08    2.07
              0.167    1.76 | 1.167   11.75 | 2.167    3.88 |  3.17    2.07
              0.250    2.00 | 1.250   57.66 | 2.250    3.35 |  3.25    1.93
              0.333    2.00 | 1.333   57.66 | 2.333    3.35 |  3.33    1.93
              0.417    2.32 | 1.417   15.20 | 2.417    2.96 |  3.42    1.81
              0.500    2.32 | 1.500   15.20 | 2.500    2.96 |  3.50    1.81
              0.583    2.81 | 1.583    8.31 | 2.583    2.66 |  3.58    1.71
              0.667    2.81 | 1.667    8.31 | 2.667    2.66 |  3.67    1.71
              0.750    3.61 | 1.750    5.91 | 2.750    2.42 |  3.75    1.62
              0.833    3.61 | 1.833    5.91 | 2.833    2.42 |  3.83    1.62
              0.917    5.28 | 1.917    4.66 | 2.917    2.23 |  3.92    1.54
              1.000    5.28 | 2.000    4.66 | 3.000    2.23 |  4.00    1.54

     Unit Hyd Qpeak  (cms)=   0.156

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   2.000
     RUNOFF VOLUME    (mm)=   3.173
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.127

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  3102)|   Area    (ha)=  20.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  26.70   Dir. Conn.(%)=  26.70
--------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       5.39        14.80
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.50         1.50
     Length            (m)=     366.88       585.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.76 | 1.083   11.75 | 2.083    3.88 |  3.08    2.07
              0.167    1.76 | 1.167   11.75 | 2.167    3.88 |  3.17    2.07
              0.250    2.00 | 1.250   57.66 | 2.250    3.35 |  3.25    1.93
              0.333    2.00 | 1.333   57.66 | 2.333    3.35 |  3.33    1.93
              0.417    2.32 | 1.417   15.20 | 2.417    2.96 |  3.42    1.81
              0.500    2.32 | 1.500   15.20 | 2.500    2.96 |  3.50    1.81
              0.583    2.81 | 1.583    8.31 | 2.583    2.66 |  3.58    1.71
              0.667    2.81 | 1.667    8.31 | 2.667    2.66 |  3.67    1.71
              0.750    3.61 | 1.750    5.91 | 2.750    2.42 |  3.75    1.62
              0.833    3.61 | 1.833    5.91 | 2.833    2.42 |  3.83    1.62
              0.917    5.28 | 1.917    4.66 | 2.917    2.23 |  3.92    1.54
              1.000    5.28 | 2.000    4.66 | 3.000    2.23 |  4.00    1.54

     Max.Eff.Inten.(mm/hr)=      57.66         1.38
               over (min)        5.00       220.00
     Storage Coeff.  (min)=      6.15 (ii)  219.36 (ii)
     Unit Hyd. Tpeak (min)=      5.00       220.00
     Unit Hyd. peak  (cms)=      0.19         0.01
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.72         0.01        0.724 (iii)
     TIME TO PEAK    (hrs)=      1.33         5.42         1.33
     RUNOFF VOLUME    (mm)=     23.91         2.13         7.94
     TOTAL RAINFALL   (mm)=     24.91        24.91        24.91
     RUNOFF COEFFICIENT   =      0.96         0.09         0.32
```

```
       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  60.5    Ia = Dep. 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  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  3102):    20.19   0.724     1.33     7.94
     + ID2= 2 (  3110):     2.00   0.010     2.00     3.17
       ================================================
       ID = 3 (  0002):    22.19   0.725     1.33     7.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0001)|     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   |    0.1957      0.2251
                          0.0013      0.0393   |    0.3822      0.2598
                          0.0027      0.0724   |    0.6700      0.3036
                          0.0036      0.1059   |    1.0099      0.3478
                          0.0044      0.1480   |    1.3156      0.3836
                          0.0582      0.1907   |    0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     22.190      0.725      1.33       7.51
   OUTFLOW: ID= 1 (  0001)     22.190      0.004     10.42       6.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.61
                  TIME SHIFT OF PEAK FLOW         (min)=545.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.1474

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  3101)|   Area    (ha)=   4.59   Curve Number   (CN)= 58.5
|ID= 1 DT= 5.0 min |   Ia      (mm)=   7.90   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

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

```
                    ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    1.76 | 1.083   11.75 | 2.083    3.88 |  3.08    2.07
 0.167    1.76 | 1.167   11.75 | 2.167    3.88 |  3.17    2.07
 0.250    2.00 | 1.250   57.66 | 2.250    3.35 |  3.25    1.93
 0.333    2.00 | 1.333   57.66 | 2.333    3.35 |  3.33    1.93
 0.417    2.32 | 1.417   15.20 | 2.417    2.96 |  3.42    1.81
 0.500    2.32 | 1.500   15.20 | 2.500    2.96 |  3.50    1.81
 0.583    2.81 | 1.583    8.31 | 2.583    2.66 |  3.58    1.71
 0.667    2.81 | 1.667    8.31 | 2.667    2.66 |  3.67    1.71
 0.750    3.61 | 1.750    5.91 | 2.750    2.42 |  3.75    1.62
 0.833    3.61 | 1.833    5.91 | 2.833    2.42 |  3.83    1.62
 0.917    5.28 | 1.917    4.66 | 2.917    2.23 |  3.92    1.54
 1.000    5.28 | 2.000    4.66 | 3.000    2.23 |  4.00    1.54

     Unit Hyd Qpeak  (cms)=   0.605

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   1.750
     RUNOFF VOLUME    (mm)=   1.466
     TOTAL RAINFALL   (mm)=  24.906
     RUNOFF COEFFICIENT   =   0.059

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

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

--------------------
| ADD HYD  (  3100)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0001):    22.19   0.004    10.42     6.49
     + ID2= 2 (  3101):     4.59   0.012     1.75     1.47
       ================================================
       ID = 3 (  3100):    26.78   0.015     1.75     5.63

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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 FINISH
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Appendix D

Water Balance Analysis

Water Balance Calculations for Existing Conditions

WILLS

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC/CP
Date: 8-Jan-26

Catchment Parameters	EX-101	WL-102	EX-201									**Total**
Drainage Area (m^2)	196300	29100	22400									**247800**
Pervious Area (m^2)	194300	29100	22400									**245800**
Impervious Area (m^2)	2000	0	0									**2000**
Evapotranspiration Factors												
Pervious PET Ratio												
Impervious Evapotranspiration[3]												
Infiltration Factors												
Topography Infiltration Factor												
Soil Infiltration Factor												
Land Cover Infiltration Factor												
MOE Infiltration Factor												
Actual Infiltration Factor												
Run-Off Coefficient												
Runoff from Impervious Surfaces												
Inputs (mm/yr)												
Precipitation	852.9	852.9	852.9									**852.9**
Run-On												**0.0**
Other Inputs												**0.0**
Total Inputs	852.9	852.9	852.9									**852.9**
Outputs (mm/yr)												
Precipitation Surplus	497.7	480.8	500.9									**496.0**
Net Surplus	497.7	480.8	500.9									**496.0**
Evapotranspiration	355.2	372.1	352.0									**356.9**
Infiltration	315.0	353.2	311.6									**319.2**
Infiltration Features[4]	0.0	0.0	0.0									
Total Infiltration	**315.0**	**353.2**	**311.6**									**319.2**
Runoff Pervious Areas												**0.0**
Runoff Impervious Areas												**0.0**
Total Unadjusted Runoff	179.1	117.5	186.0									**172.5**
Total Adjusted Runoff[5]	**179.1**	**117.5**	**186.0**									**172.5**
Total Outputs	**849.4**	**842.8**	**849.6**									**848.6**
Inputs (m^3/yr)												
Precipitation	167,425	24,820	19,105									**211,350**
Run-On												
Other Inputs												
Total Inputs	**167,425**	**24,820**	**19,105**									**211,350**
Outputs (m^3/yr)												
Precipitation Surplus	97,697	13,991	11,220									**122,909**
Net Surplus	97,697	13,991	11,220									**122,909**
Evapotranspiration	69,727	10,828	7,886									**88,441**
Infiltration	61,844	10,278	6,979									**79,101**
Infiltration Features[4]	0	0	0									**0**
Total Infiltration	61,844	10,278	6,979									**79,100**
Runoff Pervious Areas												
Runoff Impervious Areas												
Total Unadjusted Runoff	35,167	3,421	4,168									**42,756**
Total Adjusted Runoff[5]	35,167	3,421	4,168									**42,756**
Total Outputs	**166,738**	**24,527**	**19,033**									**210,297**

Notes:

1. Water Balance Calculations area in based on methodology described in the Conservation Authority Guidelines for Hydrogeological Assessments (June 2013)
2. Precipitation, Evaporation, Infiltration and Runoff Volumes were determined using Visual Otthymo Version 6.2 Continuous Modelling

Water Balance Calculations for Proposed Conditions

WILLS

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC/CP
Date: 8-Jan-26

Catchment Parameters	WB-101	WB-102	WB-103	WB-104	WB-105							**Total**
Drainage Area (m^2)	12500	139000	17200	50000	29100							**247800**
Pervious Area (m^2)	0	128714	6880	25000	0							**160594**
Impervious Area (m^2)	12500	10286	10320	25000	29100							**87206**
Evapotranspiration Factors												
Pervious PET Ratio												
Impervious Evapotranspiration[3]												
Infiltration Factors												
Topography Infiltration Factor												
Soil Infiltration Factor												
Land Cover Infiltration Factor												
MOE Infiltration Factor												
Actual Infiltration Factor												
Run-Off Coefficient												
Runoff from Impervious Surfaces												
Inputs (mm/yr)												
Precipitation	852.9	852.9	852.9	852.9	852.9							**852.9**
Run-On												
Other Inputs												
Total Inputs	852.9	852.9	852.9	852.9	852.9							**852.9**
Outputs (mm/yr)												
Precipitation Surplus	811.1	482.3	679.5	646.5	480.8							**545.5**
Net Surplus												**0.0**
Evapotranspiration	41.8	370.6	173.4	206.4	372.1							**307.4**
Infiltration	0.0	347.6	143.4	179.3	353.2							**282.6**
Infiltration Features[4]	759.8	53.9	223.0	0.0	0.0							**84.1**
Total Infiltration	**759.8**	**401.6**	**366.4**	**179.3**	**353.2**							**366.7**
Runoff Pervious Areas												
Runoff Impervious Areas												
Total Unadjusted Runoff	811.1	128.6	533.2	463.8	117.5							**257.5**
Total Adjusted Runoff[5]	51.3	74.7	310.3	463.8	202.0							**183.3**
Total Outputs	**852.9**	**846.9**	**850.1**	**849.4**	**927.3**							**857.4**
Inputs (m^3/yr)												
Precipitation	10,662	118,554	14,670	42,645	24,819							**211,350**
Run-On												
Other Inputs												
Total Inputs	**10,662**	**118,554**	**14,670**	**42,645**	**24,819**							**211,350**
Outputs (m^3/yr)												
Precipitation Surplus	10,139	67,040	11,686	32,326	13,991							**135,182**
Net Surplus	10,139	67,040	11,686	32,326	13,991							**135,182**
Evapotranspiration	523	51,514	2,984	10,319	10,828							**76,168**
Infiltration	0	48,321	2,467	8,964	10,278							**70,030**
Infiltration Features[4]	9,498	7,499	3,835	0	0							**20,832**
Total Infiltration	9,498	55,820	6,302	8,964	10,278							**90,861**
Runoff Pervious Areas												
Runoff Impervious Areas												
Total Unadjusted Runoff	10,139	17,882	9,172	23,190	5,878							**66,261**
Total Adjusted Runoff[5]	641	10,383	5,337	23,190	5,878							**45,429**
Total Outputs	**10,662**	**117,717**	**14,623**	**42,473**	**26,984**							**212,459**

Notes:

1. Water Balance Calculations area in based on methodology described in the Conservation Authority Guidelines for Hydrogeological Assessments (June 2013)
2. Precipitation, Evaporation, Infiltration and Runoff Volumes were determined using Visual Otthymo Version 6.2 Continuous Modelling
3. Residential Lots include infiltration trenches to capture rooftop runoff and infiltration basins to capture surface runoff.
4. Commercial Block includes infiltration basin to capture surface runoff.
5. No infiltration is assumed to occur from infiltration basins during months with average temperatures below freezing.
6. Total Adjusted Runoff is calculated as (Pervious Runoff + Impervious Runoff) - (Infiltration Features)

Water Balance Assessment

Sheet 3 of 3

WILLS

Project No: 85162
Project Name: 3491 Wallace Point Road
Designed/Checked By: SC/CP
Date: 8-Jan-26

Characteristic	Existing	Proposed No Mitigation	Change	Proposed With Mitigation	Change
Inputs (m^3/yr)					
Precipitation	211,350	211,350	0.0%	211,350	0.0%
Run-On					
Other Inputs					
Total Inputs	211,350	211,350	0.0%	211,350	0.0%
Outputs (m^3/yr)					
Precipitation Surplus	122,909	135,182	0.0%	135,182	0.0%
Net Surplus	34,468	59,014	0.0%	59,014	0.0%
Evapotranspiration	88,441	76,168	-13.9%	76,168	-13.9%
Infiltration	79,101	70,030	-11.5%	90,861	14.9%
Infiltration Features	0	0	0.0%	20,832	-
Total Infiltration	**79,100**	**70,030**	**-11.5%**	**90,861**	**14.9%**
Runoff Pervious Areas					
Runoff Impervious Areas					
Total Runoff	**42,756**	**66,261**	**55.0%**	**45,429**	**6.3%**
Total Outputs	210,297	212,459	1.0%	212,459	1.0%

Nitrate Dilution Calculations

	Residential	Commercial	Combined
Total Dilution Area (ha)	23.06	1.72	
No. of Lots	50	1	
Sewage Flow per Lot (L/day)	1000	4495	
Total Daily Sewage Loading (L/day)	50,000	4,495	
Nitrate in Septic Effluent (mg/L)	40	40	
Background Nitrates (mg/L)	3.04	3.04	
Stormwater Effluent Nitrates (mg/L)	0	0	
Infiltration Rates			
Infiltration Rate (Clean Water) (mm/year)	293.0	143.4	
Infiltration Rate (Clean Water) (L/day)	185,103	6,759	
Infiltration Rate (Stormwater) (mm/year)	73.7	223.0	
Infiltration Rate (Stormwater) (L/day)	46,565	10,508	
Nitrate Concentrations			
Nitrate Loading - Development (mg/day)	2,000,000	179,800	
Nitrate Loading - Rainfall (mg/day)	562,712	20,547	
Nitrate Loading - Runoff (mg/day)	0	0	
Total Nitrate Loading (mg/day)	2,562,712	200,347	
Dilution - Development (L/day)	50,000	4,495	
Dilution - Groundwater Recharge (L/day)	231,668	17,267	
Total Dilution (L/day)	281,668	21,762	
Boundary Nitrate Concentration (mg/L)	**9.10**	**9.21**	

Water Balance Summary (Existing Condition)

Area (ha) 24.78

Year	Precipitation (mm)	Rainfall (mm)	Evapo-Transpiration (mm)	Ground Water Infiltration (mm)	Runoff (mm)
1981	881.8	881.8	346.1	200.7	193.1
1982	897.1	897.1	362.2	376.4	156.5
1983	894.5	894.5	386.0	344.4	164.1
1984	833.5	833.5	375.5	310.0	148.5
1985	1028.4	1028.4	360.7	431.8	241.8
1986	897.0	897.0	338.7	370.0	185.6
1987	731.9	731.9	408.2	223.5	101.5
1988	687.0	687.0	310.8	263.3	110.0
1989	773.6	773.6	360.3	262.2	156.1
1990	1006.0	1006.0	362.6	404.8	222.5
1991	720.8	720.8	321.9	283.8	128.0
1992	909.0	909.0	300.8	405.3	199.8
1993	781.3	781.3	337.7	317.0	137.4
1994	693.4	693.4	355.1	235.4	104.2
1995	1065.2	1065.2	398.2	383.8	282.3
1996	952.1	952.1	352.1	369.7	214.4
1997	727.1	727.1	345.6	289.7	112.5
1998	806.2	806.2	423.1	221.7	153.8
1999	828.7	828.7	428.0	246.2	153.2
2000	897.0	897.0	341.2	350.9	196.2
2001	708.4	708.4	334.2	255.9	122.6
2002	869.1	869.1	369.3	343.4	171.6
2003	886.7	886.7	369.7	332.5	163.3
2004	1004.1	1004.1	351.3	397.4	259.8
2005	759.5	759.5	376.9	250.5	125.8
2006	950.9	950.9	387.3	366.9	202.7
2007	651.0	651.0	362.6	198.8	87.5
2008	1156.5	1156.5	262.3	537.3	352.4
2009	933.5	933.5	290.6	412.6	234.6
2010	655.7	655.7	387.9	190.5	94.4
Avg	**852.9**	**852.9**	**356.9**	**319.2**	**172.5**
Volume	**211,349**	**211,349**	**88,441**	**79,100**	**42,755**

Water Balance Summary (Proposed Condition)

Area (ha)	24.78	Imperviousness	35%		
Year	Precipitation (mm)	Snowmelt (mm)	Evapo-Transpiration (mm)	Ground Water Infiltration (mm)	Runoff (mm)
1981	881.8	0.0	288.5	141.7	170.2
1982	897.1	0.0	300.6	335.0	138.0
1983	894.5	0.0	335.8	300.7	146.9
1984	833.5	0.0	311.1	285.4	132.7
1985	1028.4	0.0	299.3	400.7	207.3
1986	897.0	0.0	281.7	337.9	157.2
1987	731.9	0.0	338.4	203.0	100.8
1988	687.0	0.0	315.2	192.3	92.1
1989	773.6	0.0	333.2	216.6	133.0
1990	1006.0	0.0	300.8	365.3	184.4
1991	720.8	0.0	323.7	228.0	107.8
1992	909.0	0.0	251.1	356.5	166.4
1993	781.3	0.0	281.6	291.0	123.5
1994	693.4	0.0	296.3	212.7	101.0
1995	1065.2	0.0	329.8	361.2	254.0
1996	952.1	0.0	290.9	339.8	172.9
1997	727.1	0.0	292.6	265.9	104.9
1998	806.2	0.0	356.0	200.9	146.7
1999	828.7	0.0	356.3	224.2	142.8
2000	897.0	0.0	283.2	322.2	172.5
2001	708.4	0.0	322.1	198.1	106.4
2002	869.1	0.0	330.6	299.0	154.6
2003	886.7	0.0	307.3	291.0	134.6
2004	1004.1	0.0	291.7	371.0	230.7
2005	759.5	0.0	369.3	184.0	112.8
2006	950.9	0.0	322.5	336.0	176.3
2007	651.0	0.0	330.8	158.3	85.6
2008	1156.5	0.0	219.0	492.6	269.3
2009	933.5	0.0	243.0	385.3	193.4
2010	655.7	0.0	321.0	184.7	90.8
Avg	**852.9**	**0.0**	**307.4**	**282.7**	**150.3**
Volume	**211,349**	**0**	**76,186**	**70,049**	**37,251**
Adj Volume*	**211,349**	**0**	**76,186**	**70,049**	**37,251**

Water Balance Summary - Underground Storage (WB-101-Building Only)

Area (ha)	1.25	Imperviousness	100%		
Year	Precipitation (mm)	Snowmelt (mm)	Evapo-Transpiration (mm)	Ground Water Infiltration (mm)	Runoff (mm)
1981	881.8	0.0	46.4	0.0	834.4
1982	897.1	0.0	41.5	0.0	855.6
1983	894.5	0.0	45.6	0.0	848.9
1984	833.5	0.0	40.0	0.0	793.5
1985	1028.4	0.0	42.1	0.0	986.3
1986	897.0	0.0	42.8	0.0	854.3
1987	731.9	0.0	42.4	0.0	689.4
1988	687.0	0.0	38.8	0.0	648.2
1989	773.6	0.0	32.7	0.0	740.9
1990	1006.0	0.0	42.3	0.0	963.7
1991	720.8	0.0	40.2	0.0	680.6
1992	909.0	0.0	42.9	0.0	866.1
1993	781.3	0.0	46.8	0.0	734.5
1994	693.4	0.0	45.9	0.0	647.5
1995	1065.2	0.0	41.8	0.0	1023.4
1996	952.1	0.0	34.7	0.0	917.4
1997	727.1	0.0	42.4	0.0	684.7
1998	806.2	0.0	44.9	0.0	761.3
1999	828.7	0.0	42.7	0.0	786.0
2000	897.0	0.0	40.4	0.0	856.6
2001	708.4	0.0	41.8	0.0	666.6
2002	869.1	0.0	39.8	0.0	829.3
2003	886.7	0.0	39.8	0.0	847.1
2004	1004.1	0.0	42.3	0.0	961.6
2005	759.5	0.0	42.7	0.0	716.8
2006	950.9	0.0	47.9	0.0	903.0
2007	651.0	0.0	40.6	0.0	610.4
2008	1156.5	0.0	37.9	0.0	1118.6
2009	933.5	0.0	43.8	0.0	889.7
2010	655.7	0.0	39.7	0.0	616.0
Avg	**852.9**	**0.0**	**41.8**	**0.0**	**811.1**
Volume	**10,662**	**0**	**523**	**0**	**10,139**
Adj Volume*	**10,662**	**0**	**523**	**9,498**	**641**

Monthly Infiltration Feature Summary (WB-101-Building Only)							
Year	**LID Inflow (m^3)**	**INFIL (m^3)**	**LID Evapo-Transpiration (m^3)**	**LID Outflow (m^3)**	**LID Overflow (m^3)**	**LID Underdrain Flow (m^3)**	**LID Storage Change (m^3)**
Jan	697.0	675.3	0.0	0.0	15.0	0.0	6.7
Feb	625.4	606.3	0.0	0.0	23.5	0.0	-4.4
Mar	692.4	673.6	0.0	0.0	10.7	0.0	8.2
Apr	791.8	785.6	0.0	0.0	10.4	0.0	-4.2
May	969.5	881.6	0.0	0.0	72.5	0.0	15.3
Jun	968.5	874.4	0.0	0.0	112.9	0.0	-18.8
Jul	849.6	725.0	0.0	0.0	104.8	0.0	19.9
Aug	913.1	814.0	0.0	0.0	104.9	0.0	-5.8
Sep	953.9	881.2	0.0	0.0	71.3	0.0	1.3
Oct	836.6	815.1	0.0	0.0	38.6	0.0	-17.1
Nov	1011.9	952.5	0.0	0.0	49.6	0.0	9.8
Dec	828.8	813.2	0.0	0.0	26.6	0.0	-10.9
Avg	**844.9**	**791.5**	**0.0**	**0.0**	**53.4**	0.0	0.0
Total	**10138.5**	**9497.8**	**0.0**	**0.0**	**640.7**	0.0	0.0

Average Annual Totals (Not Adjusted for Months with Temperature Below Zero)					
m^3/year	10138.5	9497.8	0.0	0.0	640.7
mm/yr	811.1	759.8	0.0	0.0	51.3
Capture Efficiency					93.7%

Water Balance Summary - Aboveground Storage (WB-102-No Bldg)

Area (ha)	13.90	Imperviousness	7%		
Year	Precipitation (mm)	Snowmelt (mm)	Evapo-Transpiration (mm)	Ground Water Infiltration (mm)	Runoff (mm)
1981	881.8	0.0	346.1	189.8	144.9
1982	897.1	0.0	362.3	412.7	115.5
1983	894.5	0.0	404.9	369.9	120.1
1984	833.5	0.0	375.6	349.8	111.4
1985	1028.4	0.0	360.6	492.5	182.1
1986	897.0	0.0	338.6	415.3	137.5
1987	731.9	0.0	408.8	248.8	76.1
1988	687.0	0.0	380.3	236.1	71.2
1989	773.6	0.0	404.6	266.0	111.0
1990	1006.0	0.0	362.4	450.1	164.7
1991	720.8	0.0	390.3	278.7	87.9
1992	909.0	0.0	300.7	439.9	148.2
1993	781.3	0.0	337.6	357.0	101.7
1994	693.4	0.0	355.9	260.9	79.0
1995	1065.2	0.0	398.4	443.9	219.0
1996	952.1	0.0	351.9	416.4	162.9
1997	727.1	0.0	352.2	325.5	82.6
1998	806.2	0.0	430.0	246.0	119.7
1999	828.7	0.0	430.9	275.5	116.6
2000	897.0	0.0	341.0	394.9	149.5
2001	708.4	0.0	388.7	242.9	83.8
2002	869.1	0.0	399.8	366.3	129.2
2003	886.7	0.0	371.0	359.0	120.8
2004	1004.1	0.0	351.1	454.2	205.5
2005	759.5	0.0	446.1	225.8	83.5
2006	950.9	0.0	387.9	413.5	153.9
2007	651.0	0.0	399.9	193.2	61.2
2008	1156.5	0.0	262.2	607.4	269.8
2009	933.5	0.0	290.4	472.2	179.1
2010	655.7	0.0	388.0	224.7	71.1
Avg	**852.9**	**0.0**	**370.6**	**347.6**	**128.6**
Volume	**118,554**	**0**	**51,514**	**48,321**	**17,882**
Adj Volume*	**118,554**	**0**	**51,514**	**55,820**	**10,383**

Monthly Infiltration Feature Summary (WB-102-No Bldg)							
Year	LID Inflow (m^3)	INFIL (m^3)	LID Evapo-Transpiratio (m^3)	LID Outflow (m^3)	LID Overflow (m^3)	LID Underdr (m^3)	LID Storage (m^3)
Jan	1216.8	845.5	0.0	0.0	356.5	0	14.869
Feb	1265.6	833.9	0.0	0.0	451.1	0	-19.432
Mar	1278.5	960.4	0.0	0.0	312.1	0	6.101
Apr	1414.5	1033.3	0.0	0.0	378.0	0	3.182
May	1830.5	1022.7	0.0	0.0	776.9	0	30.838
Jun	1774.0	999.4	0.0	0.0	803.1	0	-28.431
Jul	1309.2	673.5	0.0	0.0	623.0	0	12.641
Aug	1484.6	751.6	0.0	0.0	741.4	0	-8.301
Sep	1362.1	842.9	0.0	0.0	471.6	0	47.606
Oct	1276.7	982.9	0.0	0.0	371.4	0	-77.62
Nov	2156.6	1192.3	0.0	0.0	881.5	0	82.791
Dec	1615.8	1184.2	0.0	0.0	495.8	0	-64.245
Avg	**1498.7**	**943.5**	**0.0**	**0.0**	**555.2**	0	0
Total	**17984.9**	**11322.5**	**0.0**	**0.0**	**6662.4**	0	0
						0	0

Adjusted Average Annual Totals for Months with Temperature Below Zero					
m^3/year	12608.3	7498.5	0.0	0.0	5047.0
mm/yr	90.7	53.9	0.0	0.0	36.3
Capture Efficiency					59.5%

Water Balance Summary - Aboveground Storage (WB-103-Commercial)

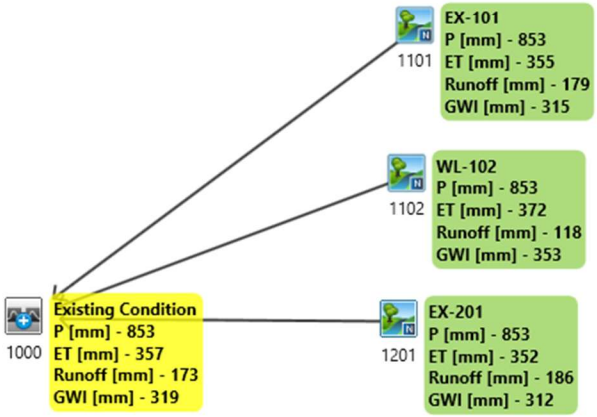
Area (ha)	1.72	Imperviousness	60%		
Year	Precipitation (mm)	Snowmelt (mm)	Evapo-Transpiration (mm)	Ground Water Infiltration (mm)	Runoff (mm)
1981	881.8	0.0	166.3	70.5	551.7
1982	897.1	0.0	169.8	169.0	554.8
1983	894.5	0.0	189.4	152.3	552.9
1984	833.5	0.0	174.3	145.1	516.3
1985	1028.4	0.0	169.5	203.6	657.7
1986	897.0	0.0	161.1	171.3	562.1
1987	731.9	0.0	189.0	102.8	440.9
1988	687.0	0.0	176.2	97.2	414.7
1989	773.6	0.0	181.6	109.9	485.3
1990	1006.0	0.0	170.4	184.8	637.6
1991	720.8	0.0	181.3	116.6	440.2
1992	909.0	0.0	146.0	179.6	573.1
1993	781.3	0.0	163.1	147.6	477.3
1994	693.4	0.0	170.0	107.7	417.1
1995	1065.2	0.0	184.5	184.2	694.0
1996	952.1	0.0	161.6	172.3	609.3
1997	727.1	0.0	166.4	135.5	440.6
1998	806.2	0.0	199.0	102.1	500.5
1999	828.7	0.0	198.0	113.5	513.8
2000	897.0	0.0	160.7	163.6	567.9
2001	708.4	0.0	180.7	100.7	430.4
2002	869.1	0.0	183.9	152.1	544.6
2003	886.7	0.0	172.3	146.5	551.7
2004	1004.1	0.0	165.9	188.8	652.4
2005	759.5	0.0	205.1	93.2	460.4
2006	950.9	0.0	183.9	170.3	597.5
2007	651.0	0.0	184.4	80.5	388.4
2008	1156.5	0.0	127.6	250.3	769.8
2009	933.5	0.0	142.5	196.0	598.9
2010	655.7	0.0	179.0	94.7	395.2
Avg	**852.9**	**0.0**	**173.4**	**143.4**	**533.2**
Volume	**14,670**	**0**	**2,984**	**2,467**	**9,172**
Adj Volume*	**14,670**	**0**	**2,984**	**6,302**	**5,337**

Monthly Infiltration Feature Summary (WB-103-Commercial)							
Year	LID Inflow (m^3)	INFIL (m^3)	LID Evapo-Transpiration (m^3)	LID Outflow (m^3)	LID Overflow (m^3)	LID Underdrain Flow (m^3)	LID Storage Change (m^3)
Jan	636.4	504.2	0.0	0.0	144.6	0.0	-12.3
Feb	579.0	405.2	0.0	0.0	177.1	0.0	-3.3
Mar	635.4	448.9	0.0	0.0	181.5	0.0	5.0
Apr	724.4	488.4	0.0	0.0	231.1	0.0	4.9
May	891.9	491.0	0.0	0.0	387.9	0.0	13.0
Jun	888.9	473.6	0.0	0.0	424.2	0.0	-8.9
Jul	769.4	430.6	0.0	0.0	336.2	0.0	2.6
Aug	831.1	449.3	0.0	0.0	386.6	0.0	-4.9
Sep	858.8	458.8	0.0	0.0	383.7	0.0	16.3
Oct	756.6	528.4	0.0	0.0	263.4	0.0	-35.3
Nov	942.3	515.2	0.0	0.0	390.9	0.0	36.2
Dec	764.3	536.4	0.0	0.0	241.1	0.0	-13.2
Avg	**773.2**	**477.5**	**0.0**	**0.0**	**295.7**	0.0	0.0
Total	**9278.4**	**5730.0**	**0.0**	**0.0**	**3548.3**	0.0	0.0

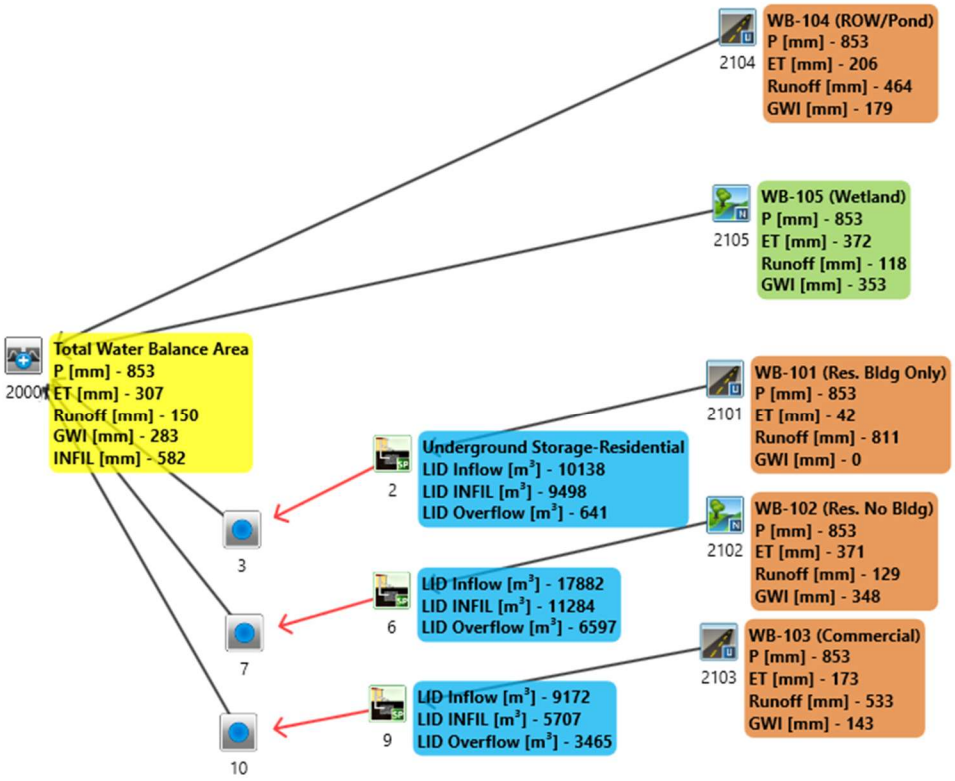
Adjusted Average Annual Totals for Months with Temperature Below Zero					
m^3/year	6663.2	3835.3	0.0	0.0	2804.1
mm/yr	387.4	223.0	0.0	0.0	163.0
Capture Efficiency					57.6%

Water Balance Summary (WB-104-ROW/SWM POND)					
Area (ha)	5.00	**Imperviousness**	50%		
Year	**Precipitation (mm)**	**Snowmelt (mm)**	**Evapo-Transpiration (mm)**	**Ground Water Infiltration (mm)**	**Runoff (mm)**
1981	881.8	0.0	196.3	88.1	481.0
1982	897.1	0.0	201.9	211.3	479.7
1983	894.5	0.0	225.3	190.4	478.9
1984	833.5	0.0	207.8	181.3	447.0
1985	1028.4	0.0	201.4	254.5	575.6
1986	897.0	0.0	190.7	214.1	489.0
1987	731.9	0.0	225.7	128.5	378.8
1988	687.0	0.0	210.6	121.5	356.3
1989	773.6	0.0	218.8	137.4	421.4
1990	1006.0	0.0	202.4	231.0	556.0
1991	720.8	0.0	216.6	145.7	380.1
1992	909.0	0.0	171.8	224.5	499.9
1993	781.3	0.0	192.2	184.5	413.1
1994	693.4	0.0	201.0	134.7	359.5
1995	1065.2	0.0	220.1	230.2	611.7
1996	952.1	0.0	193.3	215.4	532.3
1997	727.1	0.0	197.4	169.3	379.6
1998	806.2	0.0	237.5	127.6	435.3
1999	828.7	0.0	236.9	141.9	445.8
2000	897.0	0.0	190.7	204.5	495.8
2001	708.4	0.0	215.4	125.8	371.3
2002	869.1	0.0	219.9	190.2	473.4
2003	886.7	0.0	205.4	183.2	477.8
2004	1004.1	0.0	196.7	236.0	575.1
2005	759.5	0.0	245.7	116.5	396.4
2006	950.9	0.0	218.0	212.9	521.2
2007	651.0	0.0	220.3	100.6	332.9
2008	1156.5	0.0	150.1	312.9	682.6
2009	933.5	0.0	167.1	245.0	526.2
2010	655.7	0.0	213.9	118.3	340.0
Avg	**852.9**	**0.0**	**206.4**	**179.3**	**463.8**
Volume	**42,645**	**0**	**10,319**	**8,964**	**23,190**
Adj Volume*	**42,645**	**0**	**10,319**	**8,964**	**23,190**

Existing Condition



Proposed Condition



Parameter Tables

Sort Selected

NasHyd (5) | StandHyd (3) | AddHyd (2) | Junction (3) | SoakawayPit (3)

NHYD	NAME	COMMENTS 1	COMMENTS 2	COMMENTS 3	OUTLET	AREA [ha]	CNII	IA [mm]	N	TP [hr]	Soil Texture	Total Porosity	Field Capacity	Wilting Point	Saturated K [mm/day]	Precip ID	Temp ID	Evap ID	Land Cover	GI/PAN	VEGK3
1101	EX-101				1000	19.63	75.7	6.1	3.0	0.57	Loam	0.463	0.232	0.116	79.248	1	1	1	Crops up to shoulder height	1.4	6.0
1102	WL-102				1000	2.91	52.3	10	3.0	0.58	Sandy Clay Loam	0.398	0.244	0.136	36.576	1	1	1	Light Forest	1.6	7.11
1201	EX-201				1000	2.24	76.8	6	3.0	0.2	Loam	0.463	0.232	0.116	79.248	1	1	1	Crops up to shoulder height	1.4	6.0
2102	WB-102 (Res. No Bldg)				6	13.90	63.9	4.8	3.0	0.41	Loam	0.463	0.232	0.116	79.248	1	1	1	Grass Land	1.2	5.84
2105	WB-105 (Wetland)				2000	2.91	52.3	10	3.0	0.84	Sandy Clay Loam	0.398	0.244	0.136	36.576	1	1	1	Light Forest	1.6	7.11

Parameter Tables

Sort Selected

NasHyd (5) | StandHyd (3) | AddHyd (2) | Junction (3) | SoakawayPit (3)

NHYD	NAME	OUTLET	AREA [ha]	TIMP	CNII	XIMP	IA [mm]	SLPP [%]	Soil Texture	LGP [m]	MNP	Total Porosity	SCP [hr]	Field Capacity	DPSI [mm]	Wilting Point	SLPI [%]	Saturated	LGI Type	LGI [m]	MNI	SCI [hr]	Land Cover	GI/PAN	VEGK3	Precip
2101	WB-101 (Res. Bldg Only)	2	1.25	1.00	60.5	1.00	5	2.0	Loam	40.0	0.25	0.463	0.0	0.232	1.0	0.116	1.0	79.248	Based on A = 1.5 * L^2	91.29	0.013	0.0	Grass Land	1.2	5.84	1
2103	WB-103 (Commercial)	9	1.72	0.6	60.5	0.6	5.0	1.9	Loam	200	0.25	0.463	0.0	0.232	1.0	0.116	1.9	79.248	Based on A = 1.5 * L^2	107.08	0.013	0.0	Grass Land	1.2	5.84	1
2104	WB-104 (ROW/Pond)	2000	4.98	0.5	60.5	0.5	5	1.5	Loam	15	0.25	0.463	0.0	0.232	1.0	0.116	1.5	79.248	Based on A = 1.5 * L^2	182.21	0.013	0.0	Grass Land	1.2	5.84	1

Parameter Tables

Sort Selected

NasHyd (5) | StandHyd (3) | AddHyd (2) | Junction (3) | SoakawayPit (3)

NHYD	NAME	OUTLET	Underdrain ?	Infiltration Type	Depth [m]	Inital Soil Moisture	Soil Texture	Total Porosity	Field Capacity	Wilting Point	Saturated K [mm/day]	Suction Head [mm]	Width [m]	Length [m]	Height [m]	Porosity	Initial Water Level [m]	Infiltration rate [m/hr]
2	Underground Storage-Residential	3	☐	Fixed Rate	1	0.3	Loam	0.463	0.232	0.116	79.248	88.9	6	150	0.6	0.4	0	0.0051
6	Aboveground Storage - Residential	7	☐	Fixed Rate	1	0.3	Loam	0.463	0.232	0.116	79.248	88.9	5	150	0.6	1	0	0.0051
9	Aboveground Storage-Commercial	10	☐	Fixed Rate	1	0.3	Loam	0.463	0.232	0.116	79.248	88.9	10	20	0.6	1	0	0.0051

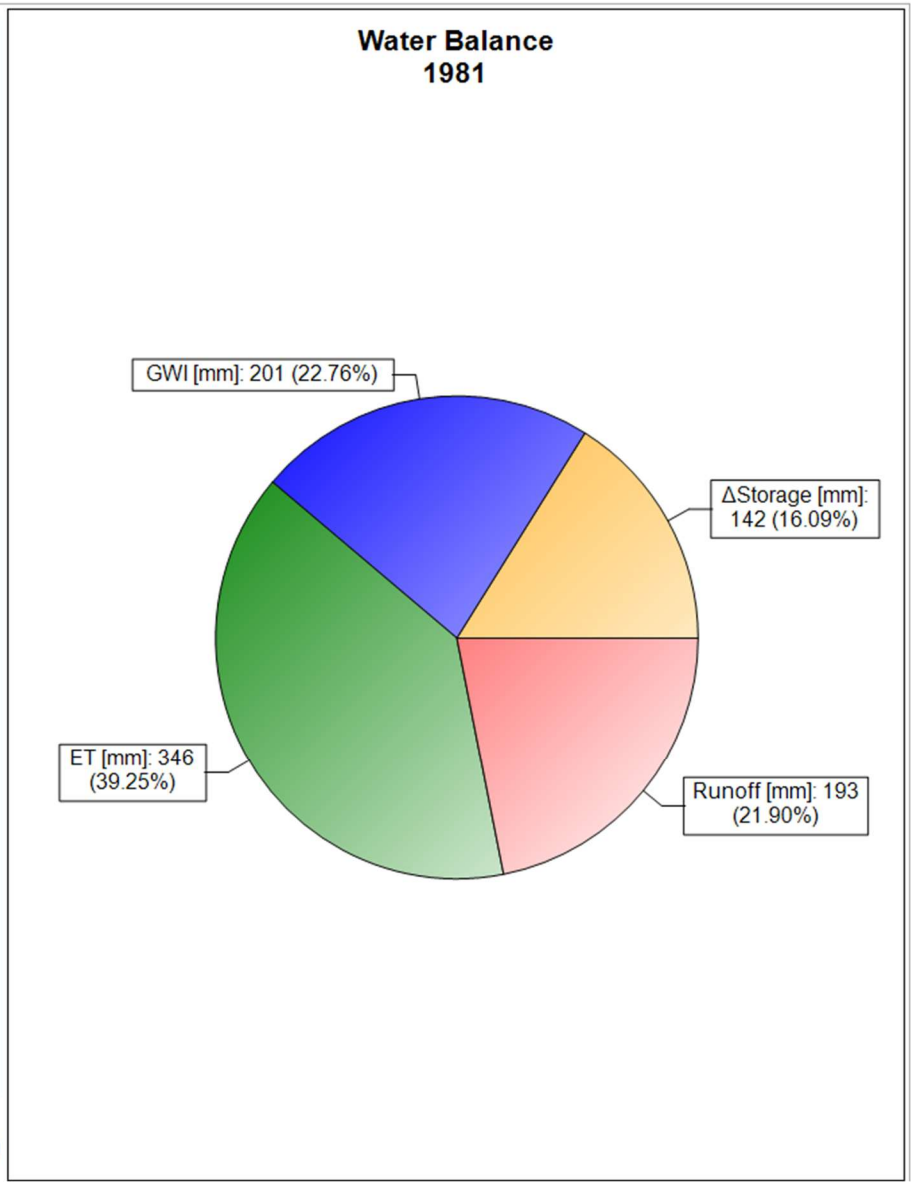
Existing Condition

Water Balance - Existing Condition

Year | Month | Season

Period	Precipitatic	Rain [mm]	ET [mm]	INFIL [mm]	GWI [mm]	Runoff [mm]	Δ Storage	Runoff Coef
1981	881.8	881.8	346.131	536.152	200.688	193.074	141.907	0.219
1982	897.1	897.1	362.209	589.339	376.416	156.531	1.944	0.174
1983	894.5	894.5	386.047	575.927	344.351	164.145	-0.044	0.184
1984	833.5	833.5	375.497	521.961	309.975	148.451	-0.423	0.178
1985	1028.4	1028.4	360.662	637	431.823	241.808	-5.893	0.235
1986	897	897	338.749	541.017	369.961	185.617	2.673	0.207
1987	731.9	731.9	408.152	449.342	223.528	101.489	-1.27	0.139
1988	687	687	310.799	448.625	263.287	109.953	2.96	0.16
1989	773.6	773.6	360.346	491.982	262.161	156.146	-5.054	0.202
1990	1006	1006	362.556	616.724	404.807	222.452	16.184	0.221
1991	720.8	720.8	321.861	452.801	283.77	127.971	-12.801	0.178
1992	909	909	300.797	551.33	405.335	199.761	3.107	0.22
1993	781.3	781.3	337.675	478.892	316.976	137.368	-10.719	0.176
1994	693.4	693.4	355.063	448.591	235.409	104.181	-1.253	0.15
1995	1065.2	1065.2	398.231	619.047	383.809	282.273	0.887	0.265
1996	952.1	952.1	352.113	588.325	369.693	214.42	15.873	0.225
1997	727.1	727.1	345.632	472.823	289.741	112.455	-20.728	0.155
1998	806.2	806.2	423.127	482.344	221.728	153.813	7.532	0.191
1999	828.7	828.7	428.028	517.525	246.222	153.178	1.272	0.185
2000	897	897	341.195	520.681	350.878	196.228	8.699	0.219
2001	708.4	708.4	334.206	428.801	255.923	122.626	-4.355	0.173
2002	869.1	869.1	369.307	560.877	343.375	171.564	-15.145	0.197
2003	886.7	886.7	369.679	567.598	332.462	163.258	21.3	0.184
2004	1004.1	1004.1	351.331	580.546	397.386	259.831	-4.448	0.259
2005	759.5	759.5	376.87	486.209	250.497	125.846	6.287	0.166
2006	950.9	950.9	387.343	581.129	366.934	202.689	-6.067	0.213
2007	651	651	362.612	415.87	198.752	87.543	2.093	0.134
2008	1156.5	1156.5	262.332	666.071	537.285	352.388	4.495	0.305
2009	933.5	933.5	290.558	554.662	412.569	234.591	-4.218	0.251
2010	655.7	655.7	387.919	408.742	190.513	94.445	-17.177	0.144
Avg	852.9	852.9	356.901	526.364	319.209	172.537	4.254	0.202

ΔStorage = Precipitation - ET - GWI - Runoff



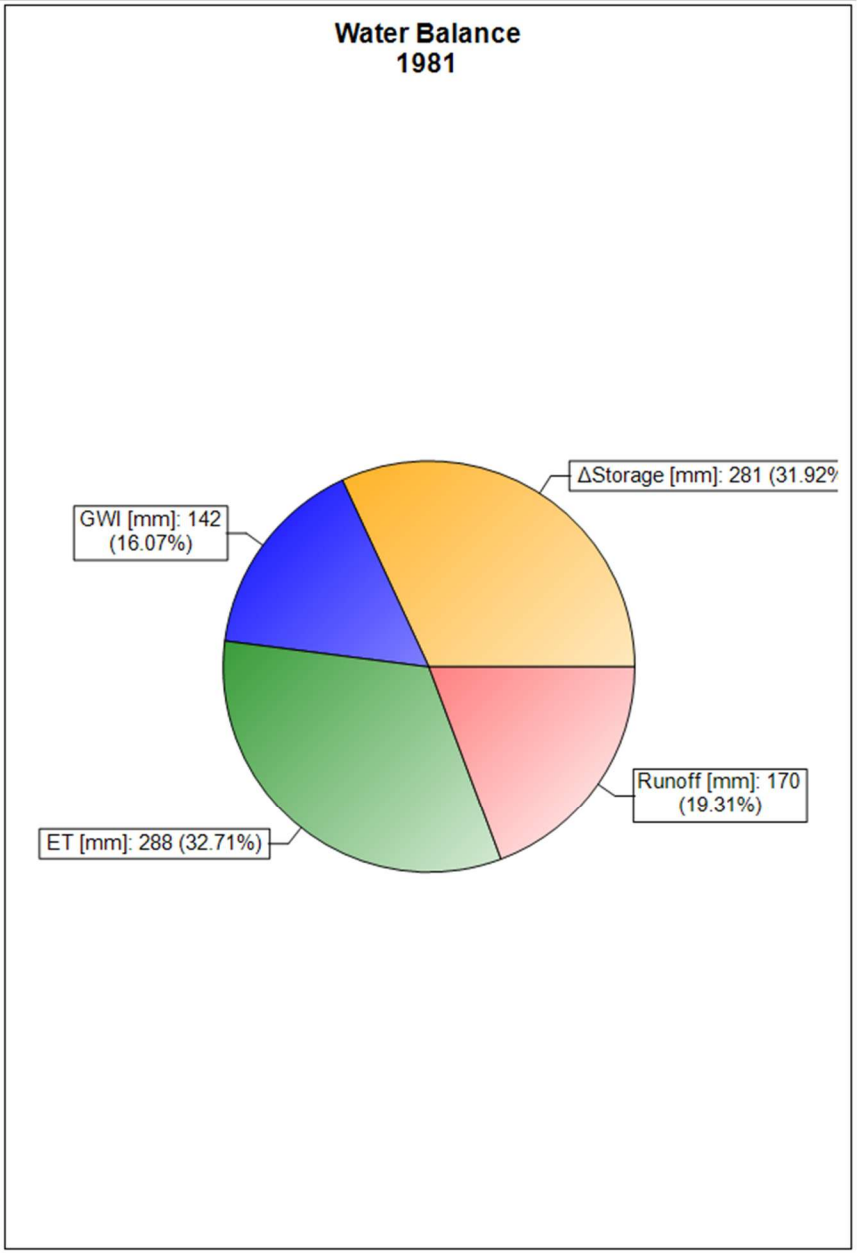
Proposed Condition – Total Site Excluding Infiltration Features

Water Balance - Total Water Balance Area

Year | Month | Season

Period	Precipitatic	Rain [mm]	ET [mm]	INFIL [mm]	GWI [mm]	Runoff [mm]	Δ Storage	Runoff Coef
1981	881.8	881.8	288.464	589.798	141.676	170.231	281.428	0.193
1982	897.1	897.1	300.571	640.153	334.98	138.027	123.522	0.154
1983	894.5	894.5	335.825	625.667	300.689	146.925	111.061	0.164
1984	833.5	833.5	311.059	573.987	285.427	132.68	104.335	0.159
1985	1028.4	1028.4	299.305	703.745	400.664	207.349	121.082	0.202
1986	897	897	281.672	606.958	337.947	157.174	120.207	0.175
1987	731.9	731.9	338.386	491.754	202.971	100.836	89.708	0.138
1988	687	687	315.206	489.887	192.317	92.144	87.333	0.134
1989	773.6	773.6	333.223	543.674	216.596	132.95	90.831	0.172
1990	1006	1006	300.813	690.813	365.275	184.362	155.55	0.183
1991	720.8	720.8	323.718	502.628	227.998	107.772	61.312	0.15
1992	909	909	251.069	616.7	356.454	166.442	135.035	0.183
1993	781.3	781.3	281.629	527.215	290.955	123.455	85.261	0.158
1994	693.4	693.4	296.312	478.413	212.651	100.958	83.479	0.146
1995	1065.2	1065.2	329.809	683.608	361.204	253.978	120.209	0.238
1996	952.1	952.1	290.921	664.942	339.779	172.944	148.456	0.182
1997	727.1	727.1	292.645	510.812	265.862	104.901	63.692	0.144
1998	806.2	806.2	355.975	527.261	200.859	146.673	102.693	0.182
1999	828.7	828.7	356.25	562.244	224.164	142.825	105.461	0.172
2000	897	897	283.163	586.41	322.178	172.543	119.116	0.192
2001	708.4	708.4	322.07	479.014	198.058	106.351	81.921	0.15
2002	869.1	869.1	330.585	606.168	298.95	154.646	84.92	0.178
2003	886.7	886.7	307.309	629.992	290.987	134.551	153.853	0.152
2004	1004.1	1004.1	291.717	645.419	370.962	230.731	110.69	0.23
2005	759.5	759.5	369.296	528.984	183.956	112.802	93.446	0.149
2006	950.9	950.9	322.547	643.873	336.028	176.307	116.018	0.185
2007	651	651	330.836	450.07	158.321	85.572	76.272	0.131
2008	1156.5	1156.5	219.042	775.182	492.607	269.344	175.506	0.233
2009	933.5	933.5	242.957	625.068	385.272	193.41	111.861	0.207
2010	655.7	655.7	321	444.638	184.703	90.843	59.154	0.139
Avg	852.9	852.9	307.446	581.503	282.683	150.324	112.447	0.176

ΔStorage = Precipitation - ET - GWI - Runoff



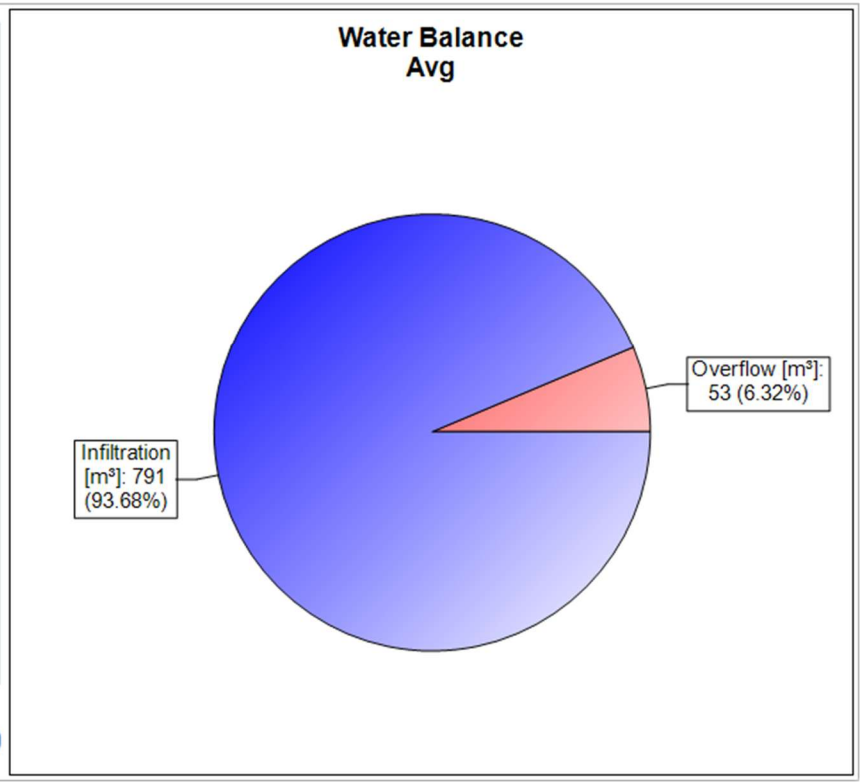
Proposed Condition – Residential Lots Underground Storage

Water Balance - Underground Storage-Residential

Year | Month | Season

Period	LID inflow [mm]	INFIL [mm]	LIDET [mm]	LID Outflow [mm]	LID Overflow [mm]	LID storage ch
Jan	697.042	675.265	0	0	15.045	6.731
Feb	625.416	606.319	0	0	23.495	-4.398
Mar	692.418	673.557	0	0	10.651	8.209
Apr	791.75	785.597	0	0	10.361	-4.208
May	969.458	881.597	0	0	72.542	15.319
Jun	968.5	874.408	0	0	112.85	-18.758
Jul	849.583	724.974	0	0	104.76	19.85
Aug	913.083	814.003	0	0	104.914	-5.833
Sep	953.875	881.215	0	0	71.324	1.337
Oct	836.624	815.126	0	0	38.582	-17.084
Nov	1011.916	952.523	0	0	49.627	9.766
Dec	828.833	813.174	0	0	26.591	-10.932
Avg	844.875	791.48	0	0	53.395	0
Total	10138.499	9497.757	0	0	640.742	0

ΔStorage = Inflow - Infiltration - ET - Outflow - Overflow - Underdrainflow



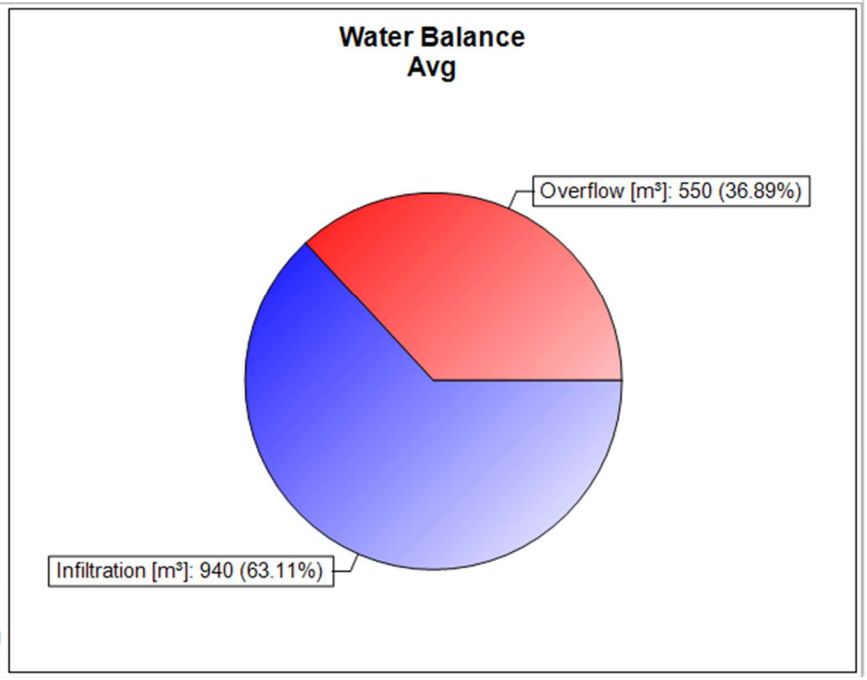
Proposed Condition – Residential Lots Above Ground Storage

Water Balance - Aboveground Storage - Residential

Year | Month | Season

Period	LID inflow [mm]	INFIL [mm]	LIDET [mm]	LID Outflow [mm]	LID Overflow [mm]	LID storage ch
Jan	1208.838	841.45	0	0	352.361	15.026
Feb	1257.651	831.487	0	0	445.691	-19.527
Mar	1270.47	956.316	0	0	307.908	6.246
Apr	1405.602	1029.742	0	0	372.77	3.09
May	1820.224	1020.183	0	0	769.358	30.683
Jun	1764.429	996.344	0	0	796.251	-28.166
Jul	1303.36	671.441	0	0	619.164	12.756
Aug	1478.421	749.493	0	0	737.135	-8.207
Sep	1355.243	840.685	0	0	467.196	47.362
Oct	1269.383	979.174	0	0	367.613	-77.404
Nov	2143.256	1188.485	0	0	872.108	82.663
Dec	1604.925	1179.562	0	0	489.885	-64.522
Avg	1490.15	940.363	0	0	549.787	0
Total	17881.802	11284.361	0	0	6597.44	0

ΔStorage = Inflow - Infiltration - ET - Outflow - Overflow - Underdrainflow



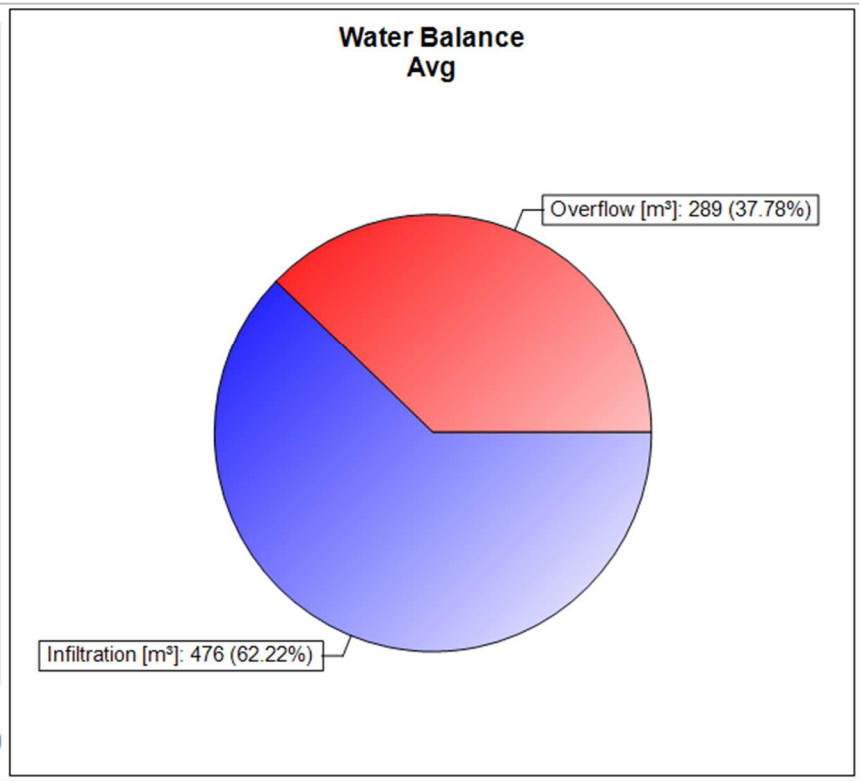
Proposed Condition – Commercial Lot Surface Storage

Water Balance - Aboveground Storage-Commercial

Year | Month | Season

Period	LID inflow [mm]	INFIL [mm]	LIDET [mm]	LID Outflow [mm]	LID Overflow [mm]	LID storage ch
Jan	629.081	500.819	0	0	140.513	-12.251
Feb	572.361	402.543	0	0	173.084	-3.266
Mar	628.107	446.796	0	0	176.574	4.737
Apr	716.067	486.3	0	0	224.521	5.246
May	881.646	489.355	0	0	379.285	13.006
Jun	878.639	472.201	0	0	415.267	-8.829
Jul	760.55	428.854	0	0	329.26	2.436
Aug	821.507	447.672	0	0	378.747	-4.912
Sep	848.927	457.48	0	0	375.16	16.287
Oct	747.864	526.714	0	0	256.287	-35.136
Nov	931.454	513.484	0	0	381.99	35.981
Dec	755.532	534.423	0	0	234.406	-13.298
Avg	764.311	475.553	0	0	288.758	0
Total	9171.734	5706.641	0	0	3465.094	0

ΔStorage = Inflow - Infiltration - ET - Outflow - Overflow - Underdrainflow

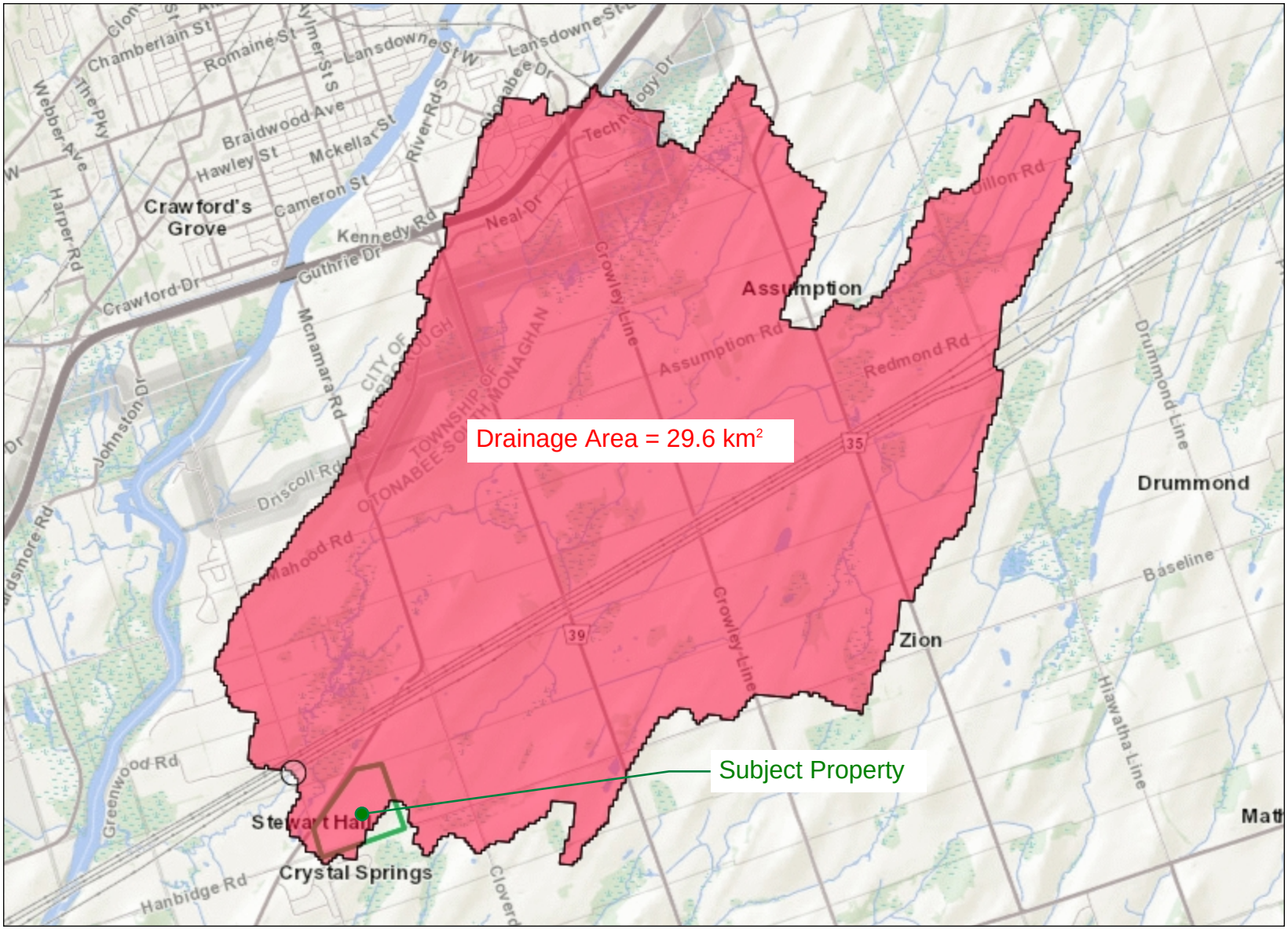


MINISTRY OF NATURAL RESOURCES

Ontario Watershed Information Tool

Existing Wetland Contributing Area

Notes:



Legend

- Assessment Parcel
- Secondary Watershed
- Tertiary Watershed
- Quaternary Watershed
- Great Lakes - St. Lawrence Basin
- Hudson - James Bay Basin
- Nelson River Basin
- Hydrometric Monitoring Station
- Diversions
- Waterbody Outlet
- Conservation Authority Dam
- Provincial Dam
- Federal Dam
- OPG Dam
- Other Dam
- Virtual Flow Segment

Land Cover Compilation

- Other
- Cloud/Shadow
- Clear Open Water
- Turbid Water
- Shoreline
- Mudflats
- Marsh
- Swamp
- Fen
- Bog
- Heath
- Sparse Treed
- Treed Upland
- Deciduous Treed
- Mixed Treed
- Coniferous Treed
- Plantations - Treed Cultivated
- Hedge Rows
- Disturbance
- Open Cliff and Talus
- Alvar
- Sand Barren and Dune
- Open Tallgrass Prairie
- Tallgrass Savannah
- Tallgrass Woodland
- Sand/Gravel/Mine Tailings/Extraction
- Bedrock
- Community/Infrastructure
- Agriculture and Undifferentiated Rural Land Use

2.6 0 km 1.31 2.6

Scale: 1 : 51,728

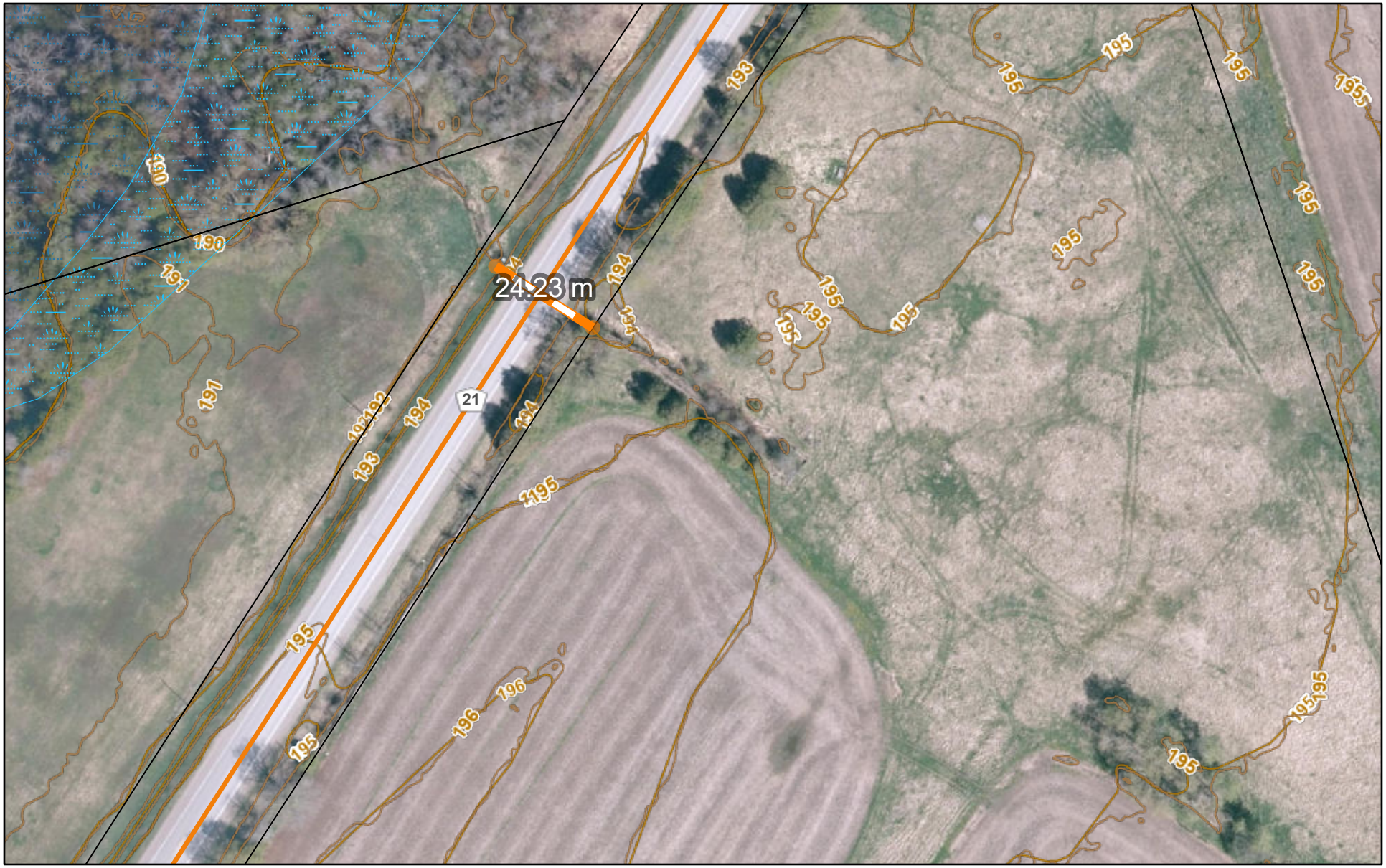
Projection: Web Mercator

Appendix E

Hydraulic Elements

Existing Culvert

County of Peterborough Map



9/15/2025, 5:14:27 PM

1:1,598

0 0.01 0.01 0.03 mi

0 0.01 0.03 0.06 km

Roads
- County Road
- Parcel Fabric

Wetland
- Evaluated-Other
- Non-Evaluated

1m Contours

2m Contours

5m Contours

Ontario_Imagery_Web_Map_Service_Extent

Peterborough County GIS Viewer

HY-8 Culvert Analysis Report

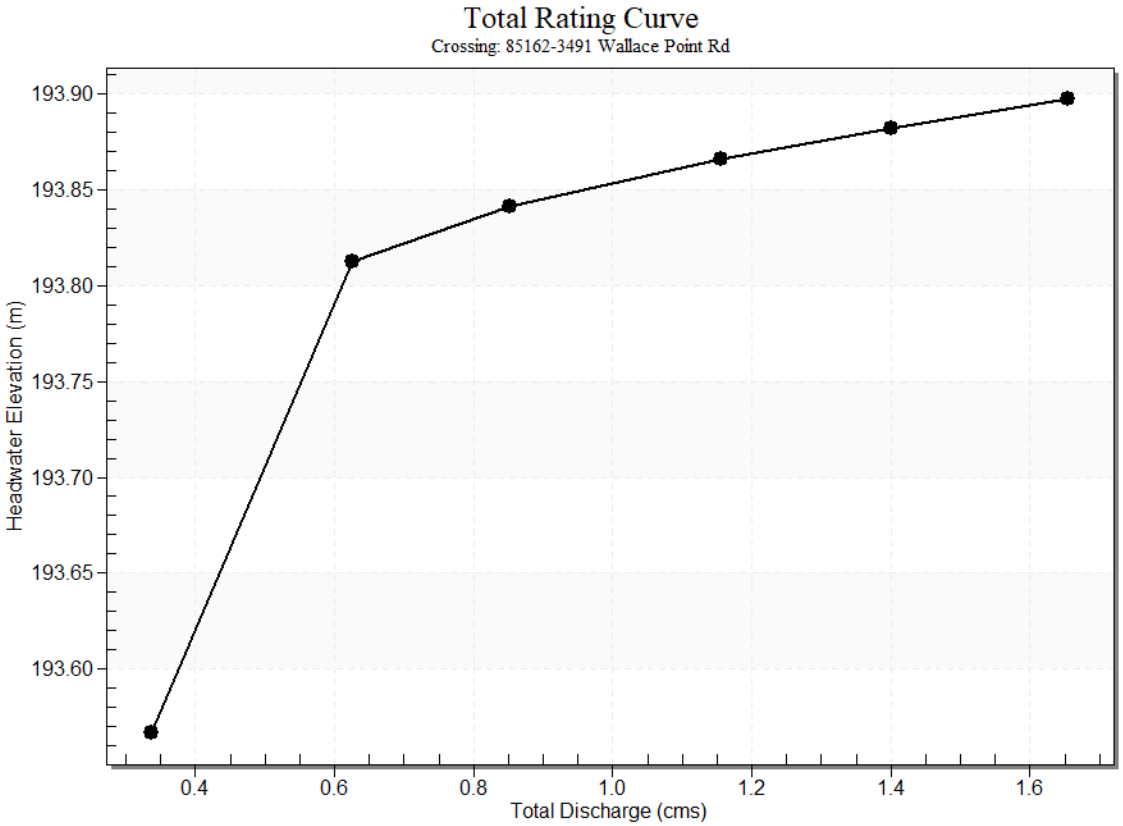
Crossing Discharge Data

Discharge Selection Method: User Defined

Table 1 - Summary of Culvert Flows at Crossing: 85162-3491 Wallace Point Rd

Headwater Elevation (m)	Discharge Names	Total Discharge (cms)	Pre-Existing 800mm Culvert Discharge (cms)	Roadway Discharge (cms)	Iterations
193.57	EX.6h-2 Yr SCS	0.34	0.34	0.00	1
193.81	EX.6h-5 Yr SCS	0.63	0.62	0.00	21
193.84	EX.6h-10 Yr SCS	0.85	0.65	0.20	6
193.87	EX.6h-25 Yr SCS	1.16	0.68	0.47	4
193.88	EX.6h-50 Yr SCS	1.40	0.70	0.70	4
193.90	EX.6h-100 Yr SCS	1.65	0.72	0.93	3
193.81	Overtopping	0.62	0.62	0.00	Overtopping

Rating Curve Plot for Crossing: 85162-3491 Wallace Point Rd



Culvert Data: Pre-Existing 800mm Culvert

Table 1 - Culvert Summary Table: Pre-Existing 800mm Culvert

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
EX.6h-2 Yr SCS	0.34 cms	0.34 cms	193.57	0.53	0.577	2-M2c	0.39	0.35	0.35	0.00	1.61	0.00
EX.6h-5 Yr SCS	0.63 cms	0.62 cms	193.81	0.79	0.823	7-M2c	0.57	0.48	0.48	0.00	1.98	0.00
EX.6h-10 Yr SCS	0.85 cms	0.65 cms	193.84	0.82	0.851	7-M2c	0.60	0.49	0.49	0.00	2.02	0.00

EX.6 h-25 Yr SCS	1.16 cms	0.68 cms	193.87	0.84	0.876	7-M 2c	0.62	0.50	0.50	0.00	2.05	0.00
EX.6 h-50 Yr SCS	1.40 cms	0.70 cms	193.88	0.86	0.892	7-M 2c	0.64	0.51	0.51	0.00	2.07	0.00
EX.6 h-100 Yr SCS	1.65 cms	0.72 cms	193.90	0.88	0.907	7-M 2c	0.65	0.52	0.52	0.00	2.09	0.00

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

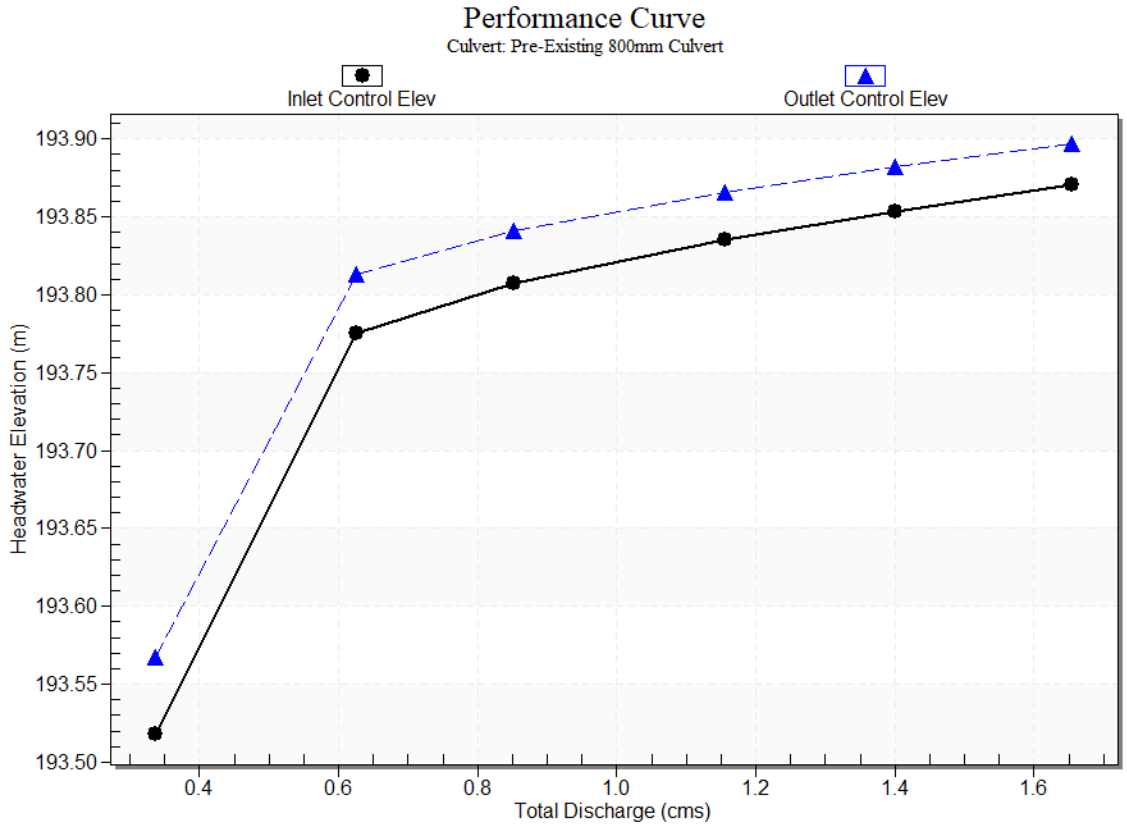
Inlet Elevation (invert): 192.99 m,

Outlet Elevation (invert): 192.76 m

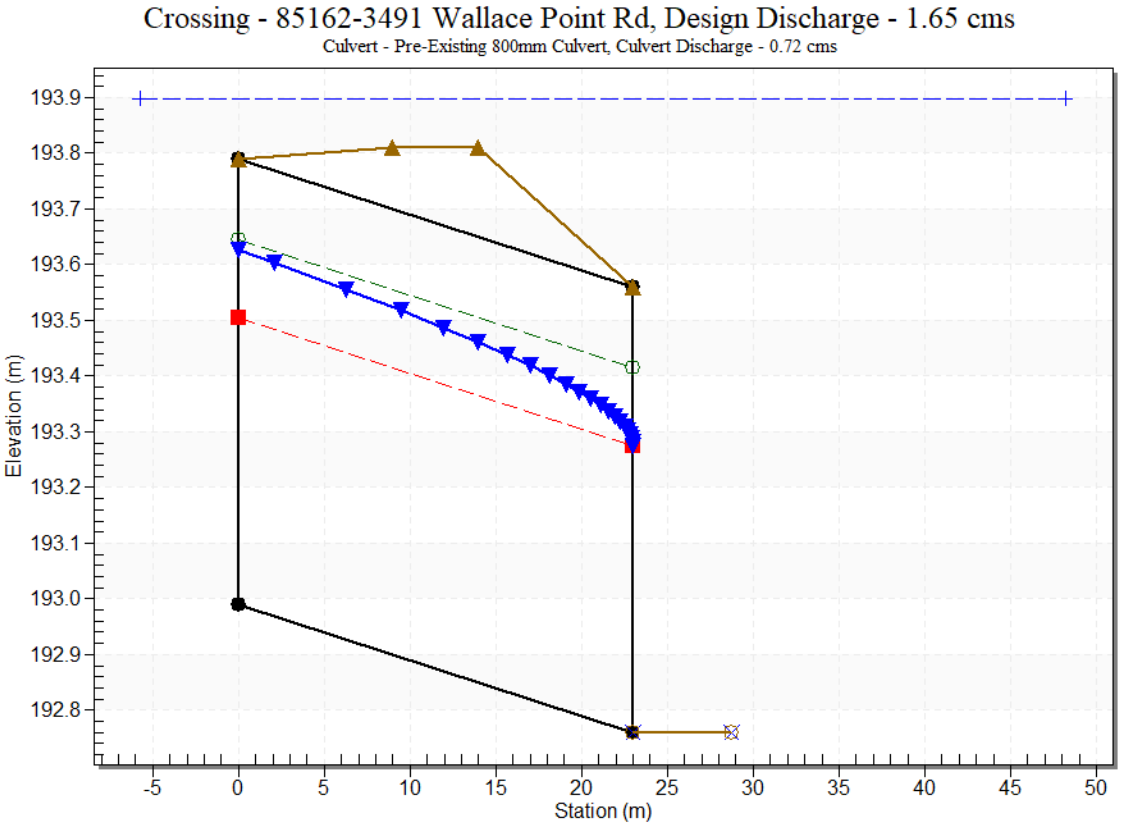
Culvert Length: 23.00 m,

Culvert Slope: 0.0100

Culvert Performance Curve Plot: Pre-Existing 800mm Culvert



Water Surface Profile Plot for Culvert: Pre-Existing 800mm Culvert



Site Data - Pre-Existing 800mm Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 192.99 m

Outlet Station: 23.00 m

Outlet Elevation: 192.76 m

Number of Barrels: 1

Culvert Data Summary - Pre-Existing 800mm Culvert

Barrel Shape: Circular

Barrel Diameter: 800.00 mm

Barrel Material: Corrugated Steel

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting (Ke=0.9)

Inlet Depression: None

Tailwater Data for Crossing: 85162-3491 Wallace Point Rd

Table 2 - Downstream Channel Rating Curve (Crossing: 85162-3491 Wallace Point Rd)

Flow (cms)	Water Surface Elev (m)	Depth (m)
0.34	192.76	0.00
0.63	192.76	0.00
0.85	192.76	0.00
1.16	192.76	0.00
1.40	192.76	0.00
1.65	192.76	0.00

Tailwater Channel Data - 85162-3491 Wallace Point Rd

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 192.76 m

Roadway Data for Crossing: 85162-3491 Wallace Point Rd

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 25.00 m

Crest Elevation: 193.81 m

Roadway Surface: Gravel

Roadway Top Width: 5.00 m

HY-8 Culvert Analysis Report

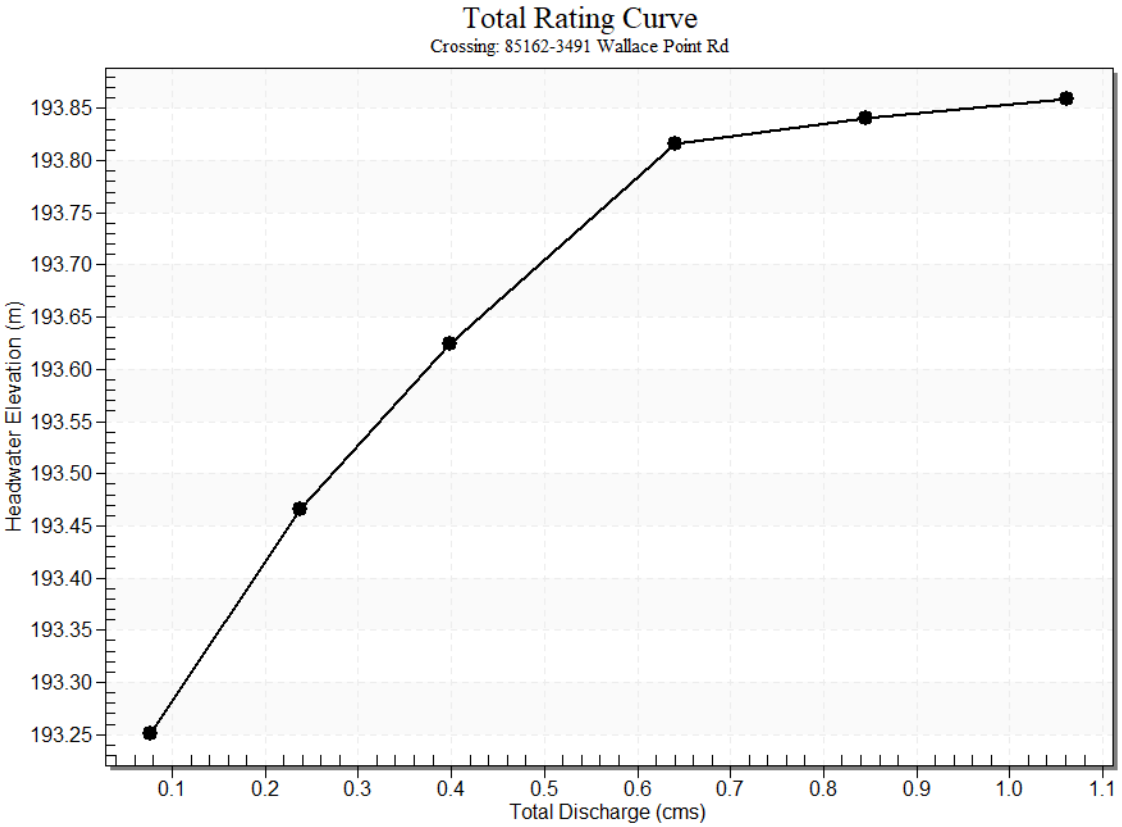
Crossing Discharge Data

Discharge Selection Method: User Defined

Table 1 - Summary of Culvert Flows at Crossing: 85162-3491 Wallace Point Rd

Headwater Elevation (m)	Discharge Names	Total Discharge (cms)	Existing 800mm Culvert Discharge (cms)	Roadway Discharge (cms)	Iterations
193.25	6h-2 Yr SCS	0.08	0.08	0.00	1
193.47	6h-5 Yr SCS	0.24	0.24	0.00	1
193.62	6h-10 Yr SCS	0.40	0.40	0.00	1
193.82	6h-25 Yr SCS	0.64	0.62	0.01	21
193.84	6h-50 Yr SCS	0.84	0.65	0.19	5
193.86	6h-100 Yr SCS	1.06	0.67	0.39	4
193.81	Overtopping	0.62	0.62	0.00	Overtopping

Rating Curve Plot for Crossing: 85162-3491 Wallace Point Rd



Culvert Data: Existing 800mm Culvert

Table 1 - Culvert Summary Table: Existing 800mm Culvert

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
6h-2 Yr SCS	0.08 cms	0.08 cms	193.25	0.24	0.261	2-M 2c	0.18	0.16	0.16	0.00	1.06	0.00
6h-5 Yr SCS	0.24 cms	0.24 cms	193.47	0.43	0.476	2-M 2c	0.32	0.29	0.29	0.00	1.45	0.00
6h-10 Yr SCS	0.40 cms	0.40 cms	193.62	0.58	0.634	2-M 2c	0.43	0.38	0.38	0.00	1.70	0.00
6h-25 Yr SCS	0.64 cms	0.62 cms	193.82	0.79	0.826	7-M 2c	0.58	0.48	0.48	0.00	1.98	0.00
6h-50 Yr SCS	0.84 cms	0.65 cms	193.84	0.82	0.851	7-M 2c	0.60	0.49	0.49	0.00	2.02	0.00
6h-100 Yr SCS	1.06 cms	0.67 cms	193.86	0.84	0.869	7-M 2c	0.61	0.50	0.50	0.00	2.04	0.00

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

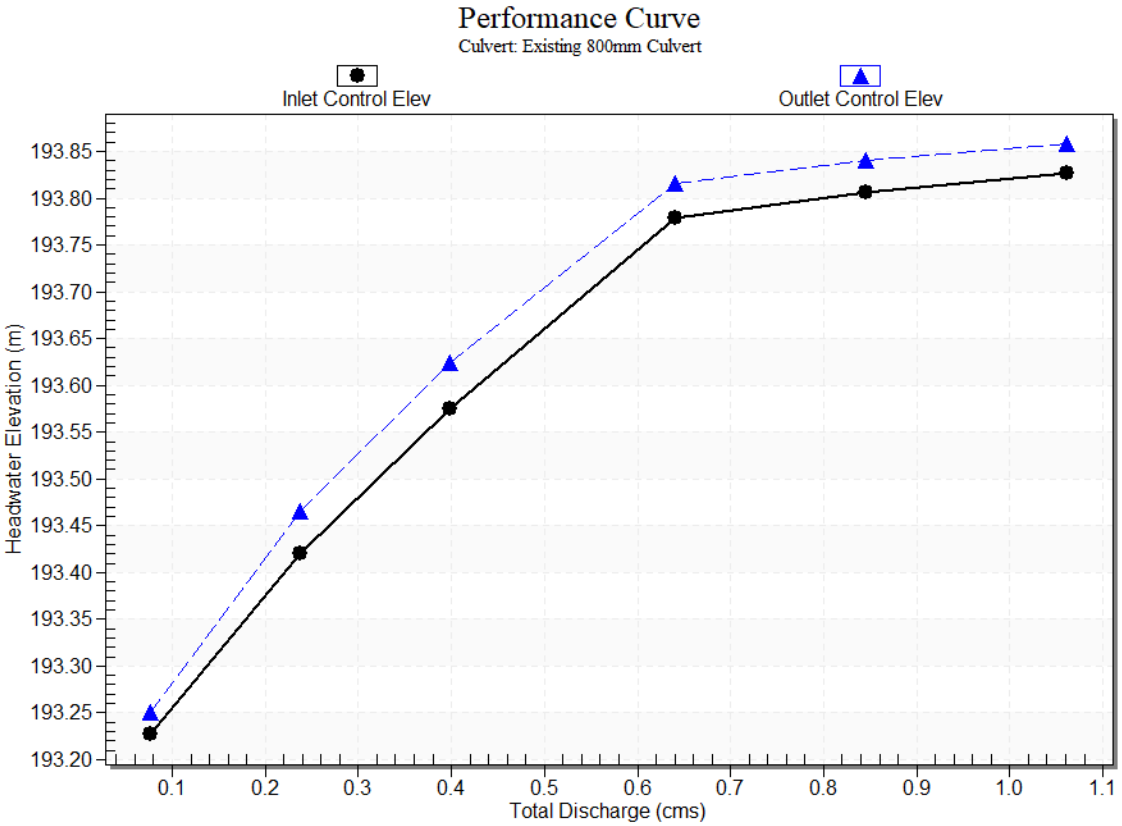
Inlet Elevation (invert): 192.99 m,

Outlet Elevation (invert): 192.76 m

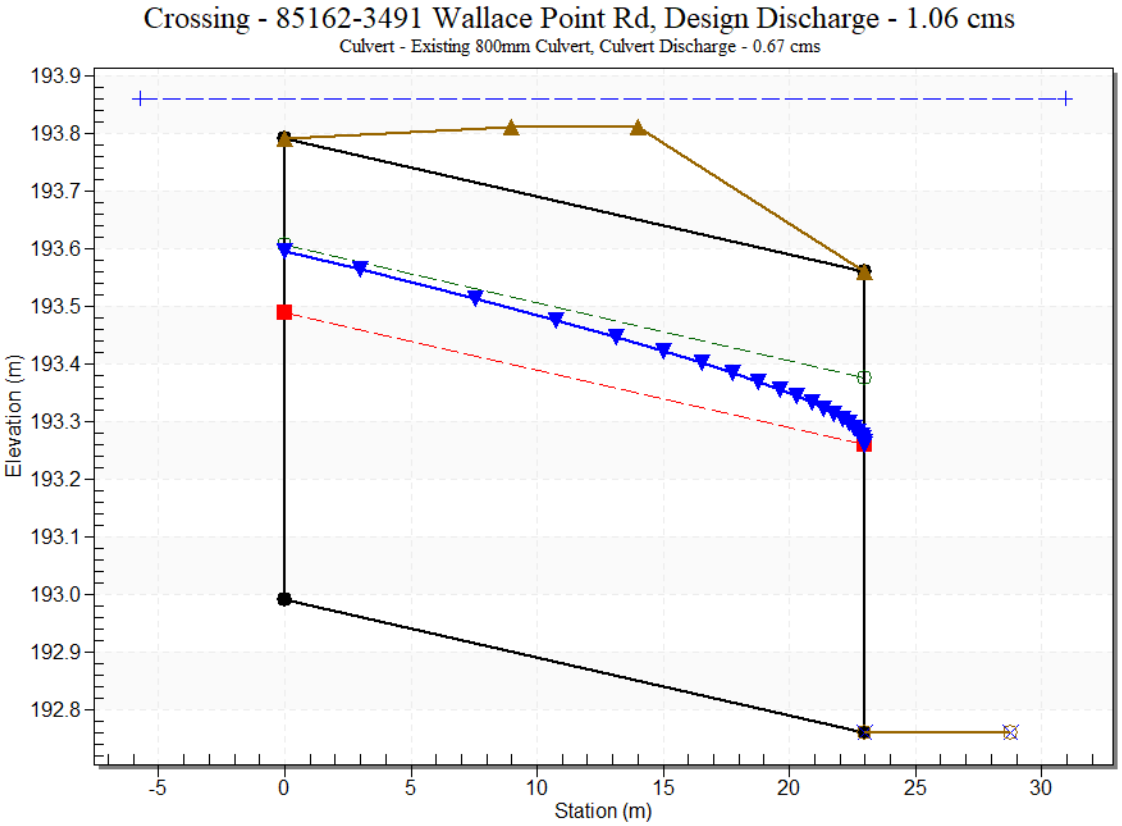
Culvert Length: 23.00 m,

Culvert Slope: 0.0100

Culvert Performance Curve Plot: Existing 800mm Culvert



Water Surface Profile Plot for Culvert: Existing 800mm Culvert



Site Data - Existing 800mm Culvert

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 192.99 m

Outlet Station: 23.00 m

Outlet Elevation: 192.76 m

Number of Barrels: 1

Culvert Data Summary - Existing 800mm Culvert

Barrel Shape: Circular

Barrel Diameter: 800.00 mm

Barrel Material: Corrugated Steel

Embedment: 0.00 mm

Barrel Manning's n: 0.0240

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting (Ke=0.9)

Inlet Depression: None

Tailwater Data for Crossing: 85162-3491 Wallace Point Rd

Table 2 - Downstream Channel Rating Curve (Crossing: 85162-3491 Wallace Point Rd)

Flow (cms)	Water Surface Elev (m)	Depth (m)
0.08	192.76	0.00
0.24	192.76	0.00
0.40	192.76	0.00
0.64	192.76	0.00
0.84	192.76	0.00
1.06	192.76	0.00

Tailwater Channel Data - 85162-3491 Wallace Point Rd

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 192.76 m

Roadway Data for Crossing: 85162-3491 Wallace Point Rd

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 25.00 m

Crest Elevation: 193.81 m

Roadway Surface: Gravel

Roadway Top Width: 5.00 m

Driveway Culvert Sizing

HY-8 Culvert Analysis Report

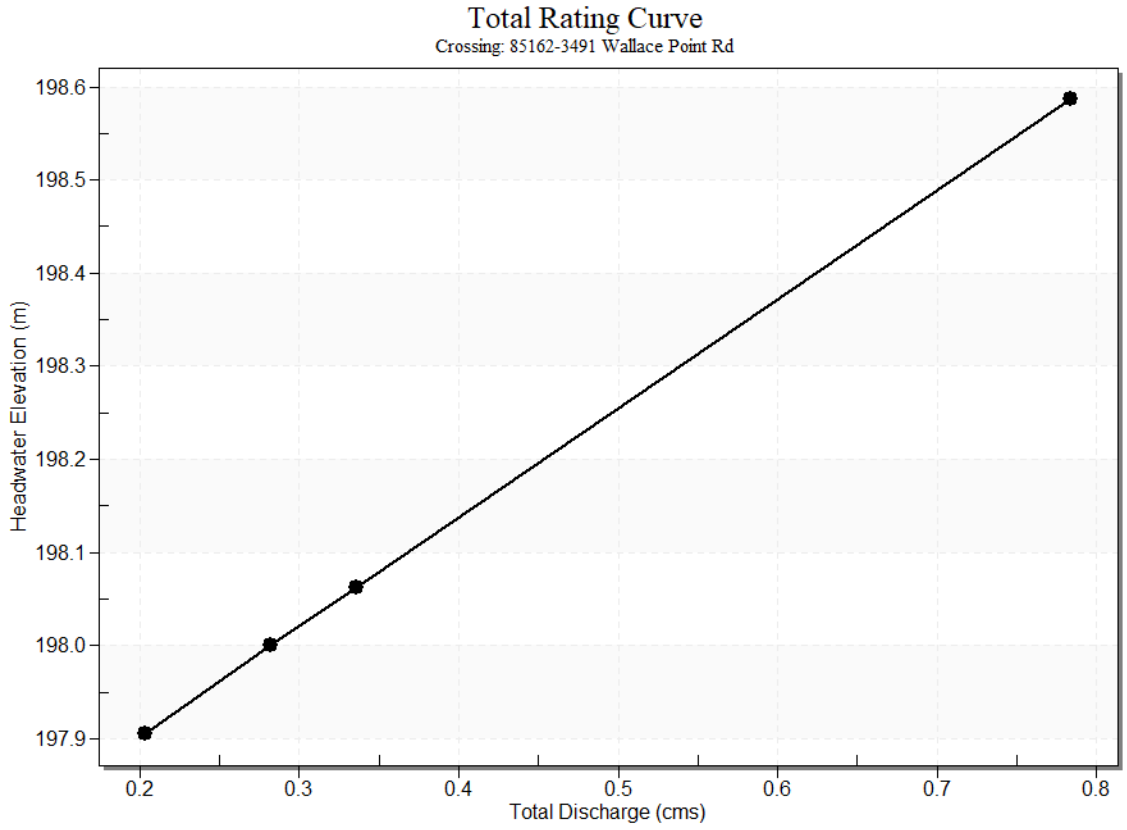
Crossing Discharge Data

Discharge Selection Method: User Defined

Table 1 - Summary of Culvert Flows at Crossing: 85162-3491 Wallace Point Rd

Headwater Elevation (m)	Discharge Names	Total Discharge (cms)	Driveway Culvert-Street A Discharge (cms)	Roadway Discharge (cms)	Iterations
197.91	6h-2 Yr SCS	0.20	0.20	0.00	1
198.00	6h-5 Yr SCS	0.28	0.28	0.00	1
198.06	6h-10 Yr SCS	0.34	0.34	0.00	1
198.54	Overtopping	0.68	0.68	0.00	Overtopping

Rating Curve Plot for Crossing: 85162-3491 Wallace Point Rd



Culvert Data: Driveway Culvert-Street A

Table 1 - Culvert Summary Table: Driveway Culvert-Street A

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
6h-2 Yr SCS	0.20 cms	0.20 cms	197.91	0.43	0.276	1-S2n	0.26	0.28	0.26	-1.39	1.58	0.00
6h-5 Yr SCS	0.28 cms	0.28 cms	198.00	0.52	0.361	1-S2n	0.31	0.33	0.31	-1.39	1.73	0.00
6h-10 Yr SCS	0.34 cms	0.34 cms	198.06	0.58	0.422	1-S2n	0.35	0.37	0.35	-1.39	1.81	0.00

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

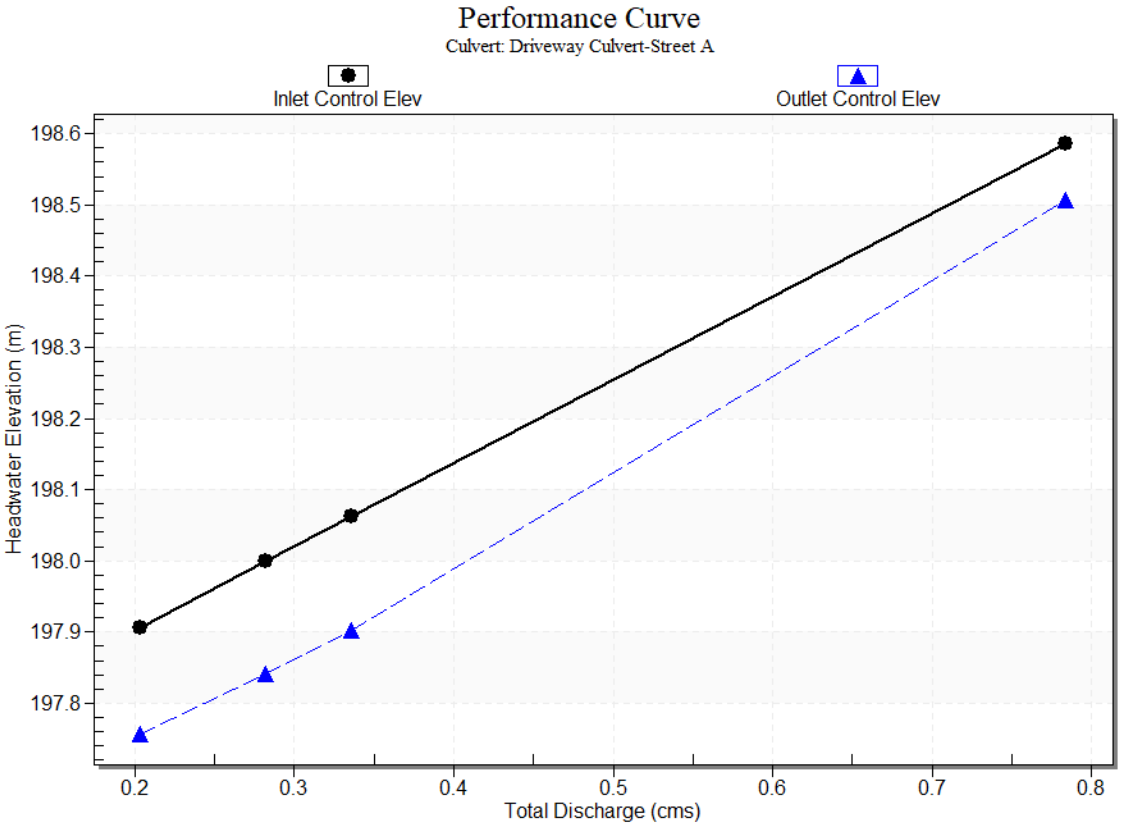
Inlet Elevation (invert): 197.48 m,

Outlet Elevation (invert): 197.44 m

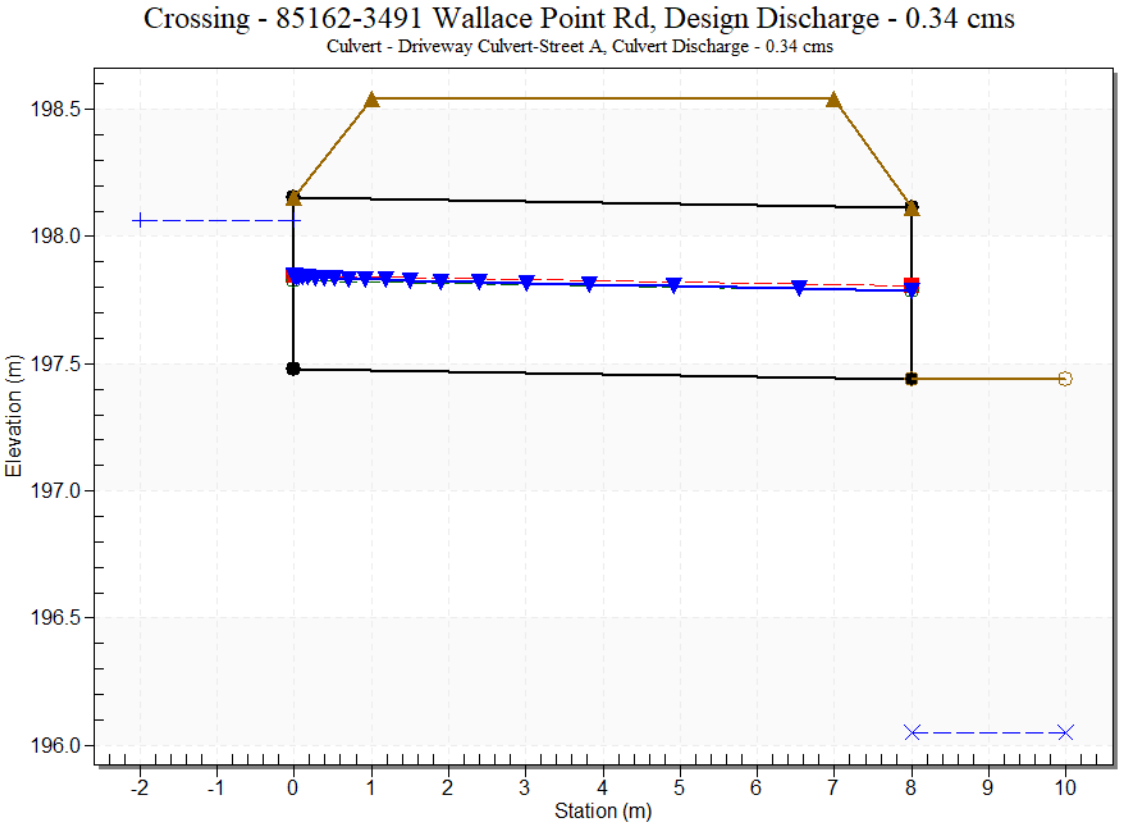
Culvert Length: 8.00 m,

Culvert Slope: 0.0050

Culvert Performance Curve Plot: Driveway Culvert-Street A



Water Surface Profile Plot for Culvert: Driveway Culvert-Street A



Site Data - Driveway Culvert-Street A

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 197.48 m

Outlet Station: 8.00 m

Outlet Elevation: 197.44 m

Number of Barrels: 1

Culvert Data Summary - Driveway Culvert-Street A

Barrel Shape: Circular

Barrel Diameter: 675.00 mm

Barrel Material: Smooth HDPE

Embedment: 0.00 mm

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting (Ke=0.9)

Inlet Depression: None

Tailwater Data for Crossing: 85162-3491 Wallace Point Rd

Table 2 - Downstream Channel Rating Curve (Crossing: 85162-3491 Wallace Point Rd)

Flow (cms)	Water Surface Elev (m)	Depth (m)
0.20	196.05	-1.39
0.28	196.05	-1.39
0.34	196.05	-1.39

Tailwater Channel Data - 85162-3491 Wallace Point Rd

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 196.05 m

Roadway Data for Crossing: 85162-3491 Wallace Point Rd

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.00 m

Crest Elevation: 198.54 m

Roadway Surface: Paved

Roadway Top Width: 6.00 m

HY-8 Culvert Analysis Report

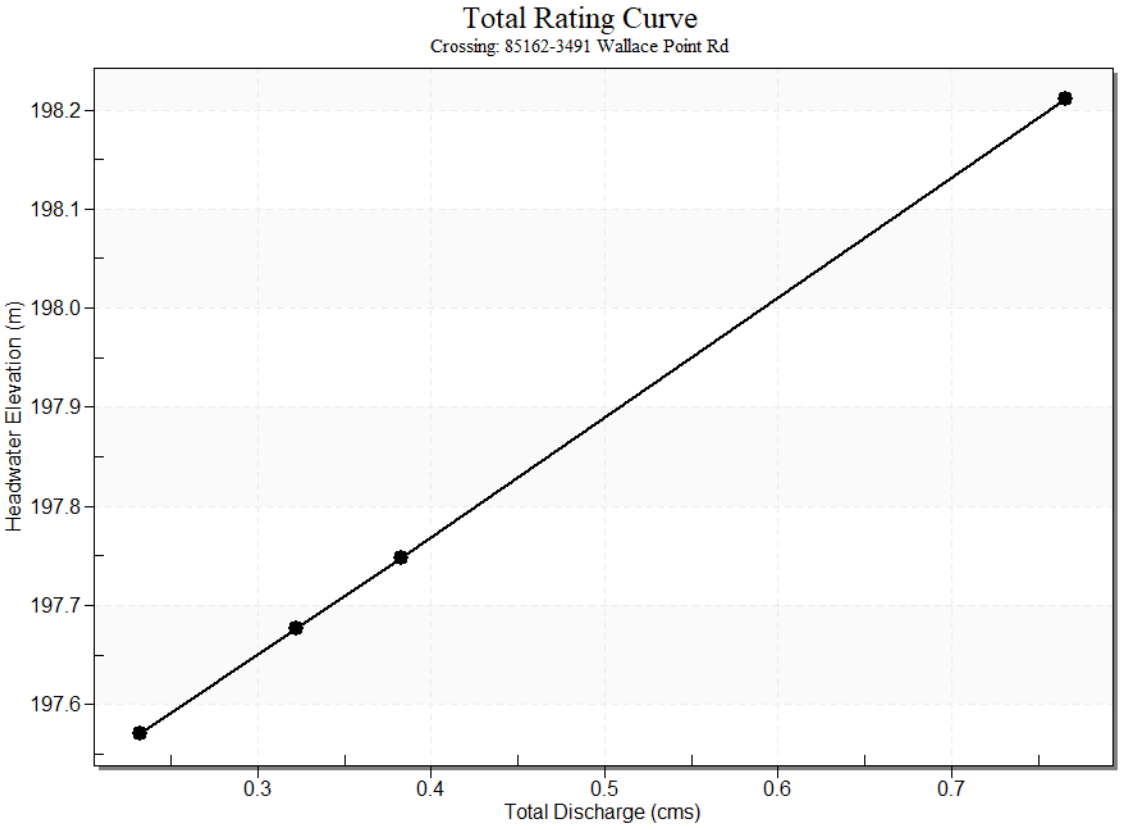
Crossing Discharge Data

Discharge Selection Method: User Defined

Table 1 - Summary of Culvert Flows at Crossing: 85162-3491 Wallace Point Rd

Headwater Elevation (m)	Discharge Names	Total Discharge (cms)	Driveway Culvert-Street C Discharge (cms)	Roadway Discharge (cms)	Iterations
197.57	6h-2 Yr SCS	0.23	0.23	0.00	1
197.68	6h-5 Yr SCS	0.32	0.32	0.00	1
197.75	6h-10 Yr SCS	0.38	0.38	0.00	1
198.17	Overtopping	0.68	0.68	0.00	Overtopping

Rating Curve Plot for Crossing: 85162-3491 Wallace Point Rd



Culvert Data: Driveway Culvert-Street C

Table 1 - Culvert Summary Table: Driveway Culvert-Street C

Discharge Names	Total Discharge (cms)	Culvert Discharge (cms)	Headwater Elevation (m)	Inlet Control Depth (m)	Outlet Control Depth (m)	Flow Type	Normal Depth (m)	Critical Depth (m)	Outlet Depth (m)	Tailwater Depth (m)	Outlet Velocity (m/s)	Tailwater Velocity (m/s)
6h-2 Yr SCS	0.23 cms	0.23 cms	197.57	0.46	0.307	1-S2n	0.28	0.30	0.28	-1.02	1.64	0.00
6h-5 Yr SCS	0.32 cms	0.32 cms	197.68	0.57	0.406	1-S2n	0.34	0.36	0.34	-1.02	1.79	0.00
6h-10 Yr SCS	0.38 cms	0.38 cms	197.75	0.64	0.476	1-S2n	0.37	0.39	0.38	-1.02	1.87	0.00

Culvert Barrel Data

Culvert Barrel Type Straight Culvert

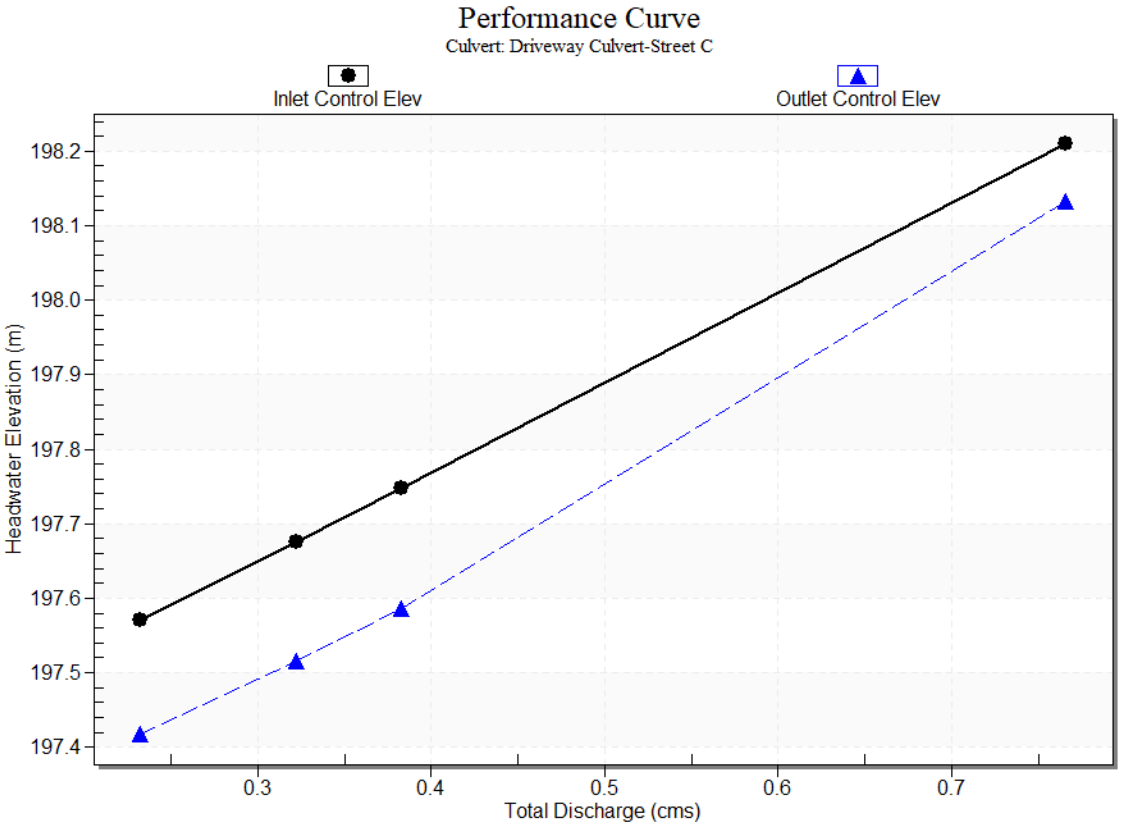
Inlet Elevation (invert): 197.11 m,

Outlet Elevation (invert): 197.07 m

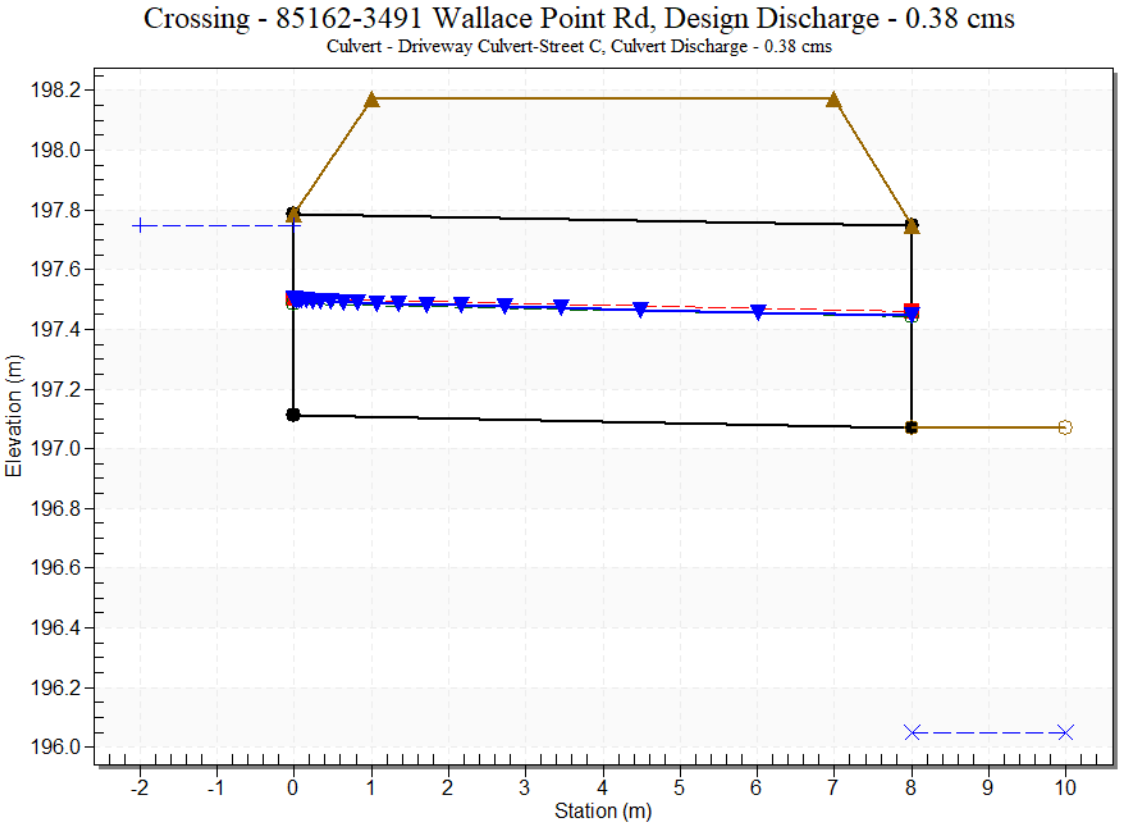
Culvert Length: 8.00 m,

Culvert Slope: 0.0050

Culvert Performance Curve Plot: Driveway Culvert-Street C



Water Surface Profile Plot for Culvert: Driveway Culvert-Street C



Site Data - Driveway Culvert-Street C

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 m

Inlet Elevation: 197.11 m

Outlet Station: 8.00 m

Outlet Elevation: 197.07 m

Number of Barrels: 1

Culvert Data Summary - Driveway Culvert-Street C

Barrel Shape: Circular

Barrel Diameter: 675.00 mm

Barrel Material: Smooth HDPE

Embedment: 0.00 mm

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Thin Edge Projecting (Ke=0.9)

Inlet Depression: None

Tailwater Data for Crossing: 85162-3491 Wallace Point Rd

Table 2 - Downstream Channel Rating Curve (Crossing: 85162-3491 Wallace Point Rd)

Flow (cms)	Water Surface Elev (m)	Depth (m)
0.23	196.05	-1.02
0.32	196.05	-1.02
0.38	196.05	-1.02

Tailwater Channel Data - 85162-3491 Wallace Point Rd

Tailwater Channel Option: Enter Constant Tailwater Elevation

Constant Tailwater Elevation: 196.05 m

Roadway Data for Crossing: 85162-3491 Wallace Point Rd

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 5.00 m

Crest Elevation: 198.17 m

Roadway Surface: Paved

Roadway Top Width: 6.00 m

Roadside Ditch

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jan 7 2026

Street A Road Ditch

Trapezoidal

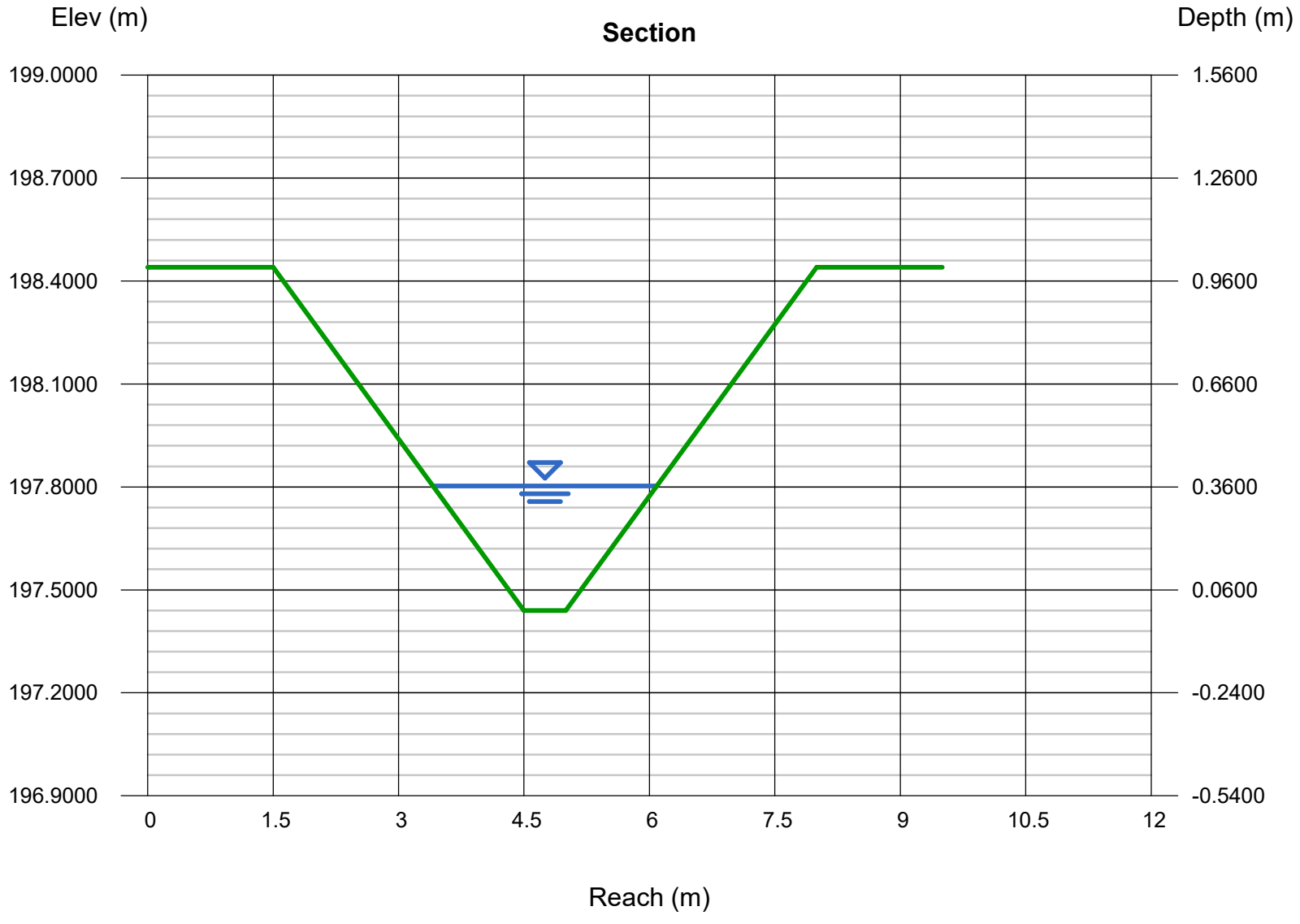
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 1.0000
Invert Elev (m)	= 197.4400
Slope (%)	= 0.5000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.4050

Highlighted

Depth (m)	= 0.3627
Q (cms)	= 0.4050
Area (sqm)	= 0.5760
Velocity (m/s)	= 0.7031
Wetted Perim (m)	= 2.7940
Crit Depth, Yc (m)	= 0.2560
Top Width (m)	= 2.6763
EGL (m)	= 0.3879



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Jan 7 2026

Street C Road Ditch

Trapezoidal

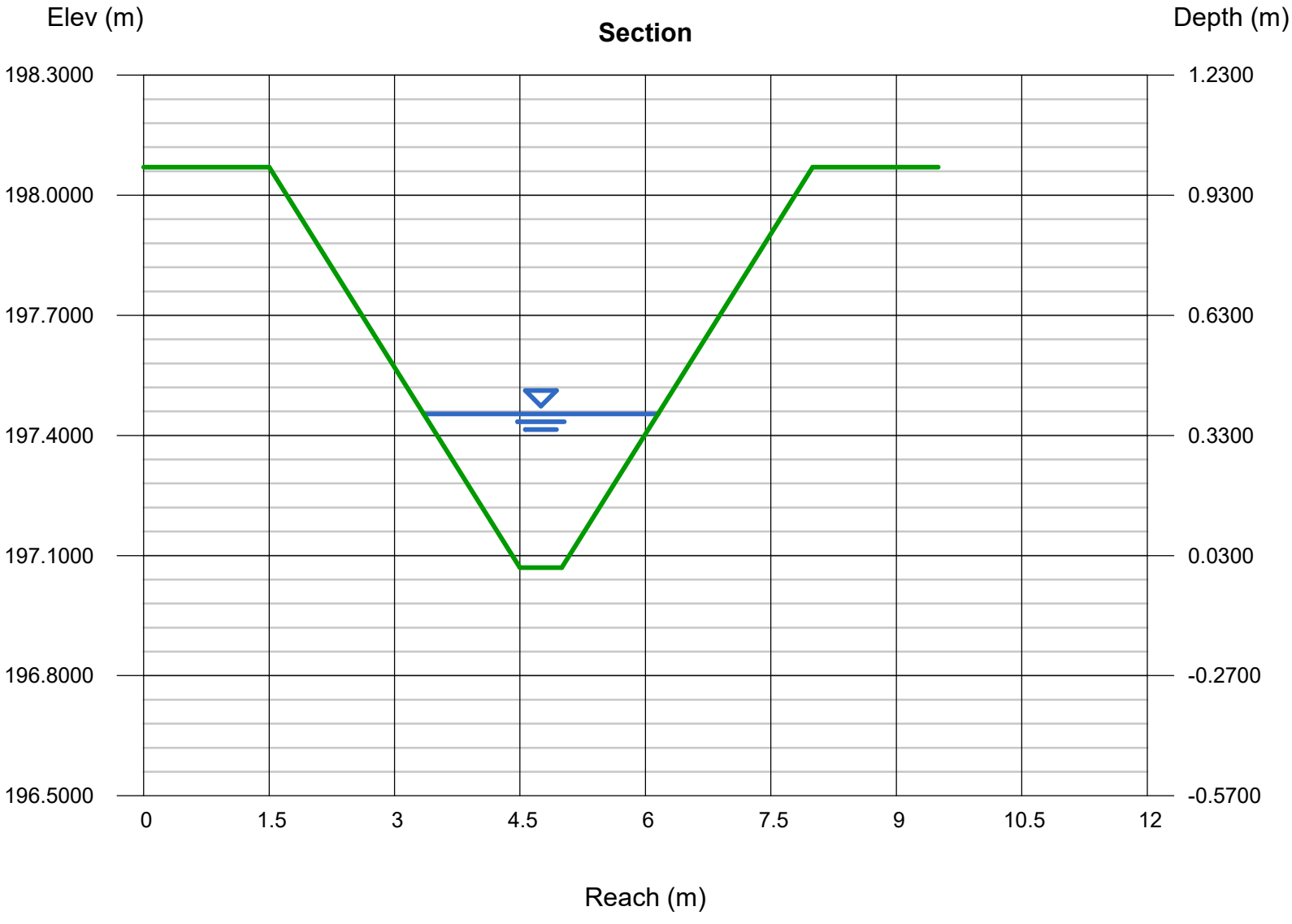
Bottom Width (m)	= 0.5000
Side Slopes (z:1)	= 3.0000, 3.0000
Total Depth (m)	= 1.0000
Invert Elev (m)	= 197.0700
Slope (%)	= 0.5000
N-Value	= 0.035

Calculations

Compute by:	Known Q
Known Q (cms)	= 0.4620

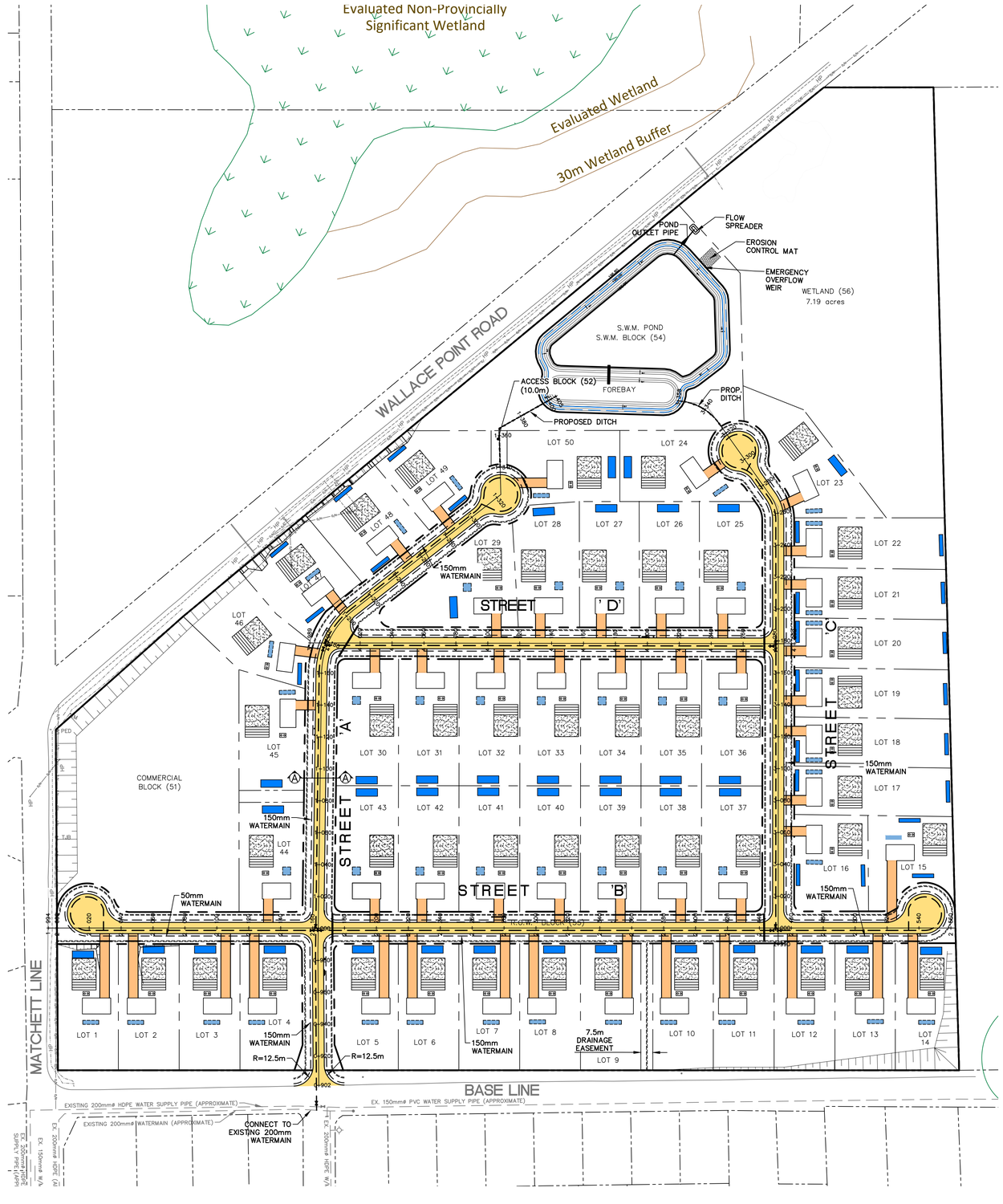
Highlighted

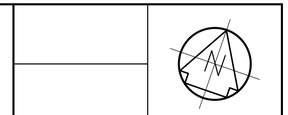
Depth (m)	= 0.3840
Q (cms)	= 0.4620
Area (sqm)	= 0.6345
Velocity (m/s)	= 0.7281
Wetted Perim (m)	= 2.9289
Crit Depth, Yc (m)	= 0.2743
Top Width (m)	= 2.8043
EGL (m)	= 0.4111



Appendix F

Preliminary Design Drawings





REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x214.00 x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

WILLS
D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9
P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

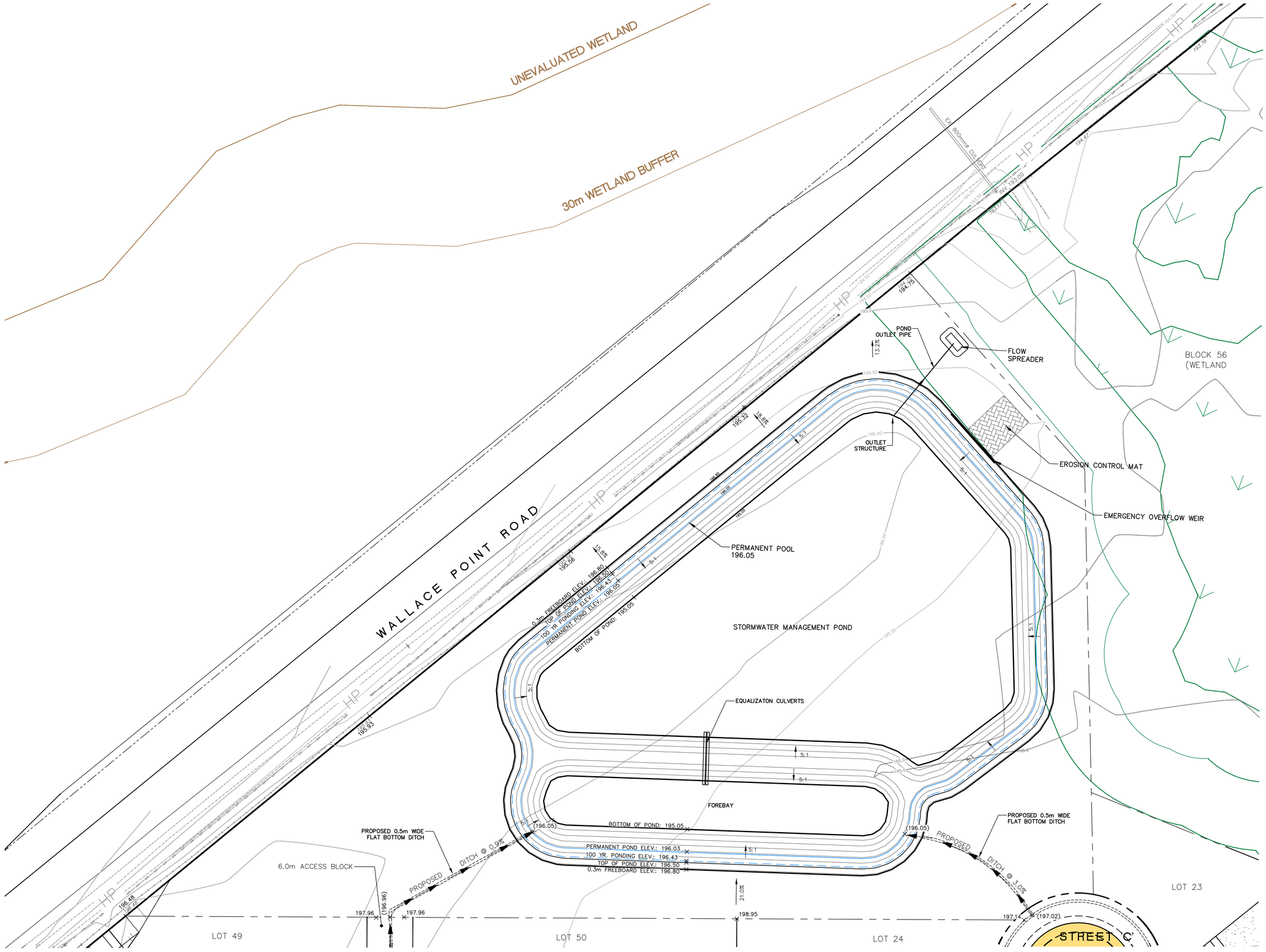
3491 WALLACE POINT ROAD, PETERBOROUGH

Drawing Title

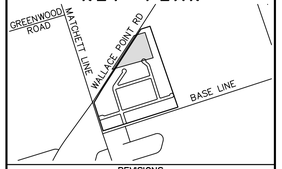
SERVICING PLAN

Drawn By: M.B./M.B.J.	SCALE: Horz. 1:1500	Vert. –	
Designed By: M.B./M.B.J.	Issue Date: MARCH 19, 2026.		
Checked By: J.R.	Project No.: 21-85162	Sht. No.:	
Engineer: –––	Dwg File No.: 85162 – SS	200	

NOT FOR CONSTRUCTION



KEY PLAN



REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- HP EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x 214.00 EX./PR. ELEVATION
- x(214.00) EX./PR. SWALE/BTM OF DITCH ELEVATION

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C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

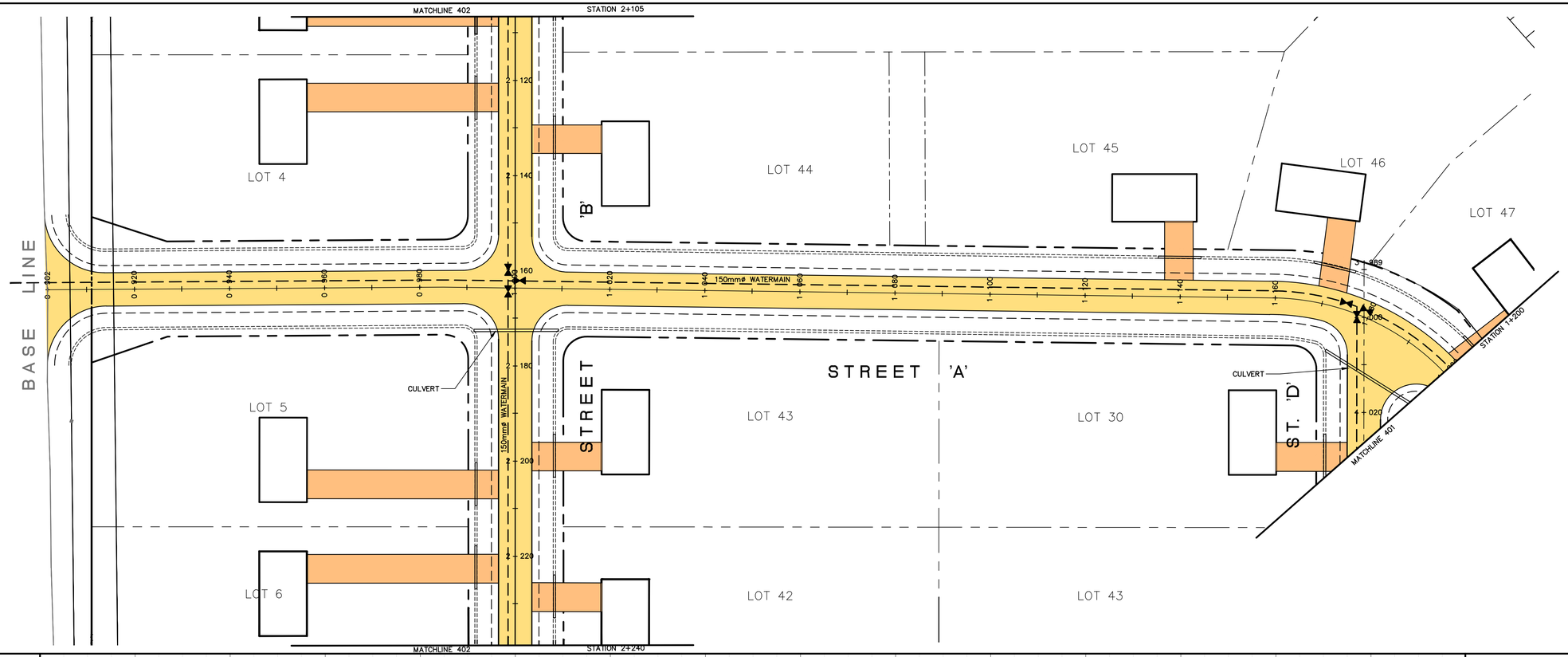
3491 WALLACE POINT ROAD, PETERBOROUGH

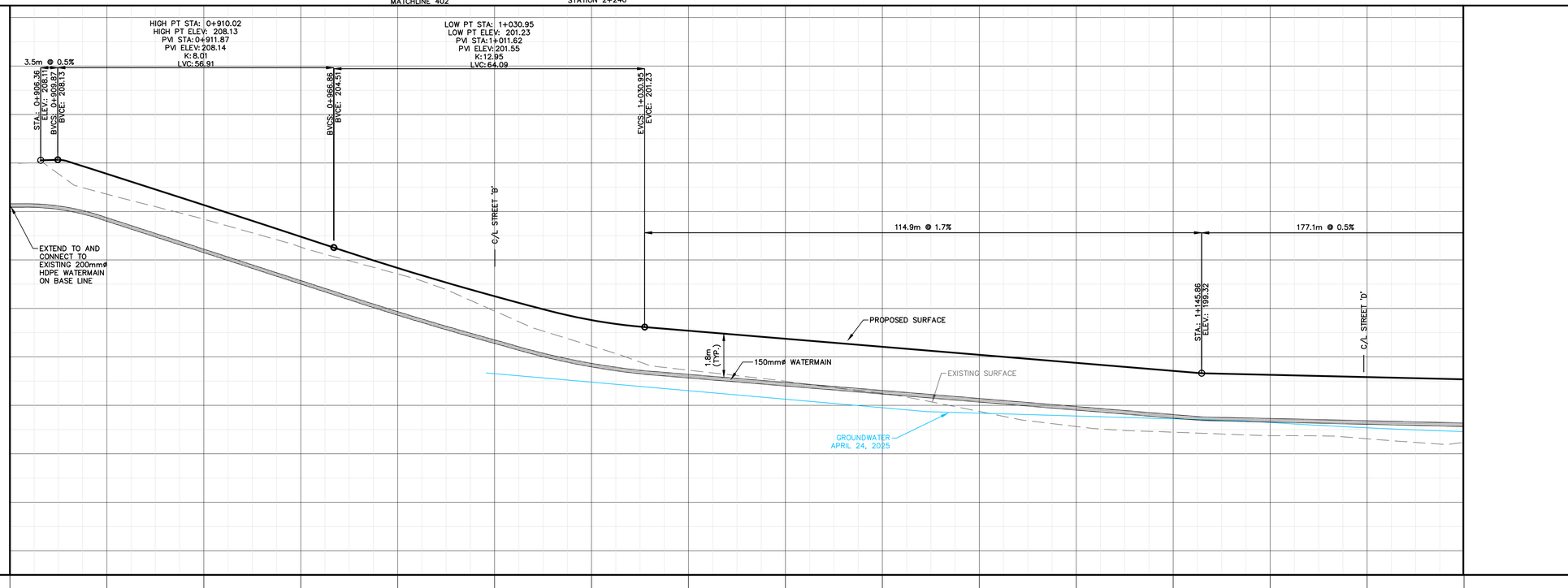
Drawing Title

STORMWATER MANAGEMENT POND

Drawn By: M.B.J.	SCALE: Horz. 1:400	Vert. –	
Designed By: S.C.	Issue Date: MARCH 19, 2026.		
Checked By: J.R.	Project No.: 21-85162	Sht. No.:	
Engineer: C.P.	Dwg File No.: 85162 – POND	300	

NOT FOR CONSTRUCTION





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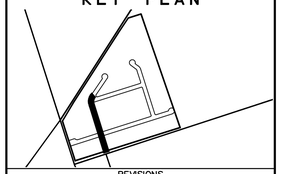


REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x214.00 x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

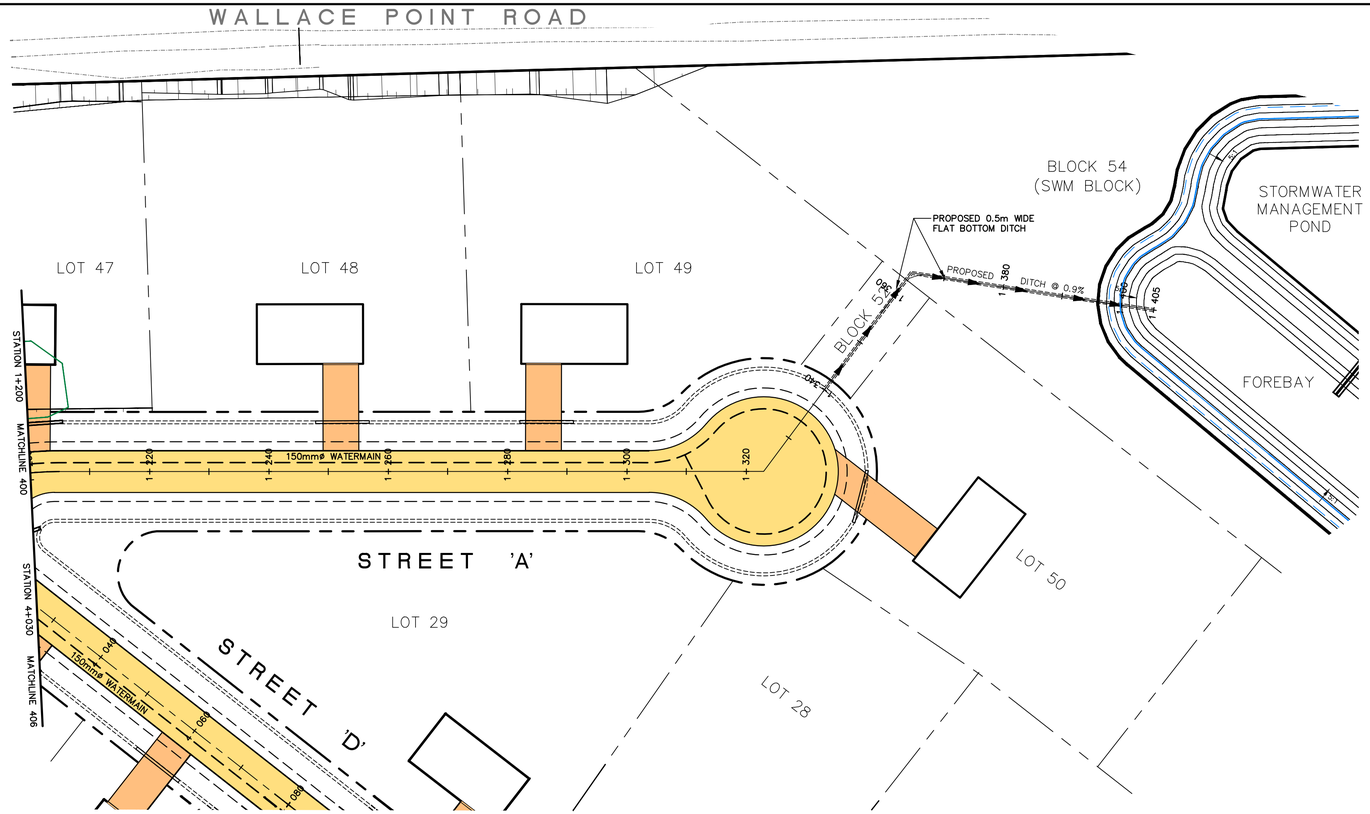
3491 WALLACE POINT ROAD, PETERBOROUGH

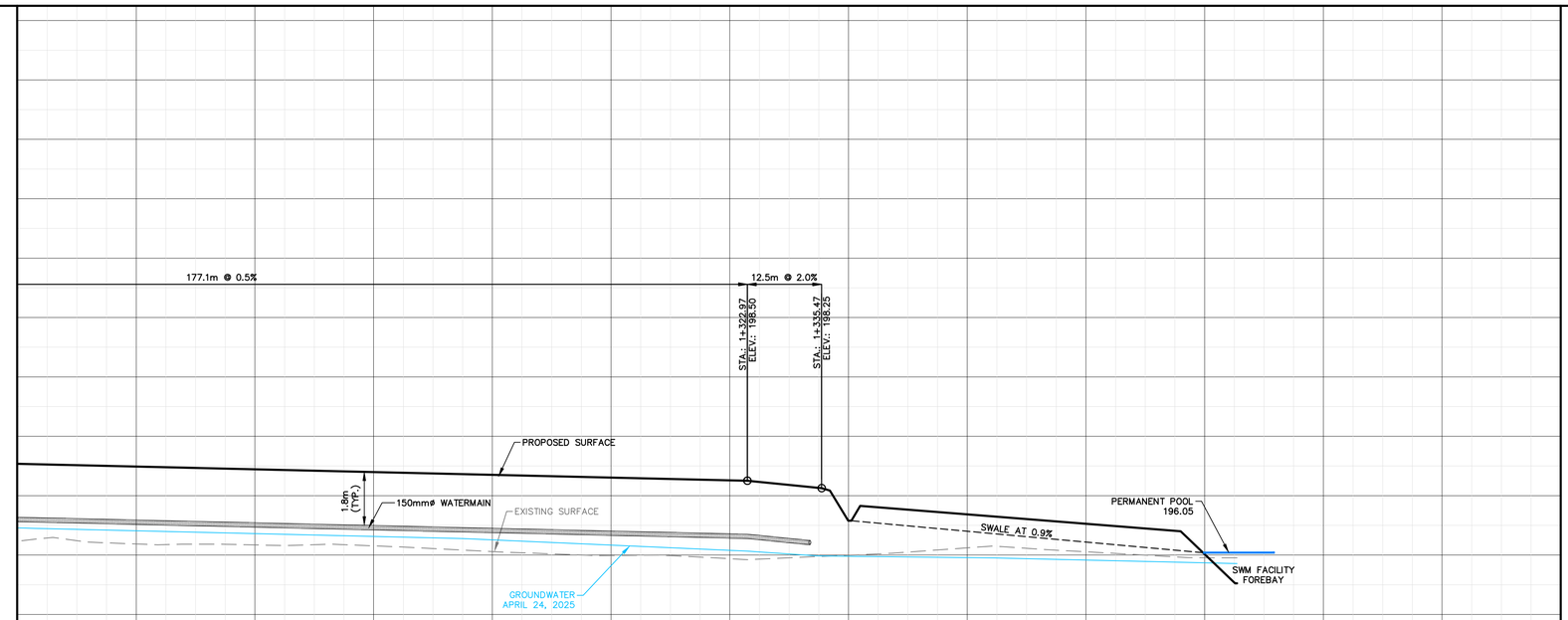
Drawing Title

PLAN and PROFILE STREET 'A' STA. 0+906 to 1+200

Drawn By: MBJ	SCALE: Horz. 1:500	Vert. 1:50	
Designed By: MBJ	Issue Date: MARCH 19, 2026		
Checked By: JR	Project No.: 21-85162	Sht. No.:	
Engineer: CP	Dwg File No.: PP	400	

NOT FOR CONSTRUCTION

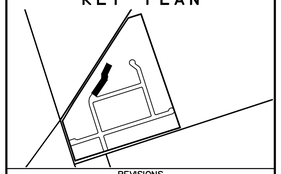




CHAINAGE / PR. ELEV. / EX. ELEV.

1+200	1+220	1+240	1+260	1+280	1+300	1+320	1+340	1+360	1+380	1+400	1+420	1+440	1+460
199.07 / 196.47	198.98 / 196.37	198.89 / 196.34	198.80 / 196.31	198.70 / 196.12	198.61 / 195.99	198.52 / 195.88	196.00	196.24	196.11	195.91			

KEY PLAN



REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x214.00 x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

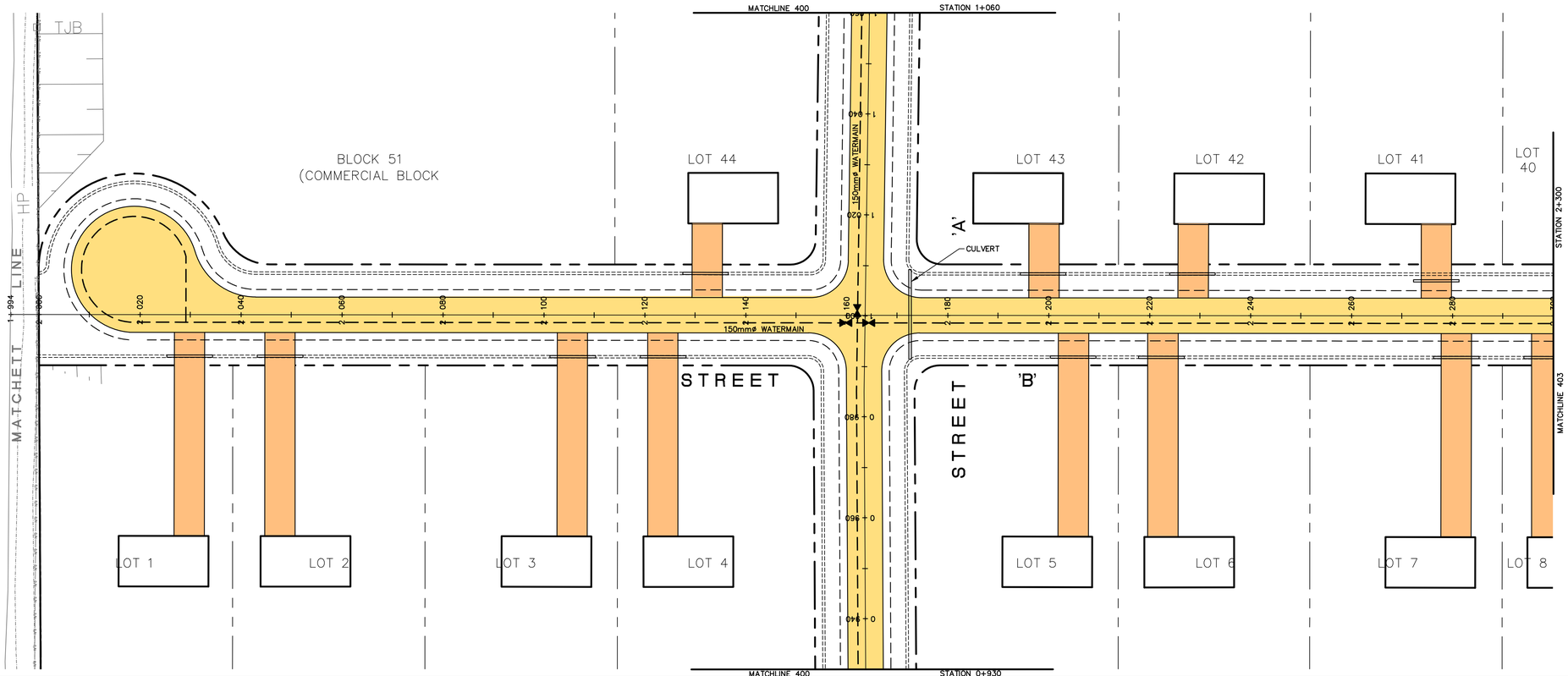
3491 WALLACE POINT ROAD, PETERBOROUGH

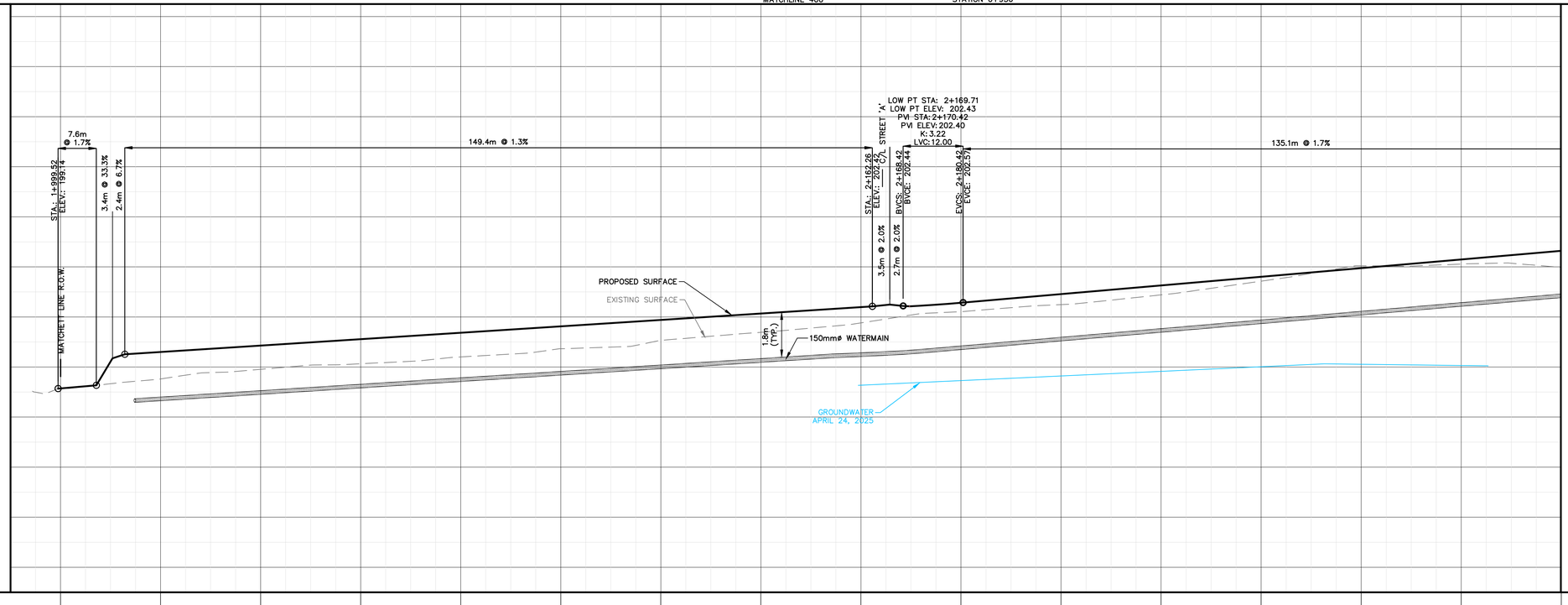
Drawing Title

PLAN and PROFILE STREET 'A' STA. 1+200 to 1+400

Drawn By: MBJ	SCALE: Horz. 1:500 Vert. 1:50		
Designed By: MBJ	Issue Date: MARCH 19, 2026.		
Checked By: JR	Project No.: 21-85162	Sht. No.:	
Engineer: CP	Dwg File No.: PP	401	

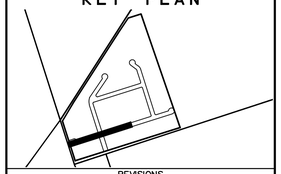
NOT FOR CONSTRUCTION





CHAINAGE	1+980	2+000	2+020	2+040	2+060	2+080	2+100	2+120	2+140	2+160	2+180	2+200	2+220	2+240	2+260	2+280	2+300
PR. ELEV.		199.14	200.60	200.86	201.11	201.37	201.63	201.88	202.14	202.39	202.57	202.91	203.26	203.60	203.95	204.30	204.64
EX. ELEV.		199.14	199.52	199.91	200.13	200.40	200.93	201.06	201.38	201.76	202.21	202.49	202.88	203.43	204.05	204.11	203.98

KEY PLAN



REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x 214.00 x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

WILLS

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

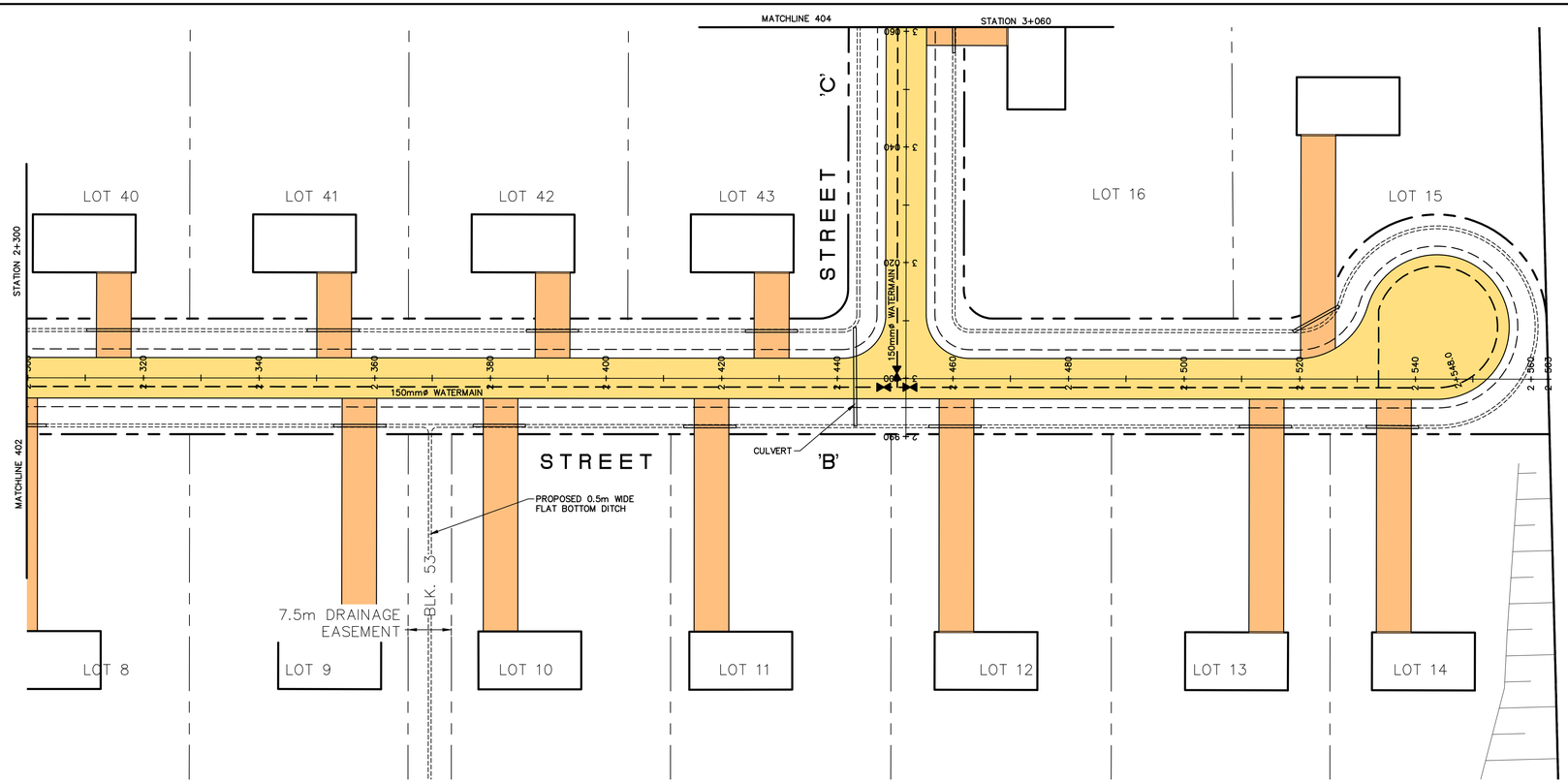
3491 WALLACE POINT ROAD, PETERBOROUGH

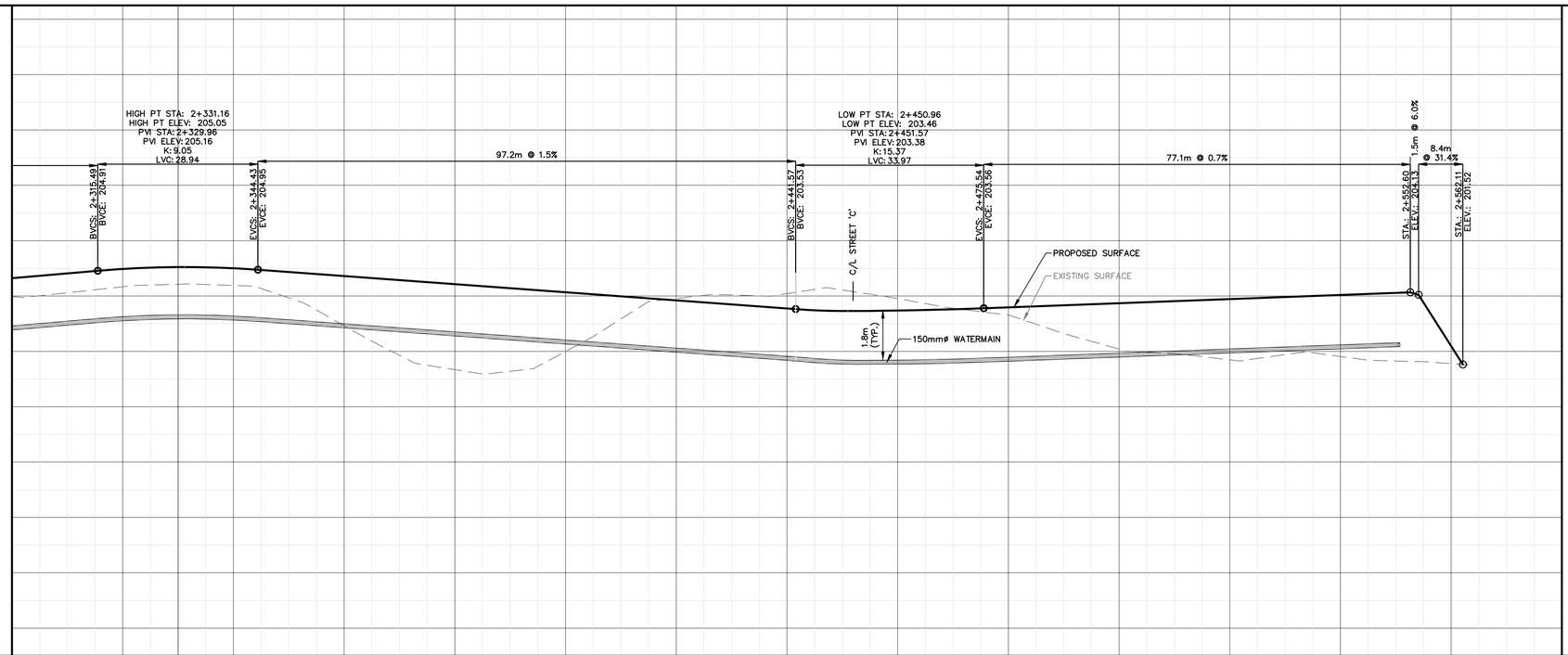
Drawing Title

PLAN and PROFILE STREET 'B' STA. 2+000 to 2+300

Drawn By: MBJ	SCALE: Horz. 1:500 Vert. 1:50		
Designed By: MBJ	Issue Date: MARCH 19, 2026.		
Checked By: JR	Project No.: 21-85162	Sht. No.:	
Engineer: CP	Dwg File No.: PP	402	

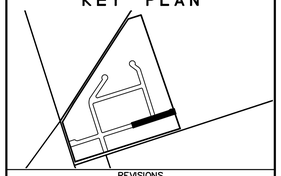
NOT FOR CONSTRUCTION





CHAINAGE	2+300	2+320	2+340	2+360	2+380	2+400	2+420	2+440	2+460	2+480	2+500	2+520	2+540	2+560	2+580
PR. ELEV.	204.64	204.98	205.00	204.72	204.43	204.13	203.84	203.55	203.47	203.59	203.74	203.89	204.04	202.19	
EX. ELEV.	203.98	204.33	204.38	202.92	201.34	202.00	203.91	204.08	203.91	203.31	202.08	201.69	201.81	201.56	

KEY PLAN



REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

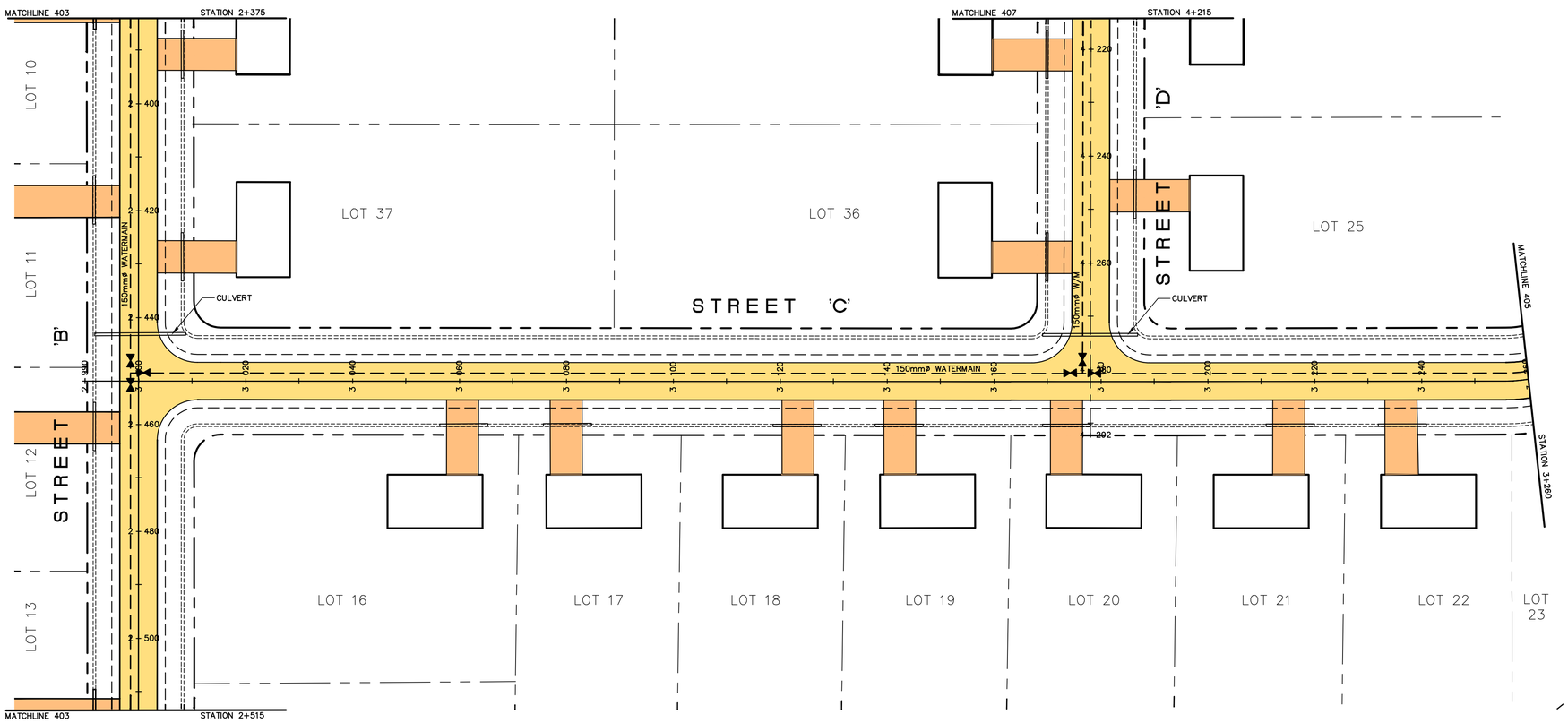
3491 WALLACE POINT ROAD, PETERBOROUGH

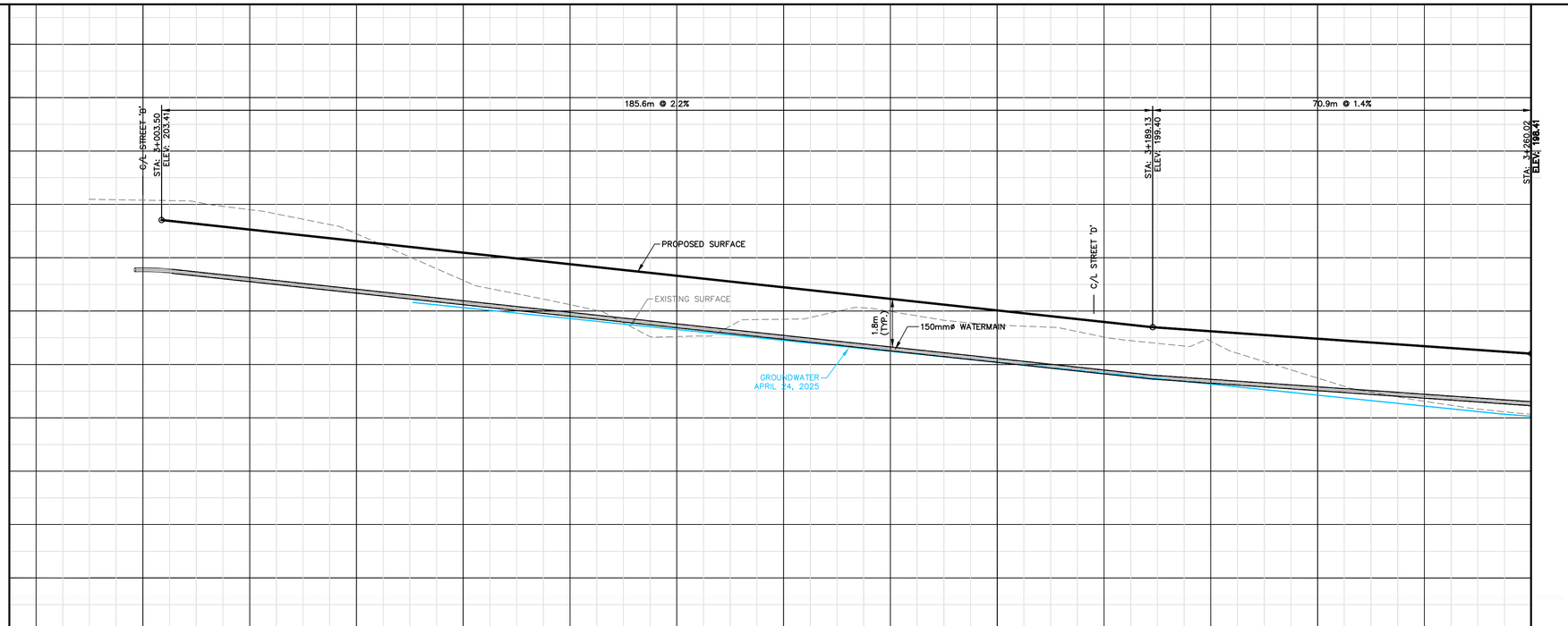
Drawing Title

PLAN and PROFILE STREET 'B' STA. 2+300 to 2+580

Drawn By: MBJ	SCALE: Horz. 1:500 Vert. 1:50		
Designed By: MBJ	Issue Date: MARCH 19, 2026.		
Checked By: JR	Project No.: 21-85162	Sht. No.:	
Engineer: CP	Dwg File No.: PP	403	

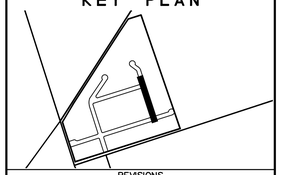
NOT FOR CONSTRUCTION





CHAINAGE	2+980	3+000	3+020	3+040	3+060	3+080	3+100	3+120	3+140	3+160	3+180	3+200	3+220	3+240	3+260
PR. ELEV.				202.62	202.19	201.76	201.33	200.89	200.46	200.03	199.60	199.25	198.97	198.69	198.41
EX. ELEV.		204.16	203.80	202.90	201.15	200.24	199.84	199.70	199.58	199.47	199.63	198.87	197.49	196.62	196.14

KEY PLAN



REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

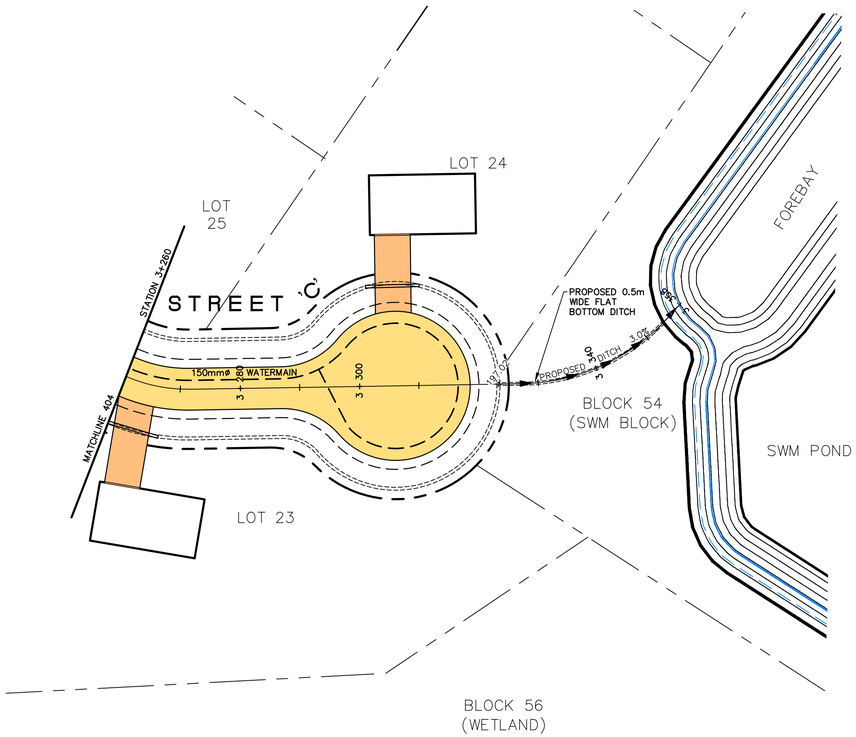
3491 WALLACE POINT ROAD, PETERBOROUGH

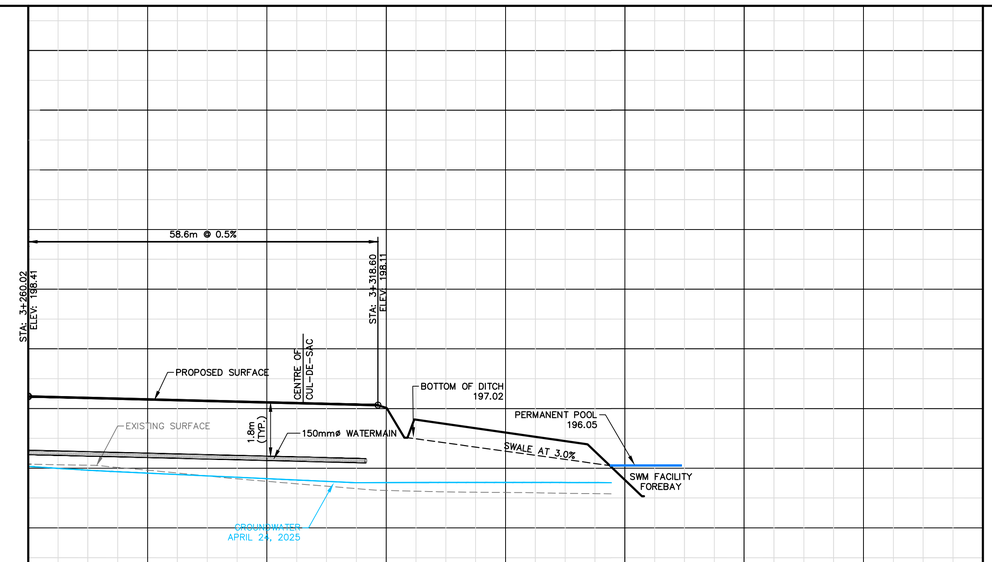
Drawing Title

PLAN and PROFILE STREET 'C' STA. 2+990 to 3+260

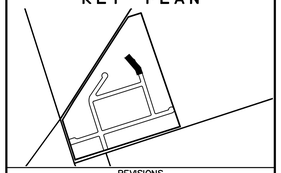
Drawn By: MBJ	SCALE: Horz. 1:500	Vert. 1:50	
Designed By: MBJ	Issue Date: MARCH 19, 2026.		
Checked By: JR	Project No.: 21-85162		Sht. No.:
Engineer: CP	Dwg File No.: PP		404

NOT FOR CONSTRUCTION





KEY PLAN



REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- HP EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- SEPTIC TANK
- TILE FIELD AND MANTLE
- x214.00 x 214.00 EX./PR. ELEVATION

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

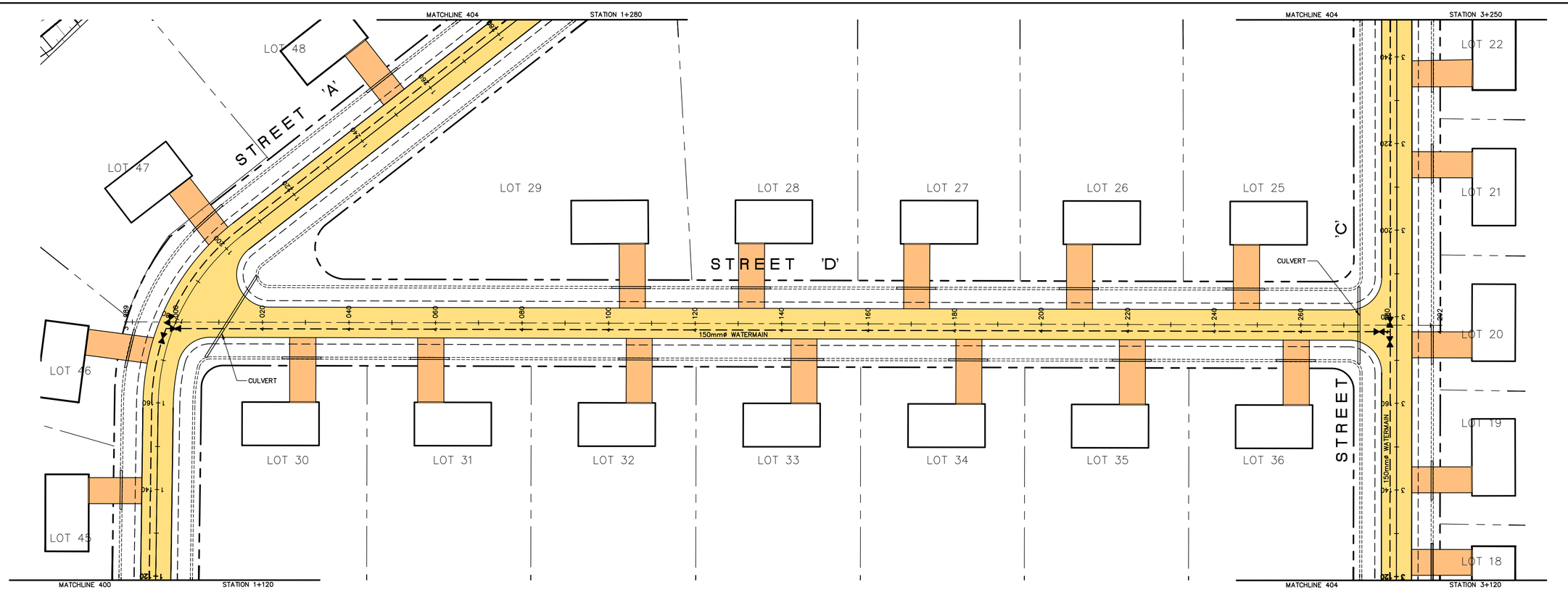
3491 WALLACE POINT ROAD, PETERBOROUGH

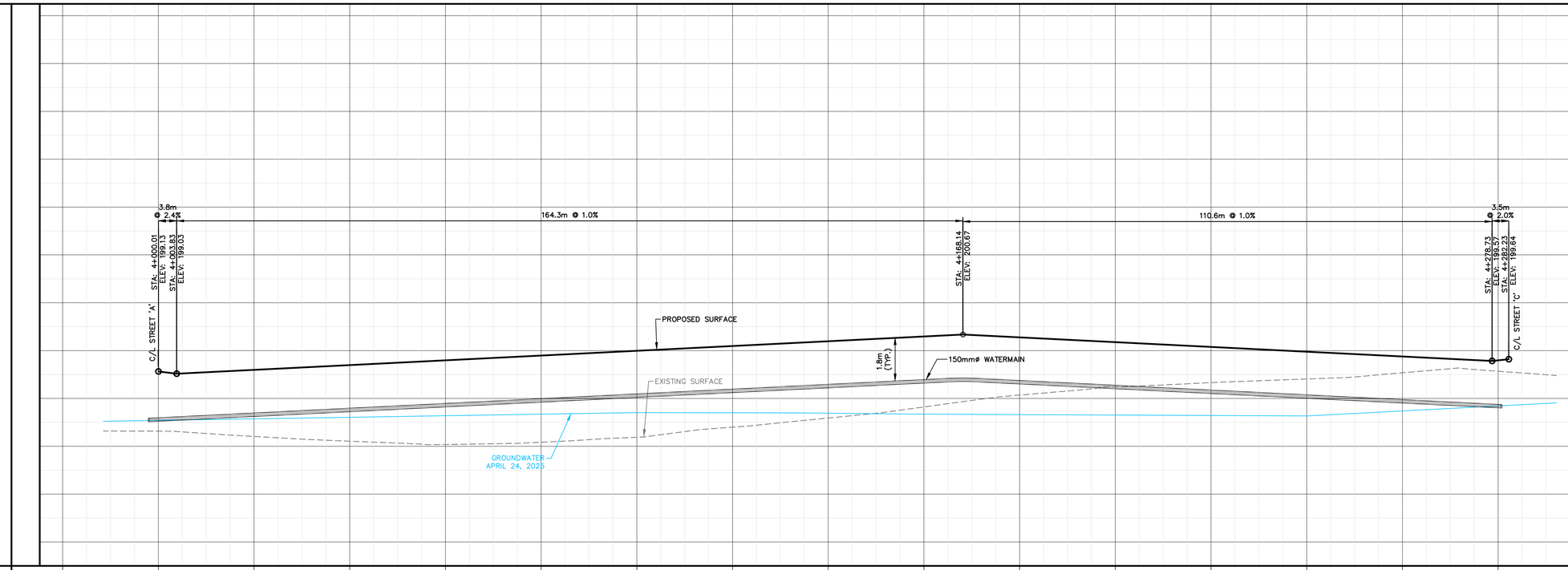
Drawing Title

PLAN and PROFILE STREET 'C' STA. 3+260 to 3+420

Drawn By: MBJ	SCALE: Horz. 1:500	Vert. 1:50	
Designed By: MBJ	Issue Date: MARCH 19, 2026		
Checked By: JR	Project No.: 21-85162		Sht. No.:
Engineer: CP	Dwg File No.: PP		405

NOT FOR CONSTRUCTION





CHAINAGE	3+980	4+000	4+020	4+040	4+060	4+080	4+100	4+120	4+140	4+160	4+180	4+200	4+220	4+240	4+260	4+280	4+300
PR. ELEV.			198.19	199.39	199.59	199.79	199.99	200.19	200.39	200.59	200.55	200.35	200.15	199.95	199.75	199.59	
EX. ELEV.		196.63	196.41	196.21	196.07	196.17	196.38	196.80	197.18	197.64	198.14	198.49	198.66	198.81	199.07	199.14	

KEY PLAN

REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED MEDIUM DUTY ASPHALT
- PROPOSED SURFACE DRAINAGE STORAGE AREA
- PROPOSED UNDERGROUND DRAINAGE STORAGE AREA
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- EX. OVERHEAD HYDRO
- EX. UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- PR. CULVERT
- PR. CATCH BASIN
- EX./PR. WATERMAIN
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Mar 19, 2026
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Peterborough, Ontario
Canada K9J 0B9

P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

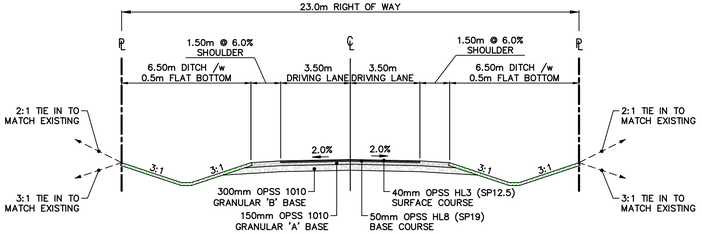
PROPOSED RESIDENTIAL DEVELOPMENT

3491 WALLACE POINT ROAD, PETERBOROUGH

Drawing Title: PLAN and PROFILE STREET 'D' STA. 4+000 to 4+202

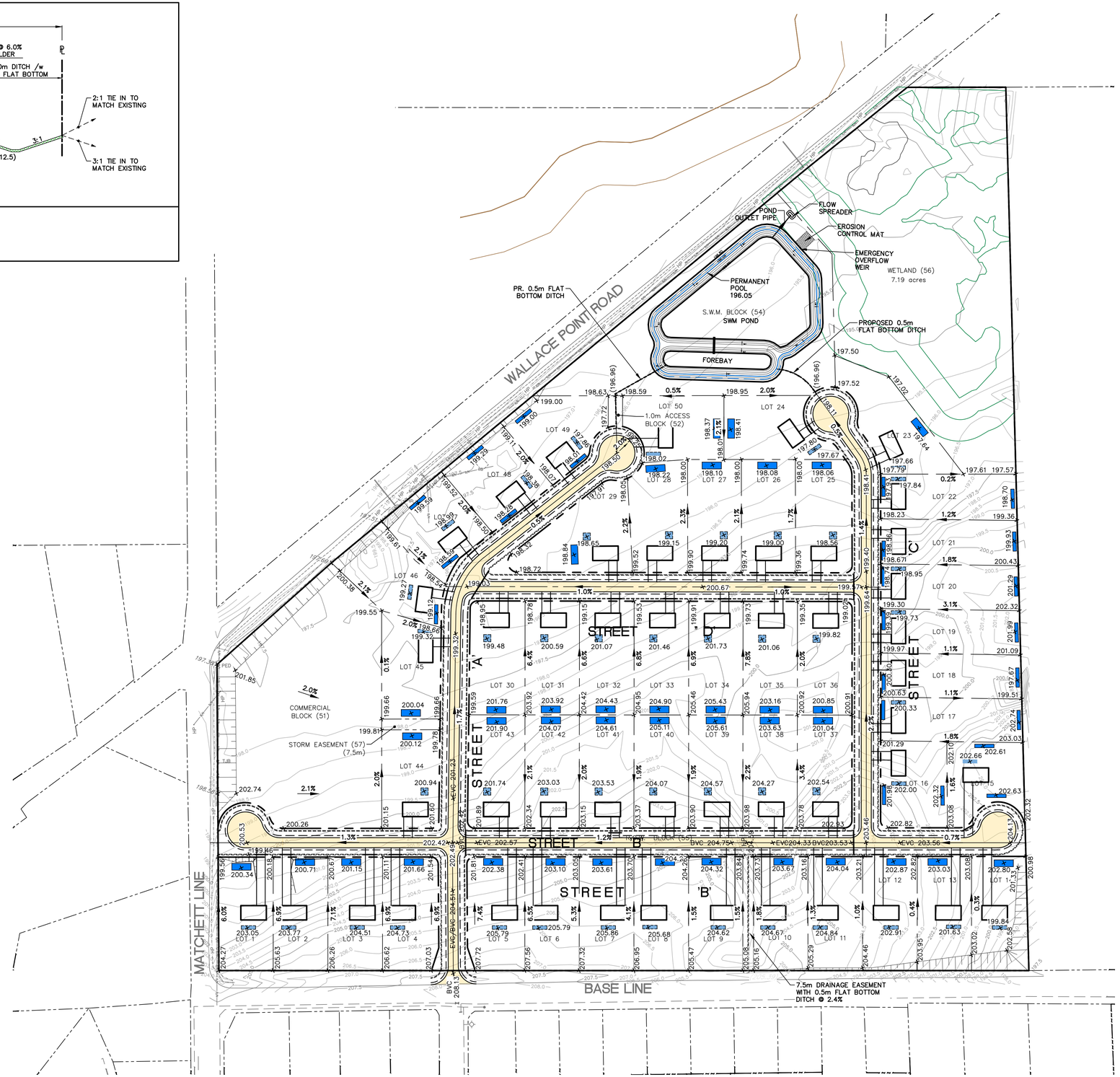
Drawn By: MBJ	SCALE: Horz. 1:500 Vert. 1:50		
Designed By: MBJ	Issue Date: MARCH 19, 2026		
Checked By: JR	Project No.: 21-85162	Sht. No.:	
Engineer: CP	Dwg File No.: PP	406	

NOT FOR CONSTRUCTION



A–A DETAIL – TYPICAL CROSS SECTION

SCALE = 1:150



KEY PLAN

REVISIONS

No.	Description	Date
2	DRAFT PLAN APPROVAL	03/19/26
1	FIRST SUBMISSION	04/21/23

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND TO BE READ IN CONJUNCTION WITH OPSD 100 SERIES

- PR. HEAVY DUTY ASPHALT
- EX. BUILDING
- EX./PR. EDGE OF PAVEMENT
- EX./PR. ROAD CENTERLINE
- EX./PR. EDGE OF SHOULDER/GRAVEL
- EX./PR. WATER VALVE
- EXISTING HYDRO POLE
- OVERHEAD HYDRO
- UNDERGROUND HYDRO
- EX./PR. DITCH
- PR. SWALE
- CULVERT
- R.O.W
- PROPERTY LINE
- EXISTING VEGETATION
- PROPOSED HOUSE WITH 2 CAR GARAGE
- x214.00 EX./PR. ELEVATION
- (x214.00) EX./PR SWALE/DITCH ELEV.
- PR. SURFACE DRAINAGE STORAGE AREA
- PR. UNDERGROUND DRAINAGE STORAGE AREA

LICENSED PROFESSIONAL ENGINEER
C.M.PROCTOR
100195369
Mar 19, 2026
PROVINCE OF ONTARIO

WILLS
D.M. Wills Associates Limited
150 Jameson Drive
Peterborough, Ontario
Canada K9J 0B9
P. 705.742.2297
F. 705.748.9944
E. wills@dmwills.com

Project Name/Location

PROPOSED RESIDENTIAL DEVELOPMENT

3491 WALLACE POINT ROAD, PETERBOROUGH

Drawing Title

PRELIMINARY GRADING

Drawn By: M.B.J.	SCALE: Horz. 1:1500 Vert. –		
Designed By: M.B.J.	Issue Date: MARCH 19, 2026.		
Checked By: C.P.	Project No.: 21–85162	Sht. No.:	500
Engineer: C.P.	Dwg File No.: MP		

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