

**FLOOD HAZARD ASSESSMENT**

**129 DELPHI LANE**

**TOWN OF THE BLUE MOUNTAINS  
GREY COUNTY**

**PREPARED FOR:**

**KEN SZEKELY**

**PREPARED BY:**

**C.F. CROZIER & ASSOCIATES INC.  
70 HURON STREET, SUITE 100  
COLLINGWOOD, ON L9Y 4L4**

**OCTOBER 2025**

**CFCA FILE NO. 2615-6993**

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## 1.0 INTRODUCTION

CF Crozier & Associates (Crozier) was retained by Ken Szekely to complete a Flood Hazard Assessment for the watercourse located within 129 Delphi Lane and 209171 HIGHWAY 26 (Subject Property) in the Town of Blue Mountains (Town) and the watercourse will herein be referred to as "Outlet 26". The Subject Property is legally described as COLLINGWOOD CON 5 PT LOT 26 . Refer to **Figure 1** for the site location and the Legal Survey in **Appendix A** for the limits of the property.

The subject property covers an area of approximately 1.44 hectares (3.55 acres) and currently contains existing residential buildings, a gravel entrance, forested areas, lawn areas, and is traversed by Delphi Lane near the southern bounds of the property. The property, located in a rural neighborhood, is bounded by existing residential properties to the west and east, Highway 26 to the south, and Georgian Bay to the north.

A tributary of "Outlet 26" (as identified in the *Town of the Blue Mountains 90% Town-Wide Master Drainage Study, Tatham 2024*) traverses through the Subject Property along the west boundary and outlets to Georgian Bay on the north-west corner of the site. The development includes the demolition of an existing dwelling to allow for the construction of a new dwelling, as well as the extension of another existing dwelling. The proposed Site Plan has been included in **Appendix A**.

The property is located within the Grey Sauble Conservation Authority (GSCA) regulated area. The purpose of this assessment is to confirm the Regulatory Floodplain (100-year) limit and the Frequent Floodplain (25-year) limit for Outlet 26 within the limits of the Subject Property.

## 2.0 SITE DESCRIPTION

The Subject Property currently consists of treed areas surrounding an existing dwelling and driveway. The existing drainage feature in the Subject Lands is the "Outlet 26" watercourse located along the west side of the Subject Property which features moderate vegetation and tree cover within the riparian corridor. The outlet traverses the site from south to north, exiting the site at the northern property boundary whereupon it outlets into Georgian Bay. The waterway is generally straight and contained within a well-defined channel throughout the site.

## 3.0 HYDROLOGIC MODELING

### 3.1 Watershed Drainage Conditions

The Subject Property is located within the GSCA regulated area of Outlet 26. The proposed flood hazard study intends to examine the regulatory floodplain and the frequent flooding elevation of Outlet 26 within the site.

The Town of the Blue Mountains Town-Wide Mater Drainage Study assessed peak flows for Outlet 26. Table 12 of the Town-Wide Master Drainage Study identifies a future condition peak regulatory flowrate representing the 100-year event of 10.5 m<sup>3</sup>/s in Outlet 26 with a drainage area of approximate 113.7 ha. The peak flow rates shown in Table 12 include increased flowrates to account for future developed conditions in the watershed. An excerpt from Table 12 is included in **Appendix B**.

Our office has prepared a hydrologic model of the drainage area contributing to Outlet 26 using Visual OTTHYMO Version 6.2 (VO) to verify the flows for the watercourse. The hydrologic point of interest for this assessment is the Subject Property located at 129 Delphi Lane which is Outlet 26 bisects prior to ultimately draining to Georgian Bay.

Design storms were setup within the VO model using the rainfall intensity data presented in Table 4.4.1-1 in the Town of The Blue Mountains Engineering Standards, this data includes a 10% increase to account for climate change.

The study area is defined as part of the Outlet 26 catchment that drains directly to the Georgian Bay. A digital elevation model (DEM) was used to determine the external contributing area for the watercourse that runs through the Subject Property, the contours prepared using the DEM information can be seen on **Figure 2**. The majority of the drainage areas are external to the site, with the topographic survey internal to the subject property prepared by Van Harten (October, 2024) demonstrating that majority of the site itself drains to the east away from Outlet 26. To facilitate the hydrologic model the following three catchments have been discretized based on existing drainage conditions.

- Catchment PRE-1: This catchment area is approximately 2.74ha and is located at the downstream end of Outlet 26 watercourse. It consists of primarily of an undeveloped treed area. This catchment was modeled using the NASHYD Command.
- Catchment PRE-2: This catchment area is approximately 3.74ha and is located on both the north and south sides of highway 26. This catchment consists primarily of impervious surfaces such as parking lots, buildings and roadways, and therefor was modeled using the STANHYD Command.
- Catchment PRE-3: This catchment area is approximately 34.84 ha and is located north and upstream of the other two catchments. It consists primarily of undeveloped treed lands, including the south face of Blue Mountain, with a small portion of impervious areas associated with residential development. This catchment was modeled using the NASHYD Command.

To ensure conservative estimates within the hydrologic model, the three catchments were combined using the ADDHYD command to simulate the total contributing drainage area and to maximize the peak flow to Outlet 26.

### 3.2 Hydrologic Model Results

Hydrologic modeling was undertaken to establish the 25-year, 100-year and Regional (Timmins) Storm peak flow rates of the Watercourse using Visual OTTHYMO Version 6.2 (VO). Soil types were obtained from the Ontario Soil Survey Complex and land cover was determined using aerial imagery in order to determine the Curve Number (CN\*) values for each catchment. Time of concentration was calculated using the Airport method. The catchment area and CN\* used for the assessment are presented in **Figure 2**.

Refer to **Appendix B** for the hydrologic parameter sheets and VO model results. **Table 1** provides the peak flow values for outlet 26 as modeled by Crozier as well as the flows from the TOBM Master Drainage Report.

**Table 1: Watercourse Peak Flow Rates**

Design Storm	Peak Flow Rates (m <sup>3</sup> /s)		
	4-hour Chicago (Crozier)	12-hour SCS Type II (Crozier)	TOBM Master Drainage Table 12
25-Year	4.3	6.7	8.0
100-year	5.9	8.8	10.5
Regional (Timmins)	4.1		9.0

Seeing as the flows derived from the TOBM Master Drainage Study are greater than the peak flows determined by Crozier, these flows will be used for the Regulatory floodplain delineation in **Section 4** to provide a conservative approach to the flood study.

#### 4.0 HYDRAULIC MODEL SETUP

A Flood Hazard Analysis for the Subject Lands was performed using U.S. Army Corps' HEC-RAS hydraulic computer model, Version 6.6. The purpose of the analysis is to establish the existing Regulatory Floodplain (100-year) and Frequent Floodplain (25-year) limits across the study area based on a topographic survey of the Subject Lands and supplemented with LiDAR-derived digital terrain provided by the Grey Sauble Conservation Authority.

A site-specific topographic survey of the Subject Lands was completed by Van Harten (October, 2024), this survey has been included in **Appendix A**. The survey was used to establish culvert information at the Delphi Lane road crossing, road profile and channel/riverbank elevations. The LiDAR data was added to the topographic survey to model additional cross sections upstream and downstream of the Subject Lands as well as to extend cross sections into neighboring private properties for a more complete model analysis. Twenty (20) cross sections were extended across the Subject Land.

Manning's roughness values were selected for the main channel based on the watercourse conditions identified on site and the Manning's roughness for the overbanks were selected based on the typical land cover adjacent to the watercourse. The coefficients used are 0.035 for the main channels, 0.045 for the overbank areas which reflects the light to medium brush and trees, 0.1 for overbank area that are heavily treed, and lastly 0.018 for overbank areas that are paved.

A steady flow regime was modeled to conservatively estimate the hydraulic profile. The downstream boundary condition was set to be a known water surface elevation at Georgian Bay's high-water level of 178.0 m (as identified in the *Great Lakes System Flood Levels and Water Related Hazards, Ontario Ministry of Natural Resources 1989*).

The existing culvert crossing at Delphi Lane is a 3800mm CSP arch culvert, has been identified in the topographic survey provided by Van Harten (Van Harten, 2024).

This report will assess the flood hazard limits using the peak flows the 25-year and 100-year event from the TOBM Master Drainage Report in **Table 1**.

#### 4.1 Results

The slope of the main channel ranges from 0.5% to 2.0%. The relatively flat profile and high flow rate is indicative of surface flooding caused by some of the relatively shallow portions of the Watercourse.

Results from the hydraulic analysis of Outlet 26 are presented in **Table 2** and the extents of the Frequent Flooding and the Regulatory floodplains for the Subject Property are shown on **Drawing C101**. Refer to **Appendix C** for the detailed HEC-RAS outputs.

A Shoreline Hazard Assessment was also completed for the subject property (Tatham 2025), this assessment delineated a 100-year high-water level from Georgian bay at 177.90m of elevation has been identified on **Drawings C101**, however, the Georgian Bay high water level governed for the downstream boundary condition.

**Table 2: Water Surface Elevations**

Cross Section ID	Frequent Flooding (25-year) WSE (masl)	Regulatory Flooding (100-year) WSE (masl)
446 <sup>1</sup>	182.21	182.20
424 <sup>1</sup>	182.21	182.19
400 <sup>1</sup>	182.20	182.19
394 <sup>1</sup>	182.17	182.14
380 <sup>1</sup>	Culvert	
384 <sup>1</sup>	182.09	181.91
373	180.68	181.27
335	180.47	180.74
313	180.04	180.10
288	179.55	179.64
266	179.53	179.63
242	179.46	179.56
225	179.25	179.33
202	179.03	179.09
182 <sup>2</sup>	178.85	178.94
158	178.54	178.59
138	178.40	178.48
115	178.34	178.41
88 <sup>3</sup>	178.29	178.37
60 <sup>3</sup>	178.20	178.27
36	178.00	178.00

1 - Cross sections where the elevation of the Frequent Flooding Event is greater than the Regulatory Flooding Event, this is due to the road embankment behaving as a weir during overtopping in the regulatory event, allowing additional conveyance over the roadway and resulting in a reduced water surface elevation for the larger event.

2 – Cross section adjacent to the proposed expansion.

3 – cross sections adjacent to the proposed building.

Based on the results presented in from **Table 2**, the highest flood elevation adjacent to the proposed expansion is 178.94 and the highest flood elevation for the proposed building is 178.37, therefore a floodproofing elevation of 179.30 and 178.65 will be provided for the minimum opening of each structure.

The hydraulic model results show that the cross-sections upstream of the Delphi Lane road crossing (i.e. cross sections 400, 424, and 446) cannot contain the entirety of the peak flow within the watercourse and may result in spill flows leaving the watercourse. As a conservative approach to delineate the floodplain on the property, these cross-sections were not extended, and lateral structures were not implemented to keep the entire peak flows contained within the watercourse downstream of the crossing at the subject property.

## 5.0 CONCLUSIONS

Based on the foregoing we conclude the following:


- The use of flow values from the Town-Wide Master Drainage Study (Tatham, 2024) provides a conservative basis for this assessment, ensuring that the delineated floodplain limits represent a worst-case scenario under existing conditions.

- The hydraulic modeling indicates that the Outlet 26 watercourse is generally contained within the right bank of the existing channel through the Subject Property, with overtopping observed along the left bank during the modeled flood events.
- Given the location of the proposed expansion and the proposed building within the Subject Property, minimum elevations of 179.30 m and 178.65 m for all entrances must be met in order to provide approximately 0.35 m of freeboard above the respective potential water surface elevations during the flood event.
- The flood hazard limits encroach the Subject Lands and thus require permits from Grey Sauble Conservation Authority for development.

Given the above noted conclusions, the proposed building is outside of the limits of the frequent flooding elevation, and the regional flooding limit and thus can be supported.

Respectfully submitted,

**C.F. CROZIER & ASSOCIATES INC.**



Tyler Mills, E.I.T  
Engineering Intern

**C.F. CROZIER & ASSOCIATES INC.**

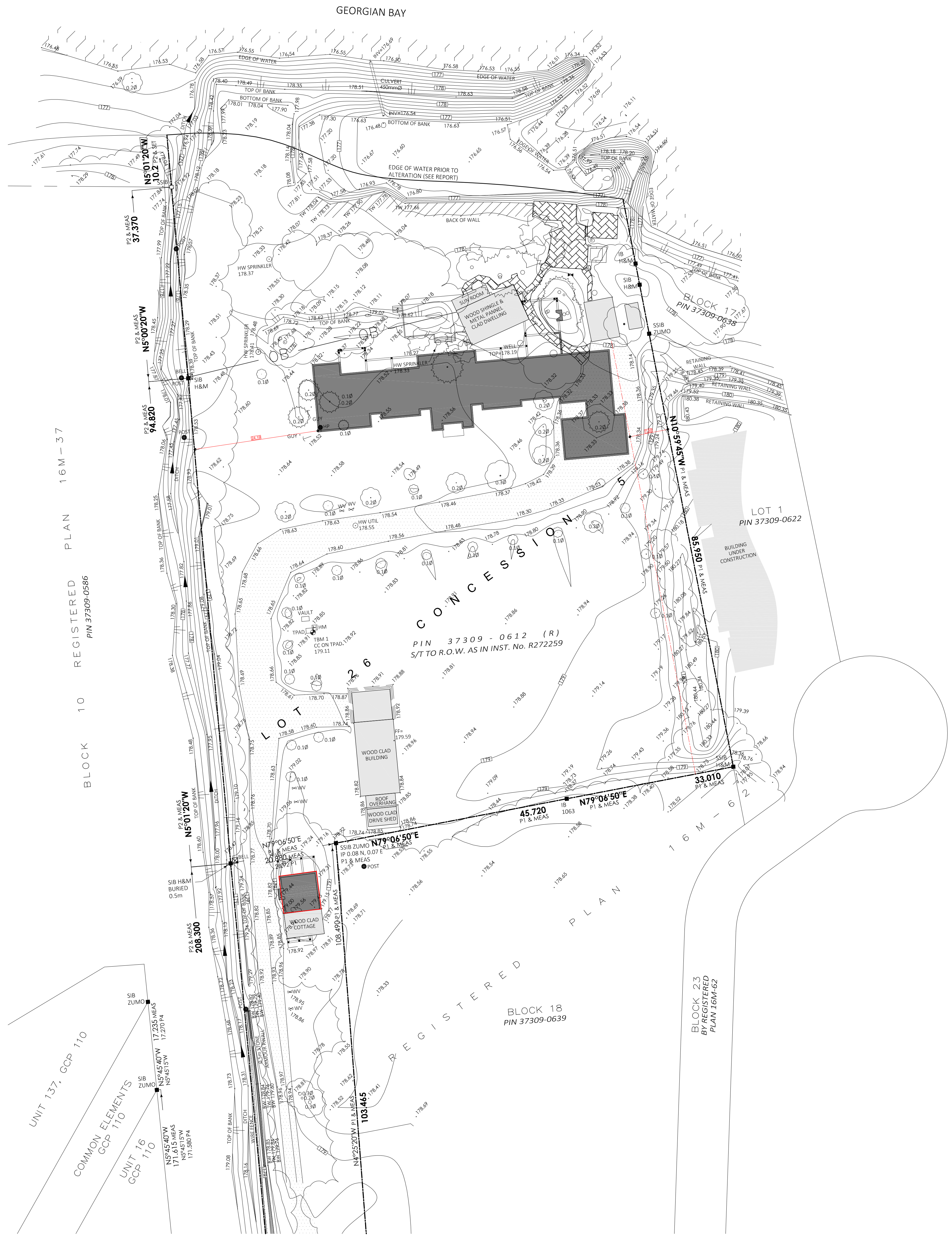


Jonathon Kerschbaumer, P.Eng  
Project Engineer

J:\2600\2615 - Ken Szekely\6993 - Szekely Property\\_Sent\2025.10.21 Flood Hazard Assessment

# APPENDIX A

Site Plan  
Site Survey



GEORGIAN BAY

BLOCK 10 REGISTERED PLAN 16M-37  
PIN 37309-0586

CONCESSION  
PIN 37309-0612 (R)  
S/T TO R.O.W. AS IN INST. No. R272259

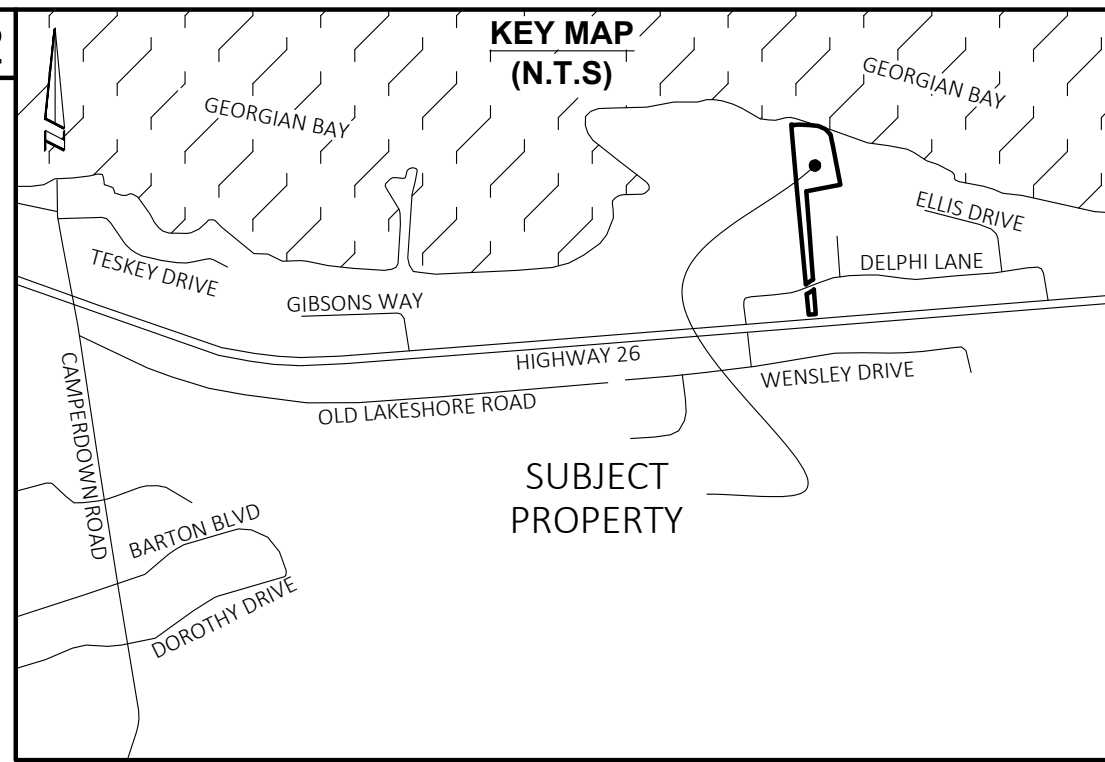
LOT 1  
PIN 37309-0622

UNIT 137, GCP 110  
COMMON ELEMENTS  
GCP 110

UNIT 16  
GCP 110

BLOCK 18  
PIN 37309-0639

BLOCK 23  
BY REGISTERED  
PLAN 16M-62



**PLAN OF SURVEY OF  
PART OF LOT 26  
CONCESSION 5  
(GEOGRAPHIC TOWNSHIP OF COLLINGWOOD)  
TOWN OF THE BLUE MOUNTAINS  
COUNTY OF GREY**

SCALE 1 : 400  
VAN HARTEN SURVEYING INC.

THE INTENDED PLOT SIZE OF THIS PLAN IS 610mm IN WIDTH BY 915mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:400

- LEGEND:**
- SURVEY MONUMENT SET
  - SURVEY MONUMENT FOUND
  - SIB .025 X .025 X 1.20 STANDARD IRON BAR
  - IB .015 X .015 X 0.60 IRON BAR
  - SSIB .025 X .025 X 0.60 SHORT STANDARD IRON BAR
  - RP .025 DIA. X 0.07 ROUND IRON BAR WITH STAMPED WASHER
  - PB .025 X .025 X 0.30 PLASTIC BAR
  - CC CUT CROSS
  - WIT WITNESS
  - OU ORIGIN UNKNOWN
  - VH VAN HARTEN SURVEYING INC., O.L.S.'S
  - N, E, S, W NORTH, EAST, SOUTH, WEST
  - P1 REGISTERED PLAN 16M-62
  - P2 REGISTERED PLAN 16M-37
  - P3 PLAN 16R-10553
  - P4 GREY VACANT CONDOMINIUM PLAN 110
  - 1063 ROBERT W. MACKEY, O.L.S.
  - H&M HEWETT & MILNE LTD., O.L.S.'S
  - ZUMO ZUBEK, EMO, PATTEN & THOMSEN LTD., O.L.S.'S
  - S/T SUBJECT TO
  - INST. REGISTRY OFFICE INSTRUMENT
  - R.O.W. RIGHT OF WAY
  - (R) NON-CONVERT PIN REMAINING IN LAND REGISTRY SYSTEM

- TOPOGRAPHIC LEGEND**
- OVERHEAD BELL
  - OVERHEAD HYDRO
  - FENCELINE
  - DITCH/SWALE
  - CENTRELINE OF ROAD
  - EDGE OF BUSH
  - TOP OF BANK
  - FINISHED FLOOR ELEVATION
  - TOP OF WALL
  - BOTTOM OF WALL
  - TOP OF CURB
  - BOTTOM OF CURB
  - EXISTING ELEVATION
  - MEASURED INVERT
  - BELL PEDESTAL
  - HYDRO POLE
  - GUY WIRE
  - LIGHT STANDARD
  - TRANSFORMER PAD
  - FENCE POST
  - DECIDUOUS TREE
  - BUSH
  - WATER
  - GRAVEL
  - OB
  - OH
  - X
  - FF=206.33
  - TW 206.33
  - BW 206.33
  - TC 206.33
  - BC 206.33
  - ×206.55
  - INV=300.00
  - BELL
  - HP
  - GUY
  - LS
  - TPAD
  - POST
  - CONIFEROUS TREE
  - SAPLING
  - SAPC or SAPD
  - ASPHALT
  - PAVESTONE
  - GV
  - MH
  - WV
  - VAULT
  - CB
  - HM

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**BENCHMARK:**  
ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS IN THE NAD83 (CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTV2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.  
SITE BM1: CUT CROSS ON TRANSFORMER PAD, 179.11m.  
SITE BM2: CUT CROSS ON CONCRETE HEAD WALL, 181.53m.

**NOTES:**

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- THE ORIGINAL VERSION OF THIS PLAN WAS PREPARED IN COLOUR.

**METRIC:**  
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1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.  
2. THIS SURVEY WAS COMPLETED ON THE 18th DAY OF OCTOBER, 2024.  
DATE: NOVEMBER 14, 2024

**RONALD MAK**  
ONTARIO LAND SURVEYOR

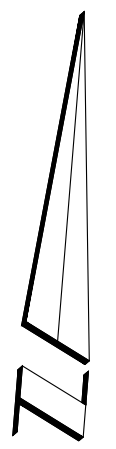
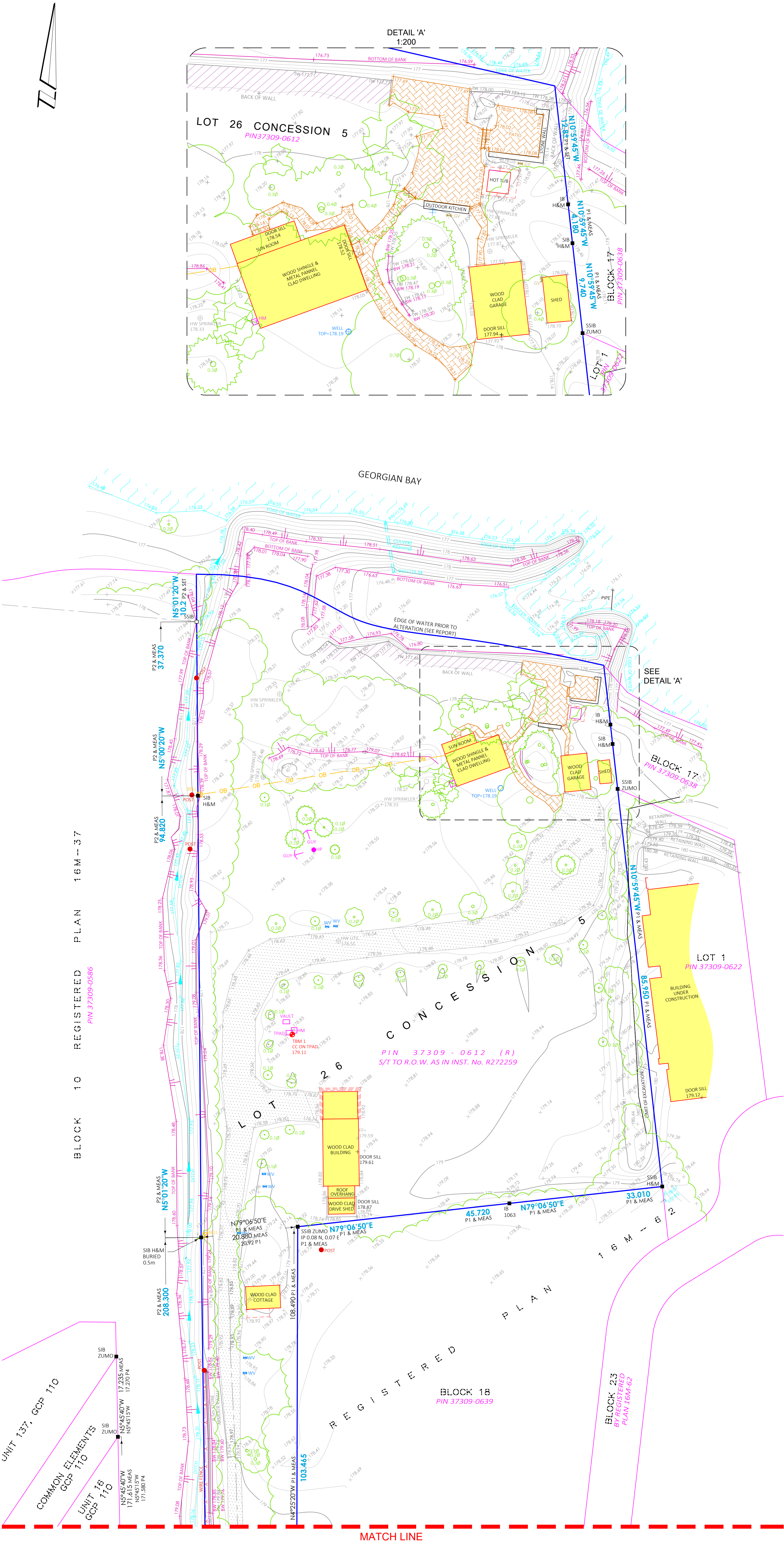
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**Van Harten**  
LAND SURVEYORS - ENGINEERS

Kitchener/Waterloo Ph: 519-742-8371 Guelph Ph: 519-821-2763 Orangeville Ph: 519-940-4110

www.vanharten.com info@vanharten.com

DRAWN BY: TJH CHECKED BY: RM PROJECT No: 33741-24  
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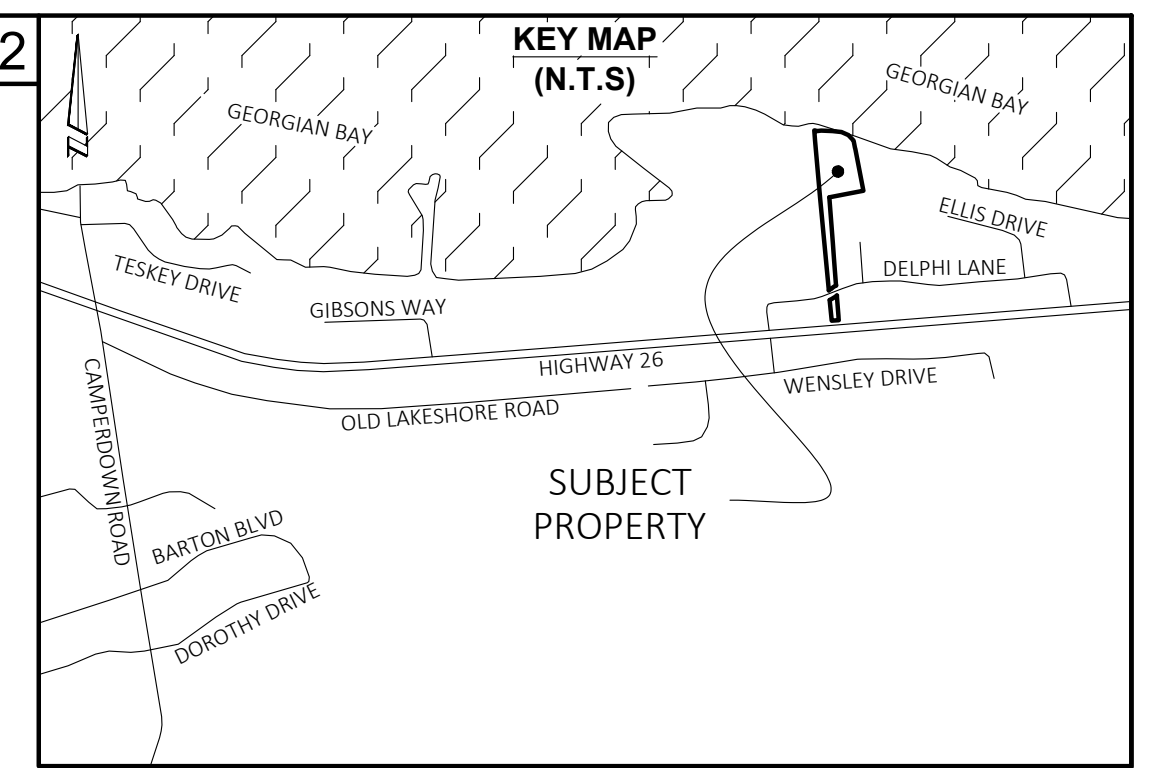
DETAIL 'A'  
1:200

BLOCK 10 REGISTERED PLAN 16M-37  
PIN 37309-0596

BLOCK 18  
REGISTERED  
PIN 37309-0639

BLOCK 23  
BY REGISTERED  
PLAN 16M-62

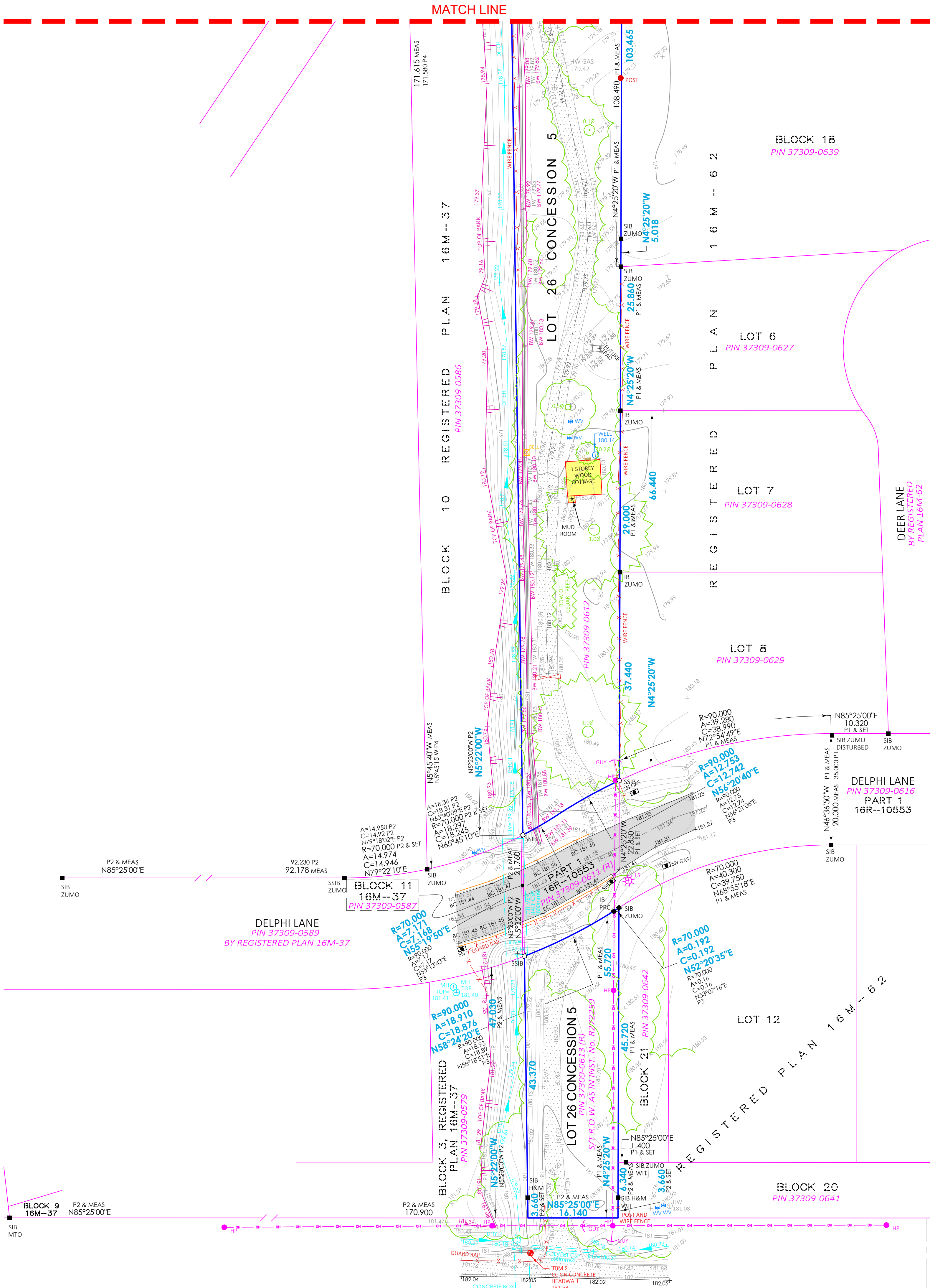
MATCH LINE



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  - OVERHEAD HYDRO — OH — OH
  - FENCELINE — X — X — X — X
  - DITCH/SWALE — — — — —
  - CENTRELINE OF ROAD — — — — —
  - EDGE OF BUSH — — — — —
  - TOP OF BANK — — — — —
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  - TOP OF WALL TW=206.33
  - BOTTOM OF WALL BW=206.33
  - TOP OF CURB TC=206.33
  - BOTTOM OF CURB BC=206.33
  - EXISTING ELEVATION x=206.55
  - MEASURED INVERT INV=300.00
  - BELL PEDESTAL BELL
  - HYDRO POLE HP
  - GUY WIRE GUY
  - LIGHT STANDARD LS
  - TRANSFORMER PAD TPAD
  - FENCE POST POST
  - DECIDUOUS TREE
  - BUSH
  - WATER
  - GRAVEL
  - GAS VALVE GV
  - MANHOLE MH
  - WATER VALVE WV
  - HYDRO VAULT VAULT
  - CATCHBASIN CB
  - HYDRO METER HM
  - CONIFEROUS TREE
  - SAPLING SACP or SAPD
  - ASPHALT
  - PAVESTONE

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**RONALD MAK**  
ONTARIO LAND SURVEYOR

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THE KINGS HIGHWAY No. 26  
DESIGNATED AS CONTROLLED ACCESS  
HIGHWAY BY OC 113/89, INST. No. 273816  
PIN 37309-0174

# APPENDIX B

Hydrologic Parameters  
VO Model Schematic  
VO Model Results



Project Name: Szekely Property  
 Project Number: 2615-6993  
 Date: 9/19/2025  
 By: MS  
 Checked By: JK

D.A. NAME **PRE-1**  
 D.A. AREA (ha) **2.74**

**Hydrologic Parameters: CALIB NASHYD Command  
 Pre Development Drainage Area: Catchment PRE-1**

**Curve Number Calculation**

Soil Types Present:				
Type	ID	Hydrologic	% Area	Area
Brighton Sand	BGH	A	100.0%	2.74
				0
				0
				0
Total Area				2.74

**Impervious Landuses Present:**

Soils	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
BGH	0.13	98	0	98	0.05	98	0.10	98	0	98	0.27	27
	0	98		98		98		98		98	0	0
	0	98		98		98		98		98	0	0
	0	98		98		98		98		98	0	0
Subtotal Area	0.125		0		0.049		0.098		0			

**Pervious Landuses Present:**

Soils	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
BGH	0.00		0.00		0.00		2.47	49	0.00		2.47	120.93
	0.00		0.00		0.00		0.00		0.00		0.00	0.00
	0.00		0.00		0.00		0.00		0.00		0.00	0.00
	0.00		0.00		0.00		0.00		0.00		0.00	0.00
Subtotal Area	0.00		0.00		0.00		2.47		0.0			

Composite Area Calculations		Total Pervious Area	2.47
		Total Impervious Area	0.27
		% Impervious	9.93%
		Composite Curve Number	53.86
		Total Area Check	2.74

**Initial Abstraction and Tp Calculations**

Initial Abstraction				Composite Runoff Coefficient								
Landuse	IA (mm)	Area (ha)	A * IA	Brighton Sand								A*RC
				RC	Area	RC	Area	RC	Area	RC	Area	
Woodland	10	0.00	0		0		0		0		0	0
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	2.47	12.34	0.15	2.47		0		0		0	0.37
Cultivated	7	0	0		0		0		0		0	0.00
Impervious	2	0	0.54	0.95	0.27		0		0		0	0.26
Composite IA		2.74	4.70	Composite Runoff Coefficient								0.23

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	V/S <sup>0.5</sup>	Velocity (m/s)	Tc (hr)	Tp (hr)	TOTAL Tp (hr)	Tc (hr)	Tp (hr)	Tc (hr)	Tp (hr)
Overland	250	4	1.60%	2.7	0.34	0.20	0.14	0.14	0.20	0.13	0.64	0.43

Appropriate calculated time to peak: **0.43** Appropriate Method: **Airport**



Project Name: Szekely Property  
 Project No.: 2615-6993  
 Date: 9/19/2025  
 By: MS  
 Checked JK

D.A. NAME PRE-2  
 D.A. AREA (ha) 3.74

**Hydrologic Parameters: CALIB STANDHYD Command**  
**Post Development Drainage Area: Catchment PRE-2**

**Curve Number Calculation**

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Brighton Sand	BGH	A	70	2.62
Dunedin Clay	DUD	C	30	1.12
				0
				0
Total Area Check				3.74

Impervious Landuses Present:												
Soils	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BGH	0.36	98		98	0.20	98	0.39	98		98	0.94	92.41
DUD	0.10	98		98	0.05	98	0.10	98		98	0.25	24.11
	0	98		98		98		98		98	0	0
	0	98		98		98		98		98	0	0
Subtotal Area	0.45		0.00		0		0.49		0		1.19	

Pervious Landuses Present:												
Soils	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area (ha)	CN	Area	A*CN
BGH	0		0		0		1.68	49	0		1.68	82.17
DUD	0		0		0		0.87	79	0		0.87	69.05
	0		0		0		0		0		0	0
	0		0		0		0		0		0	0
Subtotal Area	0		0		0		2.55		0			

	Pervious Area Calculations	Total Pervious Area	2.55
		Composite Pervious Curve Number	59.28
	Impervious Area Calculations	Total Directly Connected Area	0.70
		Total Indirectly Connected Area	0.49
		Total Impervious Area*	1.19
		% X imp	31.8
		% T imp	31.8
Total Area Check		3.74	

**Initial Abstraction and Tp Calculations**

Landuse	IA (mm)	Area (ha)	A * IA
Woodland	10	0	0
Meadow	8	0	0
Wetland	16	0	0
Lawn	5	2.55	12.76
Cultivated	7	0	0

Land Use	IA (mm)	Slope (%)	Travel Length (m)	Manning's n
Pervious	5.0	2	170	0.25
Impervious	2.0	1	158	0.013



Project Name: Szekely Property  
 Project Number: 2615-6993  
 Date: 9/19/2025  
 By: MS  
 Checked By: JK

D.A. NAME **PRE-3**  
 D.A. AREA (ha) **34.84**

**Hydrologic Parameters: CALIB NASHYD Command**  
**Pre Development Drainage Area: Catchment PRE-3**

**Curve Number Calculation**

Soil Types Present:				
Type	ID	Hydrologic Group	% Area	Area
Dundin Clay	DUD	C	100	34.84
				0.00
				0.00
				0.00
Total Area				34.84

Impervious Landuses Present:												
Soils	Roadway		Sidewalk		Driveway		Building		SWMF		Subtotals	
	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
DUD	3.22	98	0	98	0.18	98	0.67	98	0	98	4.1	398.66
	0	98		98		98		98		98	0	0
	0	98		98		98		98		98	0	0
	0	98		98		98		98		98	0	0
Subtotal Area	3.22		0		0.18		0.67		0			

Pervious Landuses Present:												
Soils	Woodland		Meadow		Wetland		Lawn		Cultivated		Subtotals	
	Area	CN	Area	CN	Area	CN	Area (ha)	CN	Area	CN	Area	A*CN
DUD	0		0		0		0		30.77	82.0	30.8	2523.30
	0		0		0		0		0		0.0	0.0
	0		0		0		0		0		0.0	0.0
	0		0		0		0		0		0.0	0.0
Subtotal Area	0		0		0		0		30.77			
Composite Area Calculations										Total Pervious Area	30.77	
										Total Impervious Area	4.07	
										% Impervious	0.12	
										Composite Curve Number	83.87	
										Total Area Check	34.84	

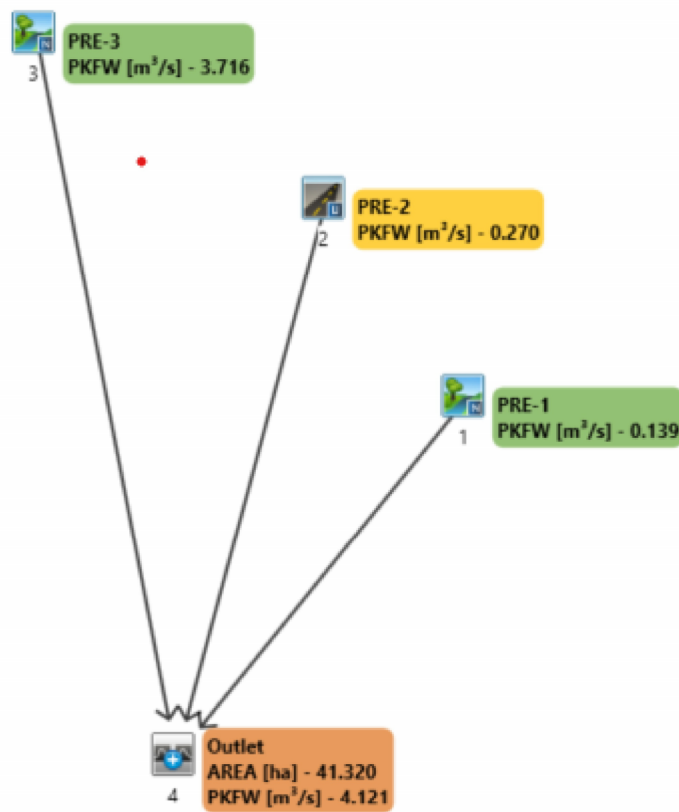
**Initial Abstraction and Tp Calculations**

Landuse	Initial Abstraction			Composite Runoff Coefficient								
	IA (mm)	Area (ha)	A * IA	Dundin Clay								A*RC
				RC	Area	RC	Area	RC	Area	RC	Area	
Woodland	10	0.00	0		0		0		0		0	0
Meadow	8	0	0		0		0		0		0	0
Wetland	16	0	0		0		0		0		0	0
Lawn	5	0	0		0		0		0		0	0.0
Cultivated	5	30.77	153.86	0.70	30.8		0		0		0	21.54
Impervious	2	4.07	8.14	0.95	4.1		0		0		0	3.86
Composite IA		34.84	4.65	Composite Runoff Coefficient								0.73

Time to Peak Inputs						Uplands			Bransby Williams		Airport	
Flow Path Description	Length (m)	Drop (m)	Slope (%)	v/S <sup>0.5</sup>	Velocity (m/s)	Tc (hr)	Tp (hr)	Tp (hr)	Tc (hr)	Tp (hr)	Tc (hr)	Tp (hr)
Overland	1000	210	21.00%	2.7	1.24	0.22	0.15	0.15	0.36	0.24	0.23	0.16

Appropriate calculated time to peak: 0.16 Appropriate Method: Airport

## VO Model Pre-Development Schematic



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```
V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
V V I SSSS UUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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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\voim.dat

Output filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\42f70  
 340-a439-4896-b14f-6e4561f9a8aa\scena  
 Summary filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\42f70  
 340-a439-4896-b14f-6e4561f9a8aa\scena

DATE: 10-16-2025 TIME: 03:38:37

USER:

COMMENTS: \_\_\_\_\_

```
*****
** SIMULATION : 2yr 12hr 15min SCS Type II (M **
*****
```

```
-----
| READ STORM | Filename: C:\Users\msimon\AppData\Local\Temp\
|
```

| Ptotal= 49.20 mm | 02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\6f6e44a3  
 Comments: 2yr 12hr 15min SCS Type II (MTO)

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.25	1.97	6.50	8.86	9.75	1.72
0.25	1.23	3.50	1.97	6.75	3.94	10.00	1.72
0.50	1.23	3.75	1.97	7.00	3.94	10.25	0.98
0.75	1.23	4.00	1.97	7.25	2.95	10.50	0.98
1.00	1.23	4.25	2.95	7.50	2.95	10.75	0.98
1.25	1.23	4.50	2.95	7.75	2.95	11.00	0.98
1.50	1.23	4.75	3.94	8.00	2.95	11.25	0.98
1.75	1.23	5.00	3.94	8.25	1.72	11.50	0.98
2.00	1.23	5.25	5.90	8.50	1.72	11.75	0.98
2.25	1.48	5.50	5.90	8.75	1.72	12.00	0.98
2.50	1.48	5.75	23.62	9.00	1.72		
2.75	1.48	6.00	64.94	9.25	1.72		
3.00	1.48	6.25	8.86	9.50	1.72		

```
-----
| CALIB |
| NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0
| ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00
|-----| U.H. Tp(hrs)= 0.43
```

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	1.48	6.250	64.94	9.33	1.72
0.167	0.00	3.250	1.48	6.333	8.86	9.42	1.72
0.250	0.00	3.333	1.97	6.417	8.86	9.50	1.72
0.333	1.23	3.417	1.97	6.500	8.86	9.58	1.72
0.417	1.23	3.500	1.97	6.583	8.86	9.67	1.72
0.500	1.23	3.583	1.97	6.667	8.86	9.75	1.72
0.583	1.23	3.667	1.97	6.750	8.86	9.83	1.72
0.667	1.23	3.750	1.97	6.833	3.94	9.92	1.72
0.750	1.23	3.833	1.97	6.917	3.94	10.00	1.72
0.833	1.23	3.917	1.97	7.000	3.94	10.08	1.72
0.917	1.23	4.000	1.97	7.083	3.94	10.17	1.72
1.000	1.23	4.083	1.97	7.167	3.94	10.25	1.72
1.083	1.23	4.167	1.97	7.250	3.94	10.33	0.98
1.167	1.23	4.250	1.97	7.333	2.95	10.42	0.98
1.250	1.23	4.333	2.95	7.417	2.95	10.50	0.98
1.333	1.23	4.417	2.95	7.500	2.95	10.58	0.98
1.417	1.23	4.500	2.95	7.583	2.95	10.67	0.98

1.500	1.23	4.583	2.95	7.667	2.95	10.75	0.98
1.583	1.23	4.667	2.95	7.750	2.95	10.83	0.98
1.667	1.23	4.750	2.95	7.833	2.95	10.92	0.98
1.750	1.23	4.833	3.94	7.917	2.95	11.00	0.98
1.833	1.23	4.917	3.94	8.000	2.95	11.08	0.98
1.917	1.23	5.000	3.94	8.083	2.95	11.17	0.98
2.000	1.23	5.083	3.94	8.167	2.95	11.25	0.98
2.083	1.23	5.167	3.94	8.250	2.95	11.33	0.98
2.167	1.23	5.250	3.94	8.333	1.72	11.42	0.98
2.250	1.23	5.333	5.90	8.417	1.72	11.50	0.98
2.333	1.48	5.417	5.90	8.500	1.72	11.58	0.98
2.417	1.48	5.500	5.90	8.583	1.72	11.67	0.98
2.500	1.48	5.583	5.90	8.667	1.72	11.75	0.98
2.583	1.48	5.667	5.90	8.750	1.72	11.83	0.98
2.667	1.48	5.750	5.90	8.833	1.72	11.92	0.98
2.750	1.48	5.833	23.62	8.917	1.72	12.00	0.98
2.833	1.48	5.917	23.62	9.000	1.72	12.08	0.98
2.917	1.48	6.000	23.62	9.083	1.72	12.17	0.98
3.000	1.48	6.083	64.94	9.167	1.72	12.25	0.98
3.083	1.48	6.167	64.94	9.250	1.72		

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.033 (i)  
 TIME TO PEAK (hrs)= 6.583  
 RUNOFF VOLUME (mm)= 7.340  
 TOTAL RAINFALL (mm)= 49.200  
 RUNOFF COEFFICIENT = 0.149

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

-----  
 CALIB  
 NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.16  
 -----

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	1.48	6.250	64.94	9.33	1.72
0.167	0.00	3.250	1.48	6.333	8.86	9.42	1.72
0.250	0.00	3.333	1.97	6.417	8.86	9.50	1.72
0.333	1.23	3.417	1.97	6.500	8.86	9.58	1.72
0.417	1.23	3.500	1.97	6.583	8.86	9.67	1.72
0.500	1.23	3.583	1.97	6.667	8.86	9.75	1.72

0.583	1.23	3.667	1.97	6.750	8.86	9.83	1.72
0.667	1.23	3.750	1.97	6.833	3.94	9.92	1.72
0.750	1.23	3.833	1.97	6.917	3.94	10.00	1.72
0.833	1.23	3.917	1.97	7.000	3.94	10.08	1.72
0.917	1.23	4.000	1.97	7.083	3.94	10.17	1.72
1.000	1.23	4.083	1.97	7.167	3.94	10.25	1.72
1.083	1.23	4.167	1.97	7.250	3.94	10.33	0.98
1.167	1.23	4.250	1.97	7.333	2.95	10.42	0.98
1.250	1.23	4.333	2.95	7.417	2.95	10.50	0.98
1.333	1.23	4.417	2.95	7.500	2.95	10.58	0.98
1.417	1.23	4.500	2.95	7.583	2.95	10.67	0.98
1.500	1.23	4.583	2.95	7.667	2.95	10.75	0.98
1.583	1.23	4.667	2.95	7.750	2.95	10.83	0.98
1.667	1.23	4.750	2.95	7.833	2.95	10.92	0.98
1.750	1.23	4.833	3.94	7.917	2.95	11.00	0.98
1.833	1.23	4.917	3.94	8.000	2.95	11.08	0.98
1.917	1.23	5.000	3.94	8.083	2.95	11.17	0.98
2.000	1.23	5.083	3.94	8.167	2.95	11.25	0.98
2.083	1.23	5.167	3.94	8.250	2.95	11.33	0.98
2.167	1.23	5.250	3.94	8.333	1.72	11.42	0.98
2.250	1.23	5.333	5.90	8.417	1.72	11.50	0.98
2.333	1.48	5.417	5.90	8.500	1.72	11.58	0.98
2.417	1.48	5.500	5.90	8.583	1.72	11.67	0.98
2.500	1.48	5.583	5.90	8.667	1.72	11.75	0.98
2.583	1.48	5.667	5.90	8.750	1.72	11.83	0.98
2.667	1.48	5.750	5.90	8.833	1.72	11.92	0.98
2.750	1.48	5.833	23.62	8.917	1.72	12.00	0.98
2.833	1.48	5.917	23.62	9.000	1.72	12.08	0.98
2.917	1.48	6.000	23.62	9.083	1.72	12.17	0.98
3.000	1.48	6.083	64.94	9.167	1.72	12.25	0.98
3.083	1.48	6.167	64.94	9.250	1.72		

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 2.484 (i)  
 TIME TO PEAK (hrs)= 6.250  
 RUNOFF VOLUME (mm)= 21.260  
 TOTAL RAINFALL (mm)= 49.200  
 RUNOFF COEFFICIENT = 0.432

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

-----  
 CALIB  
 STANDHYD ( 0002) | Area (ha)= 3.74  
 ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80  
 -----

IMPERVIOUS PVIOUS (i)  
 Surface Area (ha)= 1.19 2.55

Dep. Storage (mm)= 1.00 5.00  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 157.90 170.00  
 Mannings n = 0.013 0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	1.48	6.250	64.94	9.33	1.72
0.167	0.00	3.250	1.48	6.333	8.86	9.42	1.72
0.250	0.00	3.333	1.97	6.417	8.86	9.50	1.72
0.333	1.23	3.417	1.97	6.500	8.86	9.58	1.72
0.417	1.23	3.500	1.97	6.583	8.86	9.67	1.72
0.500	1.23	3.583	1.97	6.667	8.86	9.75	1.72
0.583	1.23	3.667	1.97	6.750	8.86	9.83	1.72
0.667	1.23	3.750	1.97	6.833	3.94	9.92	1.72
0.750	1.23	3.833	1.97	6.917	3.94	10.00	1.72
0.833	1.23	3.917	1.97	7.000	3.94	10.08	1.72
0.917	1.23	4.000	1.97	7.083	3.94	10.17	1.72
1.000	1.23	4.083	1.97	7.167	3.94	10.25	1.72
1.083	1.23	4.167	1.97	7.250	3.94	10.33	0.98
1.167	1.23	4.250	1.97	7.333	2.95	10.42	0.98
1.250	1.23	4.333	2.95	7.417	2.95	10.50	0.98
1.333	1.23	4.417	2.95	7.500	2.95	10.58	0.98
1.417	1.23	4.500	2.95	7.583	2.95	10.67	0.98
1.500	1.23	4.583	2.95	7.667	2.95	10.75	0.98
1.583	1.23	4.667	2.95	7.750	2.95	10.83	0.98
1.667	1.23	4.750	2.95	7.833	2.95	10.92	0.98
1.750	1.23	4.833	3.94	7.917	2.95	11.00	0.98
1.833	1.23	4.917	3.94	8.000	2.95	11.08	0.98
1.917	1.23	5.000	3.94	8.083	2.95	11.17	0.98
2.000	1.23	5.083	3.94	8.167	2.95	11.25	0.98
2.083	1.23	5.167	3.94	8.250	2.95	11.33	0.98
2.167	1.23	5.250	3.94	8.333	1.72	11.42	0.98
2.250	1.23	5.333	5.90	8.417	1.72	11.50	0.98
2.333	1.48	5.417	5.90	8.500	1.72	11.58	0.98
2.417	1.48	5.500	5.90	8.583	1.72	11.67	0.98
2.500	1.48	5.583	5.90	8.667	1.72	11.75	0.98
2.583	1.48	5.667	5.90	8.750	1.72	11.83	0.98
2.667	1.48	5.750	5.90	8.833	1.72	11.92	0.98
2.750	1.48	5.833	23.62	8.917	1.72	12.00	0.98
2.833	1.48	5.917	23.62	9.000	1.72	12.08	0.98
2.917	1.48	6.000	23.62	9.083	1.72	12.17	0.98
3.000	1.48	6.083	64.94	9.167	1.72	12.25	0.98
3.083	1.48	6.167	64.94	9.250	1.72		

Max. Eff. Inten. (mm/hr)= 64.94 5.44

over (min) 5.00 60.00  
 Storage Coeff. (min)= 3.99 (ii) 57.86 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 60.00  
 Unit Hyd. peak (cms)= 0.24 0.02

\*TOTALS\*

PEAK FLOW (cms)= 0.21 0.02 0.216 (iii)  
 TIME TO PEAK (hrs)= 6.25 7.17 6.25  
 RUNOFF VOLUME (mm)= 48.20 8.85 21.36  
 TOTAL RAINFALL (mm)= 49.20 49.20 49.20  
 RUNOFF COEFFICIENT = 0.98 0.18 0.43

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 59.0 Ia = Dep. 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 ( 0004)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0001):	2.74	0.033	6.58	7.34
+ ID2= 2 ( 0002):	3.74	0.216	6.25	21.36
=====				
ID = 3 ( 0004):	6.48	0.234	6.25	15.43

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0004)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0004):	6.48	0.234	6.25	15.43
+ ID2= 2 ( 0003):	34.84	2.484	6.25	21.26
=====				
ID = 1 ( 0004):	41.32	2.718	6.25	20.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

V V I SSSSS U U A L (v 6.2.2015)  
 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  
 W V I SSSS UUUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM  
 O O T T H H Y Y M M O O  
 O O T T H H Y Y M M O O  
 000 T T H H Y Y M M 000

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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\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\8a86  
 780-640b-4807-bf8a-8a3d1347ba1f\scena  
 Summary filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\8a86  
 780-640b-4807-bf8a-8a3d1347ba1f\scena

DATE: 10-16-2025 TIME: 03:38:37

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : b. 5yr 12hr 15min SCS Type II \*\*  
 \*\*\*\*\*

-----  
 READ STORM  
 Ptotal= 64.80 mm  
 -----  
 Filename: C:\Users\msimon\AppData\Local\Temp\02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\ffb2b3bf  
 Comments: b. 5yr 12hr 15min SCS Type II (MT0)

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.25	2.59	6.50	11.66	9.75	2.27

0.25	1.62	3.50	2.59	6.75	5.18	10.00	2.27
0.50	1.62	3.75	2.59	7.00	5.18	10.25	1.30
0.75	1.62	4.00	2.59	7.25	3.89	10.50	1.30
1.00	1.62	4.25	3.89	7.50	3.89	10.75	1.30
1.25	1.62	4.50	3.89	7.75	3.89	11.00	1.30
1.50	1.62	4.75	5.18	8.00	3.89	11.25	1.30
1.75	1.62	5.00	5.18	8.25	2.27	11.50	1.30
2.00	1.62	5.25	7.78	8.50	2.27	11.75	1.30
2.25	1.94	5.50	7.78	8.75	2.27	12.00	1.30
2.50	1.94	5.75	31.10	9.00	2.27		
2.75	1.94	6.00	85.54	9.25	2.27		
3.00	1.94	6.25	11.66	9.50	2.27		

-----  
 CALIB  
 NASHYD ( 0001) Area (ha)= 2.74 Curve Number (CN)= 53.0  
 ID= 1 DT= 5.0 min Ia (mm)= 4.70 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.43  
 -----

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	1.94	6.250	85.53	9.33	2.27
0.167	0.00	3.250	1.94	6.333	11.66	9.42	2.27
0.250	0.00	3.333	2.59	6.417	11.66	9.50	2.27
0.333	1.62	3.417	2.59	6.500	11.66	9.58	2.27
0.417	1.62	3.500	2.59	6.583	11.66	9.67	2.27
0.500	1.62	3.583	2.59	6.667	11.66	9.75	2.27
0.583	1.62	3.667	2.59	6.750	11.66	9.83	2.27
0.667	1.62	3.750	2.59	6.833	5.18	9.92	2.27
0.750	1.62	3.833	2.59	6.917	5.18	10.00	2.27
0.833	1.62	3.917	2.59	7.000	5.18	10.08	2.27
0.917	1.62	4.000	2.59	7.083	5.18	10.17	2.27
1.000	1.62	4.083	2.59	7.167	5.18	10.25	2.27
1.083	1.62	4.167	2.59	7.250	5.18	10.33	1.30
1.167	1.62	4.250	2.59	7.333	3.89	10.42	1.30
1.250	1.62	4.333	3.89	7.417	3.89	10.50	1.30
1.333	1.62	4.417	3.89	7.500	3.89	10.58	1.30
1.417	1.62	4.500	3.89	7.583	3.89	10.67	1.30
1.500	1.62	4.583	3.89	7.667	3.89	10.75	1.30
1.583	1.62	4.667	3.89	7.750	3.89	10.83	1.30
1.667	1.62	4.750	3.89	7.833	3.89	10.92	1.30
1.750	1.62	4.833	5.18	7.917	3.89	11.00	1.30
1.833	1.62	4.917	5.18	8.000	3.89	11.08	1.30
1.917	1.62	5.000	5.18	8.083	3.89	11.17	1.30

2.000	1.62	5.083	5.18	8.167	3.89	11.25	1.30
2.083	1.62	5.167	5.18	8.250	3.89	11.33	1.30
2.167	1.62	5.250	5.18	8.333	2.27	11.42	1.30
2.250	1.62	5.333	7.78	8.417	2.27	11.50	1.30
2.333	1.94	5.417	7.78	8.500	2.27	11.58	1.30
2.417	1.94	5.500	7.78	8.583	2.27	11.67	1.30
2.500	1.94	5.583	7.78	8.667	2.27	11.75	1.30
2.583	1.94	5.667	7.78	8.750	2.27	11.83	1.30
2.667	1.94	5.750	7.78	8.833	2.27	11.92	1.30
2.750	1.94	5.833	31.10	8.917	2.27	12.00	1.30
2.833	1.94	5.917	31.10	9.000	2.27	12.08	1.30
2.917	1.94	6.000	31.11	9.083	2.27	12.17	1.30
3.000	1.94	6.083	85.54	9.167	2.27	12.25	1.30
3.083	1.94	6.167	85.54	9.250	2.27		

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.057 (i)  
 TIME TO PEAK (hrs)= 6.583  
 RUNOFF VOLUME (mm)= 12.657  
 TOTAL RAINFALL (mm)= 64.800  
 RUNOFF COEFFICIENT = 0.195

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

-----  
 CALIB  
 NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.16  
 -----

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	1.94	6.250	85.53	9.33	2.27
0.167	0.00	3.250	1.94	6.333	11.66	9.42	2.27
0.250	0.00	3.333	2.59	6.417	11.66	9.50	2.27
0.333	1.62	3.417	2.59	6.500	11.66	9.58	2.27
0.417	1.62	3.500	2.59	6.583	11.66	9.67	2.27
0.500	1.62	3.583	2.59	6.667	11.66	9.75	2.27
0.583	1.62	3.667	2.59	6.750	11.66	9.83	2.27
0.667	1.62	3.750	2.59	6.833	5.18	9.92	2.27
0.750	1.62	3.833	2.59	6.917	5.18	10.00	2.27
0.833	1.62	3.917	2.59	7.000	5.18	10.08	2.27
0.917	1.62	4.000	2.59	7.083	5.18	10.17	2.27
1.000	1.62	4.083	2.59	7.167	5.18	10.25	2.27

1.083	1.62	4.167	2.59	7.250	5.18	10.33	1.30
1.167	1.62	4.250	2.59	7.333	3.89	10.42	1.30
1.250	1.62	4.333	3.89	7.417	3.89	10.50	1.30
1.333	1.62	4.417	3.89	7.500	3.89	10.58	1.30
1.417	1.62	4.500	3.89	7.583	3.89	10.67	1.30
1.500	1.62	4.583	3.89	7.667	3.89	10.75	1.30
1.583	1.62	4.667	3.89	7.750	3.89	10.83	1.30
1.667	1.62	4.750	3.89	7.833	3.89	10.92	1.30
1.750	1.62	4.833	5.18	7.917	3.89	11.00	1.30
1.833	1.62	4.917	5.18	8.000	3.89	11.08	1.30
1.917	1.62	5.000	5.18	8.083	3.89	11.17	1.30
2.000	1.62	5.083	5.18	8.167	3.89	11.25	1.30
2.083	1.62	5.167	5.18	8.250	3.89	11.33	1.30
2.167	1.62	5.250	5.18	8.333	2.27	11.42	1.30
2.250	1.62	5.333	7.78	8.417	2.27	11.50	1.30
2.333	1.94	5.417	7.78	8.500	2.27	11.58	1.30
2.417	1.94	5.500	7.78	8.583	2.27	11.67	1.30
2.500	1.94	5.583	7.78	8.667	2.27	11.75	1.30
2.583	1.94	5.667	7.78	8.750	2.27	11.83	1.30
2.667	1.94	5.750	7.78	8.833	2.27	11.92	1.30
2.750	1.94	5.833	31.10	8.917	2.27	12.00	1.30
2.833	1.94	5.917	31.10	9.000	2.27	12.08	1.30
2.917	1.94	6.000	31.11	9.083	2.27	12.17	1.30
3.000	1.94	6.083	85.54	9.167	2.27	12.25	1.30
3.083	1.94	6.167	85.54	9.250	2.27		

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 3.908 (i)  
 TIME TO PEAK (hrs)= 6.250  
 RUNOFF VOLUME (mm)= 33.186  
 TOTAL RAINFALL (mm)= 64.800  
 RUNOFF COEFFICIENT = 0.512

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

-----  
 CALIB  
 STANDHYD ( 0002) | Area (ha)= 3.74  
 ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80  
 -----

	IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)= 1.19	2.55
Dep. Storage	(mm)= 1.00	5.00
Average Slope	(%)= 1.00	2.00
Length	(m)= 157.90	170.00
Mannings n	= 0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.00	3.167	1.94	6.250	85.53	9.33	2.27
0.167	0.00	3.250	1.94	6.333	11.66	9.42	2.27
0.250	0.00	3.333	2.59	6.417	11.66	9.50	2.27
0.333	1.62	3.417	2.59	6.500	11.66	9.58	2.27
0.417	1.62	3.500	2.59	6.583	11.66	9.67	2.27
0.500	1.62	3.583	2.59	6.667	11.66	9.75	2.27
0.583	1.62	3.667	2.59	6.750	11.66	9.83	2.27
0.667	1.62	3.750	2.59	6.833	5.18	9.92	2.27
0.750	1.62	3.833	2.59	6.917	5.18	10.00	2.27
0.833	1.62	3.917	2.59	7.000	5.18	10.08	2.27
0.917	1.62	4.000	2.59	7.083	5.18	10.17	2.27
1.000	1.62	4.083	2.59	7.167	5.18	10.25	2.27
1.083	1.62	4.167	2.59	7.250	5.18	10.33	1.30
1.167	1.62	4.250	2.59	7.333	3.89	10.42	1.30
1.250	1.62	4.333	3.89	7.417	3.89	10.50	1.30
1.333	1.62	4.417	3.89	7.500	3.89	10.58	1.30
1.417	1.62	4.500	3.89	7.583	3.89	10.67	1.30
1.500	1.62	4.583	3.89	7.667	3.89	10.75	1.30
1.583	1.62	4.667	3.89	7.750	3.89	10.83	1.30
1.667	1.62	4.750	3.89	7.833	3.89	10.92	1.30
1.750	1.62	4.833	5.18	7.917	3.89	11.00	1.30
1.833	1.62	4.917	5.18	8.000	3.89	11.08	1.30
1.917	1.62	5.000	5.18	8.083	3.89	11.17	1.30
2.000	1.62	5.083	5.18	8.167	3.89	11.25	1.30
2.083	1.62	5.167	5.18	8.250	3.89	11.33	1.30
2.167	1.62	5.250	5.18	8.333	2.27	11.42	1.30
2.250	1.62	5.333	7.78	8.417	2.27	11.50	1.30
2.333	1.94	5.417	7.78	8.500	2.27	11.58	1.30
2.417	1.94	5.500	7.78	8.583	2.27	11.67	1.30
2.500	1.94	5.583	7.78	8.667	2.27	11.75	1.30
2.583	1.94	5.667	7.78	8.750	2.27	11.83	1.30
2.667	1.94	5.750	7.78	8.833	2.27	11.92	1.30
2.750	1.94	5.833	31.10	8.917	2.27	12.00	1.30
2.833	1.94	5.917	31.10	9.000	2.27	12.08	1.30
2.917	1.94	6.000	31.11	9.083	2.27	12.17	1.30
3.000	1.94	6.083	85.54	9.167	2.27	12.25	1.30
3.083	1.94	6.167	85.54	9.250	2.27		

Max. Eff. Inten. (mm/hr)= 85.54 10.49  
over (min) 5.00 50.00  
Storage Coeff. (min)= 3.58 (ii) 45.01 (iii)  
Unit Hyd. Tpeak (min)= 5.00 50.00  
Unit Hyd. peak (cms)= 0.26 0.02  
  
\*TOTALS\*  
PEAK FLOW (cms)= 0.28 0.05 0.292 (iii)

TIME TO PEAK (hrs)= 6.25 7.00 6.25  
RUNOFF VOLUME (mm)= 63.80 15.13 30.60  
TOTAL RAINFALL (mm)= 64.80 64.80 64.80  
RUNOFF COEFFICIENT = 0.98 0.23 0.47

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |  
1 + 2 = 3
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 1 ( 0001): 2.74 0.057 6.58 12.66  
+ ID2= 2 ( 0002): 3.74 0.292 6.25 30.60  
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
| ADD HYD ( 0004) |  
3 + 2 = 1
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 3 ( 0004): 6.48 0.324 6.25 23.01  
+ ID2= 2 ( 0003): 34.84 3.908 6.25 33.19  
=====

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

V V I SSSSS U U A L (v 6.2.2015)  
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 UUUU A A LLLLL

OOO TTTT TTTT 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 Y M M O O

000 T T H H Y M M 000  
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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\V02\voin.dat

Output filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\096f0  
 216-18ce-4ca7-af0c-04aaba56b960\scena  
 Summary filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\096f0  
 216-18ce-4ca7-af0c-04aaba56b960\scena

DATE: 10-16-2025 TIME: 03:38:37

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : c. 10yr 12hr 15min SCS Type I \*\*  
 \*\*\*\*\*

READ STORM	Filename: C:\Users\msimon\AppData\Local\Temp\02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\df735b72
Ptotal = 75.60 mm	Comments: c. 10yr 12hr 15min SCS Type II (MTO)

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.25	3.02	6.50	13.61	9.75	2.65
0.25	1.89	3.50	3.02	6.75	6.05	10.00	2.65
0.50	1.89	3.75	3.02	7.00	6.05	10.25	1.51
0.75	1.89	4.00	3.02	7.25	4.54	10.50	1.51
1.00	1.89	4.25	4.54	7.50	4.54	10.75	1.51
1.25	1.89	4.50	4.54	7.75	4.54	11.00	1.51
1.50	1.89	4.75	6.05	8.00	4.54	11.25	1.51

1.75	1.89	5.00	6.05	8.25	2.65	11.50	1.51
2.00	1.89	5.25	9.07	8.50	2.65	11.75	1.51
2.25	2.27	5.50	9.07	8.75	2.65	12.00	1.51
2.50	2.27	5.75	36.29	9.00	2.65		
2.75	2.27	6.00	99.79	9.25	2.65		
3.00	2.27	6.25	13.61	9.50	2.65		

-----  
 CALIB  
 NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.43  
 -----

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.27	6.250	99.79	9.33	2.65
0.167	0.00	3.250	2.27	6.333	13.61	9.42	2.65
0.250	0.00	3.333	3.02	6.417	13.61	9.50	2.65
0.333	1.89	3.417	3.02	6.500	13.61	9.58	2.65
0.417	1.89	3.500	3.02	6.583	13.61	9.67	2.65
0.500	1.89	3.583	3.02	6.667	13.61	9.75	2.65
0.583	1.89	3.667	3.02	6.750	13.61	9.83	2.65
0.667	1.89	3.750	3.02	6.833	6.05	9.92	2.65
0.750	1.89	3.833	3.02	6.917	6.05	10.00	2.65
0.833	1.89	3.917	3.02	7.000	6.05	10.08	2.65
0.917	1.89	4.000	3.02	7.083	6.05	10.17	2.65
1.000	1.89	4.083	3.02	7.167	6.05	10.25	2.65
1.083	1.89	4.167	3.02	7.250	6.05	10.33	1.51
1.167	1.89	4.250	3.02	7.333	4.54	10.42	1.51
1.250	1.89	4.333	4.54	7.417	4.54	10.50	1.51
1.333	1.89	4.417	4.54	7.500	4.54	10.58	1.51
1.417	1.89	4.500	4.54	7.583	4.54	10.67	1.51
1.500	1.89	4.583	4.54	7.667	4.54	10.75	1.51
1.583	1.89	4.667	4.54	7.750	4.54	10.83	1.51
1.667	1.89	4.750	4.54	7.833	4.54	10.92	1.51
1.750	1.89	4.833	6.05	7.917	4.54	11.00	1.51
1.833	1.89	4.917	6.05	8.000	4.54	11.08	1.51
1.917	1.89	5.000	6.05	8.083	4.54	11.17	1.51
2.000	1.89	5.083	6.05	8.167	4.54	11.25	1.51
2.083	1.89	5.167	6.05	8.250	4.54	11.33	1.51
2.167	1.89	5.250	6.05	8.333	2.65	11.42	1.51
2.250	1.89	5.333	9.07	8.417	2.65	11.50	1.51
2.333	2.27	5.417	9.07	8.500	2.65	11.58	1.51
2.417	2.27	5.500	9.07	8.583	2.65	11.67	1.51

2.500	2.27	5.583	9.07	8.667	2.65	11.75	1.51
2.583	2.27	5.667	9.07	8.750	2.65	11.83	1.51
2.667	2.27	5.750	9.07	8.833	2.65	11.92	1.51
2.750	2.27	5.833	36.29	8.917	2.65	12.00	1.51
2.833	2.27	5.917	36.29	9.000	2.65	12.08	1.51
2.917	2.27	6.000	36.29	9.083	2.65	12.17	1.51
3.000	2.27	6.083	99.79	9.167	2.65	12.25	1.51
3.083	2.27	6.167	99.79	9.250	2.65		

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.078 (i)  
 TIME TO PEAK (hrs)= 6.583  
 RUNOFF VOLUME (mm)= 16.972  
 TOTAL RAINFALL (mm)= 75.600  
 RUNOFF COEFFICIENT = 0.225

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

-----  
 | CALIB |  
 | NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 -----  
 U.H. Tp(hrs)= 0.16

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.27	6.250	99.79	9.33	2.65
0.167	0.00	3.250	2.27	6.333	13.61	9.42	2.65
0.250	0.00	3.333	3.02	6.417	13.61	9.50	2.65
0.333	1.89	3.417	3.02	6.500	13.61	9.58	2.65
0.417	1.89	3.500	3.02	6.583	13.61	9.67	2.65
0.500	1.89	3.583	3.02	6.667	13.61	9.75	2.65
0.583	1.89	3.667	3.02	6.750	13.61	9.83	2.65
0.667	1.89	3.750	3.02	6.833	6.05	9.92	2.65
0.750	1.89	3.833	3.02	6.917	6.05	10.00	2.65
0.833	1.89	3.917	3.02	7.000	6.05	10.08	2.65
0.917	1.89	4.000	3.02	7.083	6.05	10.17	2.65
1.000	1.89	4.083	3.02	7.167	6.05	10.25	2.65
1.083	1.89	4.167	3.02	7.250	6.05	10.33	1.51
1.167	1.89	4.250	3.02	7.333	4.54	10.42	1.51
1.250	1.89	4.333	4.54	7.417	4.54	10.50	1.51
1.333	1.89	4.417	4.54	7.500	4.54	10.58	1.51
1.417	1.89	4.500	4.54	7.583	4.54	10.67	1.51
1.500	1.89	4.583	4.54	7.667	4.54	10.75	1.51

1.583	1.89	4.667	4.54	7.750	4.54	10.83	1.51
1.667	1.89	4.750	4.54	7.833	4.54	10.92	1.51
1.750	1.89	4.833	6.05	7.917	4.54	11.00	1.51
1.833	1.89	4.917	6.05	8.000	4.54	11.08	1.51
1.917	1.89	5.000	6.05	8.083	4.54	11.17	1.51
2.000	1.89	5.083	6.05	8.167	4.54	11.25	1.51
2.083	1.89	5.167	6.05	8.250	4.54	11.33	1.51
2.167	1.89	5.250	6.05	8.333	2.65	11.42	1.51
2.250	1.89	5.333	9.07	8.417	2.65	11.50	1.51
2.333	2.27	5.417	9.07	8.500	2.65	11.58	1.51
2.417	2.27	5.500	9.07	8.583	2.65	11.67	1.51
2.500	2.27	5.583	9.07	8.667	2.65	11.75	1.51
2.583	2.27	5.667	9.07	8.750	2.65	11.83	1.51
2.667	2.27	5.750	9.07	8.833	2.65	11.92	1.51
2.750	2.27	5.833	36.29	8.917	2.65	12.00	1.51
2.833	2.27	5.917	36.29	9.000	2.65	12.08	1.51
2.917	2.27	6.000	36.29	9.083	2.65	12.17	1.51
3.000	2.27	6.083	99.79	9.167	2.65	12.25	1.51
3.083	2.27	6.167	99.79	9.250	2.65		

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 4.954 (i)  
 TIME TO PEAK (hrs)= 6.250  
 RUNOFF VOLUME (mm)= 41.994  
 TOTAL RAINFALL (mm)= 75.600  
 RUNOFF COEFFICIENT = 0.555

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

-----  
 | CALIB |  
 | STANDHYD ( 0002) | Area (ha)= 3.74  
 | ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80  
 -----

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.27	6.250	99.79	9.33	2.65

0.167	0.00	3.250	2.27	6.333	13.61	9.42	2.65
0.250	0.00	3.333	3.02	6.417	13.61	9.50	2.65
0.333	1.89	3.417	3.02	6.500	13.61	9.58	2.65
0.417	1.89	3.500	3.02	6.583	13.61	9.67	2.65
0.500	1.89	3.583	3.02	6.667	13.61	9.75	2.65
0.583	1.89	3.667	3.02	6.750	13.61	9.83	2.65
0.667	1.89	3.750	3.02	6.833	6.05	9.92	2.65
0.750	1.89	3.833	3.02	6.917	6.05	10.00	2.65
0.833	1.89	3.917	3.02	7.000	6.05	10.08	2.65
0.917	1.89	4.000	3.02	7.083	6.05	10.17	2.65
1.000	1.89	4.083	3.02	7.167	6.05	10.25	2.65
1.083	1.89	4.167	3.02	7.250	6.05	10.33	1.51
1.167	1.89	4.250	3.02	7.333	4.54	10.42	1.51
1.250	1.89	4.333	4.54	7.417	4.54	10.50	1.51
1.333	1.89	4.417	4.54	7.500	4.54	10.58	1.51
1.417	1.89	4.500	4.54	7.583	4.54	10.67	1.51
1.500	1.89	4.583	4.54	7.667	4.54	10.75	1.51
1.583	1.89	4.667	4.54	7.750	4.54	10.83	1.51
1.667	1.89	4.750	4.54	7.833	4.54	10.92	1.51
1.750	1.89	4.833	6.05	7.917	4.54	11.00	1.51
1.833	1.89	4.917	6.05	8.000	4.54	11.08	1.51
1.917	1.89	5.000	6.05	8.083	4.54	11.17	1.51
2.000	1.89	5.083	6.05	8.167	4.54	11.25	1.51
2.083	1.89	5.167	6.05	8.250	4.54	11.33	1.51
2.167	1.89	5.250	6.05	8.333	2.65	11.42	1.51
2.250	1.89	5.333	9.07	8.417	2.65	11.50	1.51
2.333	2.27	5.417	9.07	8.500	2.65	11.58	1.51
2.417	2.27	5.500	9.07	8.583	2.65	11.67	1.51
2.500	2.27	5.583	9.07	8.667	2.65	11.75	1.51
2.583	2.27	5.667	9.07	8.750	2.65	11.83	1.51
2.667	2.27	5.750	9.07	8.833	2.65	11.92	1.51
2.750	2.27	5.833	36.29	8.917	2.65	12.00	1.51
2.833	2.27	5.917	36.29	9.000	2.65	12.08	1.51
2.917	2.27	6.000	36.29	9.083	2.65	12.17	1.51
3.000	2.27	6.083	99.79	9.167	2.65	12.25	1.51
3.083	2.27	6.167	99.79	9.250	2.65		

Max.Eff.Inten.(mm/hr)= 99.79 16.55  
over (min) 5.00 40.00  
Storage Coeff. (min)= 3.36 (ii) 37.89 (ii)  
Unit Hyd. Tpeak (min)= 5.00 40.00  
Unit Hyd. peak (cms)= 0.26 0.03

\*TOTALS\*  
PEAK FLOW (cms)= 0.33 0.07 0.352 (iii)  
TIME TO PEAK (hrs)= 6.25 6.83 6.25  
RUNOFF VOLUME (mm)= 74.60 20.17 37.47  
TOTAL RAINFALL (mm)= 75.60 75.60 75.60  
RUNOFF COEFFICIENT = 0.99 0.27 0.50

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0001):	2.74	0.078	6.58	16.97
+ ID2= 2 ( 0002):	3.74	0.352	6.25	37.47
=====				
ID = 3 ( 0004):	6.48	0.395	6.25	28.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----

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	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0004):	6.48	0.395	6.25	28.80
+ ID2= 2 ( 0003):	34.84	4.954	6.25	41.99
=====				
ID = 1 ( 0004):	41.32	5.349	6.25	39.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U AAAA L
V V I SS U U AAA L
VV I SSSSS UUUU A A LLLLL

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000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

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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\V02\voind.dat

Output filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\0c746  
 345-708c-46ba-a136-854dcab9542c\scena  
 Summary filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\0c746  
 345-708c-46ba-a136-854dcab9542c\scena

DATE: 10-16-2025 TIME: 03:38:37

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : d. 25yr 12hr 15min SCS Type I \*\*  
 \*\*\*\*\*

READ STORM	Filename: C:\Users\msimon\AppData\Local\Temp\02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\8b6f15cb
Ptotal= 88.80 mm	Comments: d. 25yr 12hr 15min SCS Type II (MTO)

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.25	3.55	6.50	15.98	9.75	3.11
0.25	2.22	3.50	3.55	6.75	7.10	10.00	3.11
0.50	2.22	3.75	3.55	7.00	7.10	10.25	1.78
0.75	2.22	4.00	3.55	7.25	5.33	10.50	1.78
1.00	2.22	4.25	5.33	7.50	5.33	10.75	1.78
1.25	2.22	4.50	5.33	7.75	5.33	11.00	1.78
1.50	2.22	4.75	7.10	8.00	5.33	11.25	1.78
1.75	2.22	5.00	7.10	8.25	3.11	11.50	1.78
2.00	2.22	5.25	10.66	8.50	3.11	11.75	1.78
2.25	2.66	5.50	10.66	8.75	3.11	12.00	1.78
2.50	2.66	5.75	42.62	9.00	3.11		
2.75	2.66	6.00	117.22	9.25	3.11		
3.00	2.66	6.25	15.98	9.50	3.11		

CALIB	Area (ha)=	2.74	Curve Number (CN)=	53.0
NASHYD ( 0001)	Ia (mm)=	4.70	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.43		

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.66	6.250	117.21	9.33	3.11
0.167	0.00	3.250	2.66	6.333	15.98	9.42	3.11
0.250	0.00	3.333	3.55	6.417	15.98	9.50	3.11
0.333	2.22	3.417	3.55	6.500	15.98	9.58	3.11
0.417	2.22	3.500	3.55	6.583	15.98	9.67	3.11
0.500	2.22	3.583	3.55	6.667	15.98	9.75	3.11
0.583	2.22	3.667	3.55	6.750	15.98	9.83	3.11
0.667	2.22	3.750	3.55	6.833	7.10	9.92	3.11
0.750	2.22	3.833	3.55	6.917	7.10	10.00	3.11
0.833	2.22	3.917	3.55	7.000	7.10	10.08	3.11
0.917	2.22	4.000	3.55	7.083	7.10	10.17	3.11
1.000	2.22	4.083	3.55	7.167	7.10	10.25	3.11
1.083	2.22	4.167	3.55	7.250	7.10	10.33	1.78
1.167	2.22	4.250	3.55	7.333	5.33	10.42	1.78
1.250	2.22	4.333	5.33	7.417	5.33	10.50	1.78
1.333	2.22	4.417	5.33	7.500	5.33	10.58	1.78
1.417	2.22	4.500	5.33	7.583	5.33	10.67	1.78
1.500	2.22	4.583	5.33	7.667	5.33	10.75	1.78
1.583	2.22	4.667	5.33	7.750	5.33	10.83	1.78
1.667	2.22	4.750	5.33	7.833	5.33	10.92	1.78
1.750	2.22	4.833	7.10	7.917	5.33	11.00	1.78
1.833	2.22	4.917	7.10	8.000	5.33	11.08	1.78
1.917	2.22	5.000	7.10	8.083	5.33	11.17	1.78
2.000	2.22	5.083	7.10	8.167	5.33	11.25	1.78
2.083	2.22	5.167	7.10	8.250	5.33	11.33	1.78
2.167	2.22	5.250	7.10	8.333	3.11	11.42	1.78
2.250	2.22	5.333	10.66	8.417	3.11	11.50	1.78
2.333	2.66	5.417	10.66	8.500	3.11	11.58	1.78
2.417	2.66	5.500	10.66	8.583	3.11	11.67	1.78
2.500	2.66	5.583	10.66	8.667	3.11	11.75	1.78
2.583	2.66	5.667	10.66	8.750	3.11	11.83	1.78
2.667	2.66	5.750	10.66	8.833	3.11	11.92	1.78
2.750	2.66	5.833	42.62	8.917	3.11	12.00	1.78
2.833	2.66	5.917	42.62	9.000	3.11	12.08	1.78
2.917	2.66	6.000	42.63	9.083	3.11	12.17	1.78

3.000 2.66 | 6.083 117.22 | 9.167 3.11 | 12.25 1.78  
 3.083 2.66 | 6.167 117.22 | 9.250 3.11 |

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.105 (i)  
 TIME TO PEAK (hrs)= 6.583  
 RUNOFF VOLUME (mm)= 22.861  
 TOTAL RAINFALL (mm)= 88.800  
 RUNOFF COEFFICIENT = 0.257

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

-----  
 | CALIB |  
 | NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 -----  
 U.H. Tp(hrs)= 0.16

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.66	6.250	117.21	9.33	3.11
0.167	0.00	3.250	2.66	6.333	15.98	9.42	3.11
0.250	0.00	3.333	3.55	6.417	15.98	9.50	3.11
0.333	2.22	3.417	3.55	6.500	15.98	9.58	3.11
0.417	2.22	3.500	3.55	6.583	15.98	9.67	3.11
0.500	2.22	3.583	3.55	6.667	15.98	9.75	3.11
0.583	2.22	3.667	3.55	6.750	15.98	9.83	3.11
0.667	2.22	3.750	3.55	6.833	7.10	9.92	3.11
0.750	2.22	3.833	3.55	6.917	7.10	10.00	3.11
0.833	2.22	3.917	3.55	7.000	7.10	10.08	3.11
0.917	2.22	4.000	3.55	7.083	7.10	10.17	3.11
1.000	2.22	4.083	3.55	7.167	7.10	10.25	3.11
1.083	2.22	4.167	3.55	7.250	7.10	10.33	1.78
1.167	2.22	4.250	3.55	7.333	5.33	10.42	1.78
1.250	2.22	4.333	5.33	7.417	5.33	10.50	1.78
1.333	2.22	4.417	5.33	7.500	5.33	10.58	1.78
1.417	2.22	4.500	5.33	7.583	5.33	10.67	1.78
1.500	2.22	4.583	5.33	7.667	5.33	10.75	1.78
1.583	2.22	4.667	5.33	7.750	5.33	10.83	1.78
1.667	2.22	4.750	5.33	7.833	5.33	10.92	1.78
1.750	2.22	4.833	7.10	7.917	5.33	11.00	1.78
1.833	2.22	4.917	7.10	8.000	5.33	11.08	1.78
1.917	2.22	5.000	7.10	8.083	5.33	11.17	1.78
2.000	2.22	5.083	7.10	8.167	5.33	11.25	1.78

2.083 2.22 | 5.167 7.10 | 8.250 5.33 | 11.33 1.78  
 2.167 2.22 | 5.250 7.10 | 8.333 3.11 | 11.42 1.78  
 2.250 2.22 | 5.333 10.66 | 8.417 3.11 | 11.50 1.78  
 2.333 2.66 | 5.417 10.66 | 8.500 3.11 | 11.58 1.78  
 2.417 2.66 | 5.500 10.66 | 8.583 3.11 | 11.67 1.78  
 2.500 2.66 | 5.583 10.66 | 8.667 3.11 | 11.75 1.78  
 2.583 2.66 | 5.667 10.66 | 8.750 3.11 | 11.83 1.78  
 2.667 2.66 | 5.750 10.66 | 8.833 3.11 | 11.92 1.78  
 2.750 2.66 | 5.833 42.62 | 8.917 3.11 | 12.00 1.78  
 2.833 2.66 | 5.917 42.62 | 9.000 3.11 | 12.08 1.78  
 2.917 2.66 | 6.000 42.63 | 9.083 3.11 | 12.17 1.78  
 3.000 2.66 | 6.083 117.22 | 9.167 3.11 | 12.25 1.78  
 3.083 2.66 | 6.167 117.22 | 9.250 3.11 |

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 6.275 (i)  
 TIME TO PEAK (hrs)= 6.250  
 RUNOFF VOLUME (mm)= 53.190  
 TOTAL RAINFALL (mm)= 88.800  
 RUNOFF COEFFICIENT = 0.599

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

-----  
 | CALIB |  
 | STANDHYD ( 0002) | Area (ha)= 3.74  
 | ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80  
 -----

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.66	6.250	117.21	9.33	3.11
0.167	0.00	3.250	2.66	6.333	15.98	9.42	3.11
0.250	0.00	3.333	3.55	6.417	15.98	9.50	3.11
0.333	2.22	3.417	3.55	6.500	15.98	9.58	3.11
0.417	2.22	3.500	3.55	6.583	15.98	9.67	3.11
0.500	2.22	3.583	3.55	6.667	15.98	9.75	3.11
0.583	2.22	3.667	3.55	6.750	15.98	9.83	3.11

0.667	2.22	3.750	3.55	6.833	7.10	9.92	3.11
0.750	2.22	3.833	3.55	6.917	7.10	10.00	3.11
0.833	2.22	3.917	3.55	7.000	7.10	10.08	3.11
0.917	2.22	4.000	3.55	7.083	7.10	10.17	3.11
1.000	2.22	4.083	3.55	7.167	7.10	10.25	3.11
1.083	2.22	4.167	3.55	7.250	7.10	10.33	1.78
1.167	2.22	4.250	3.55	7.333	5.33	10.42	1.78
1.250	2.22	4.333	5.33	7.417	5.33	10.50	1.78
1.333	2.22	4.417	5.33	7.500	5.33	10.58	1.78
1.417	2.22	4.500	5.33	7.583	5.33	10.67	1.78
1.500	2.22	4.583	5.33	7.667	5.33	10.75	1.78
1.583	2.22	4.667	5.33	7.750	5.33	10.83	1.78
1.667	2.22	4.750	5.33	7.833	5.33	10.92	1.78
1.750	2.22	4.833	7.10	7.917	5.33	11.00	1.78
1.833	2.22	4.917	7.10	8.000	5.33	11.08	1.78
1.917	2.22	5.000	7.10	8.083	5.33	11.17	1.78
2.000	2.22	5.083	7.10	8.167	5.33	11.25	1.78
2.083	2.22	5.167	7.10	8.250	5.33	11.33	1.78
2.167	2.22	5.250	7.10	8.333	3.11	11.42	1.78
2.250	2.22	5.333	10.66	8.417	3.11	11.50	1.78
2.333	2.66	5.417	10.66	8.500	3.11	11.58	1.78
2.417	2.66	5.500	10.66	8.583	3.11	11.67	1.78
2.500	2.66	5.583	10.66	8.667	3.11	11.75	1.78
2.583	2.66	5.667	10.66	8.750	3.11	11.83	1.78
2.667	2.66	5.750	10.66	8.833	3.11	11.92	1.78
2.750	2.66	5.833	42.62	8.917	3.11	12.00	1.78
2.833	2.66	5.917	42.62	9.000	3.11	12.08	1.78
2.917	2.66	6.000	42.63	9.083	3.11	12.17	1.78
3.000	2.66	6.083	117.22	9.167	3.11	12.25	1.78
3.083	2.66	6.167	117.22	9.250	3.11		

Max.Eff.Inten.(mm/hr)= 117.22 24.91  
over (min) 5.00 35.00  
Storage Coeff. (min)= 3.15 (ii) 32.47 (ii)  
Unit Hyd. Tpeak (min)= 5.00 35.00  
Unit Hyd. peak (cms)= 0.27 0.03

\*TOTALS\*  
PEAK FLOW (cms)= 0.39 0.10 0.428 (iii)  
TIME TO PEAK (hrs)= 6.25 6.67 6.25  
RUNOFF VOLUME (mm)= 87.80 26.98 46.31  
TOTAL RAINFALL (mm)= 88.80 88.80 88.80  
RUNOFF COEFFICIENT = 0.99 0.30 0.52

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0001):	2.74	0.105	6.58	22.86
+ ID2= 2 ( 0002):	3.74	0.428	6.25	46.31
=====				
ID = 3 ( 0004):	6.48	0.487	6.25	36.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0004):	6.48	0.487	6.25	36.40
+ ID2= 2 ( 0003):	34.84	6.275	6.25	53.19
=====				
ID = 1 ( 0004):	41.32	6.763	6.25	50.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A L
V V I SSSS UUUU A A LLLL
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000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
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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\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\0c28f32a-2dde-43ca-9314-9740a4a9c4d3\scena  
 Summary filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\0c28f32a-2dde-43ca-9314-9740a4a9c4d3\scena

DATE: 10-16-2025 TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : e. 50yr 12hr 15min SCS Type I \*\*  
 \*\*\*\*\*

-----  
 READ STORM | Filename: C:\Users\msimon\AppData\Local\Temp\02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\ae5eb4bf  
 Ptotal= 98.40 mm | Comments: e. 50yr 12hr 15min SCS Type II (MTO)

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.25	3.94	6.50	17.71	9.75	3.44
0.25	2.46	3.50	3.94	6.75	7.87	10.00	3.44
0.50	2.46	3.75	3.94	7.00	7.87	10.25	1.97
0.75	2.46	4.00	3.94	7.25	5.90	10.50	1.97
1.00	2.46	4.25	5.90	7.50	5.90	10.75	1.97
1.25	2.46	4.50	5.90	7.75	5.90	11.00	1.97
1.50	2.46	4.75	7.87	8.00	5.90	11.25	1.97
1.75	2.46	5.00	7.87	8.25	3.44	11.50	1.97
2.00	2.46	5.25	11.81	8.50	3.44	11.75	1.97
2.25	2.95	5.50	11.81	8.75	3.44	12.00	1.97
2.50	2.95	5.75	47.23	9.00	3.44		
2.75	2.95	6.00	129.89	9.25	3.44		
3.00	2.95	6.25	17.71	9.50	3.44		

-----  
 CALIB |  
 NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0

|ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00  
 ----- U.H. Tp(hrs)= 0.43

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.95	6.250	129.89	9.33	3.44
0.167	0.00	3.250	2.95	6.333	17.71	9.42	3.44
0.250	0.00	3.333	3.94	6.417	17.71	9.50	3.44
0.333	2.46	3.417	3.94	6.500	17.71	9.58	3.44
0.417	2.46	3.500	3.94	6.583	17.71	9.67	3.44
0.500	2.46	3.583	3.94	6.667	17.71	9.75	3.44
0.583	2.46	3.667	3.94	6.750	17.71	9.83	3.44
0.667	2.46	3.750	3.94	6.833	7.87	9.92	3.44
0.750	2.46	3.833	3.94	6.917	7.87	10.00	3.44
0.833	2.46	3.917	3.94	7.000	7.87	10.08	3.44
0.917	2.46	4.000	3.94	7.083	7.87	10.17	3.44
1.000	2.46	4.083	3.94	7.167	7.87	10.25	3.44
1.083	2.46	4.167	3.94	7.250	7.87	10.33	1.97
1.167	2.46	4.250	3.94	7.333	5.90	10.42	1.97
1.250	2.46	4.333	5.90	7.417	5.90	10.50	1.97
1.333	2.46	4.417	5.90	7.500	5.90	10.58	1.97
1.417	2.46	4.500	5.90	7.583	5.90	10.67	1.97
1.500	2.46	4.583	5.90	7.667	5.90	10.75	1.97
1.583	2.46	4.667	5.90	7.750	5.90	10.83	1.97
1.667	2.46	4.750	5.90	7.833	5.90	10.92	1.97
1.750	2.46	4.833	7.87	7.917	5.90	11.00	1.97
1.833	2.46	4.917	7.87	8.000	5.90	11.08	1.97
1.917	2.46	5.000	7.87	8.083	5.90	11.17	1.97
2.000	2.46	5.083	7.87	8.167	5.90	11.25	1.97
2.083	2.46	5.167	7.87	8.250	5.90	11.33	1.97
2.167	2.46	5.250	7.87	8.333	3.44	11.42	1.97
2.250	2.46	5.333	11.81	8.417	3.44	11.50	1.97
2.333	2.95	5.417	11.81	8.500	3.44	11.58	1.97
2.417	2.95	5.500	11.81	8.583	3.44	11.67	1.97
2.500	2.95	5.583	11.81	8.667	3.44	11.75	1.97
2.583	2.95	5.667	11.81	8.750	3.44	11.83	1.97
2.667	2.95	5.750	11.81	8.833	3.44	11.92	1.97
2.750	2.95	5.833	47.23	8.917	3.44	12.00	1.97
2.833	2.95	5.917	47.23	9.000	3.44	12.08	1.97
2.917	2.95	6.000	47.23	9.083	3.44	12.17	1.97
3.000	2.95	6.083	129.89	9.167	3.44	12.25	1.97
3.083	2.95	6.167	129.89	9.250	3.44		

Unit Hyd Qpeak (cms)= 0.243  
 PEAK FLOW (cms)= 0.127 (i)

TIME TO PEAK (hrs)= 6.583  
 RUNOFF VOLUME (mm)= 27.524  
 TOTAL RAINFALL (mm)= 98.400  
 RUNOFF COEFFICIENT = 0.280

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

-----  
 CALIB  
 NASHYD ( 0003) Area (ha)= 34.84 Curve Number (CN)= 84.0  
 ID= 1 DT= 5.0 min Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.16  
 -----

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.95	6.250	129.89	9.33	3.44
0.167	0.00	3.250	2.95	6.333	17.71	9.42	3.44
0.250	0.00	3.333	3.94	6.417	17.71	9.50	3.44
0.333	2.46	3.417	3.94	6.500	17.71	9.58	3.44
0.417	2.46	3.500	3.94	6.583	17.71	9.67	3.44
0.500	2.46	3.583	3.94	6.667	17.71	9.75	3.44
0.583	2.46	3.667	3.94	6.750	17.71	9.83	3.44
0.667	2.46	3.750	3.94	6.833	7.87	9.92	3.44
0.750	2.46	3.833	3.94	6.917	7.87	10.00	3.44
0.833	2.46	3.917	3.94	7.000	7.87	10.08	3.44
0.917	2.46	4.000	3.94	7.083	7.87	10.17	3.44
1.000	2.46	4.083	3.94	7.167	7.87	10.25	3.44
1.083	2.46	4.167	3.94	7.250	7.87	10.33	1.97
1.167	2.46	4.250	3.94	7.333	5.90	10.42	1.97
1.250	2.46	4.333	5.90	7.417	5.90	10.50	1.97
1.333	2.46	4.417	5.90	7.500	5.90	10.58	1.97
1.417	2.46	4.500	5.90	7.583	5.90	10.67	1.97
1.500	2.46	4.583	5.90	7.667	5.90	10.75	1.97
1.583	2.46	4.667	5.90	7.750	5.90	10.83	1.97
1.667	2.46	4.750	5.90	7.833	5.90	10.92	1.97
1.750	2.46	4.833	7.87	7.917	5.90	11.00	1.97
1.833	2.46	4.917	7.87	8.000	5.90	11.08	1.97
1.917	2.46	5.000	7.87	8.083	5.90	11.17	1.97
2.000	2.46	5.083	7.87	8.167	5.90	11.25	1.97
2.083	2.46	5.167	7.87	8.250	5.90	11.33	1.97
2.167	2.46	5.250	7.87	8.333	3.44	11.42	1.97
2.250	2.46	5.333	11.81	8.417	3.44	11.50	1.97
2.333	2.95	5.417	11.81	8.500	3.44	11.58	1.97
2.417	2.95	5.500	11.81	8.583	3.44	11.67	1.97
2.500	2.95	5.583	11.81	8.667	3.44	11.75	1.97

2.583	2.95	5.667	11.81	8.750	3.44	11.83	1.97
2.667	2.95	5.750	11.81	8.833	3.44	11.92	1.97
2.750	2.95	5.833	47.23	8.917	3.44	12.00	1.97
2.833	2.95	5.917	47.23	9.000	3.44	12.08	1.97
2.917	2.95	6.000	47.23	9.083	3.44	12.17	1.97
3.000	2.95	6.083	129.89	9.167	3.44	12.25	1.97
3.083	2.95	6.167	129.89	9.250	3.44		

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 7.257 (i)  
 TIME TO PEAK (hrs)= 6.250  
 RUNOFF VOLUME (mm)= 61.559  
 TOTAL RAINFALL (mm)= 98.400  
 RUNOFF COEFFICIENT = 0.626

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

-----  
 CALIB  
 STANDHYD ( 0002) Area (ha)= 3.74  
 ID= 1 DT= 5.0 min Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80  
 -----

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	2.95	6.250	129.89	9.33	3.44
0.167	0.00	3.250	2.95	6.333	17.71	9.42	3.44
0.250	0.00	3.333	3.94	6.417	17.71	9.50	3.44
0.333	2.46	3.417	3.94	6.500	17.71	9.58	3.44
0.417	2.46	3.500	3.94	6.583	17.71	9.67	3.44
0.500	2.46	3.583	3.94	6.667	17.71	9.75	3.44
0.583	2.46	3.667	3.94	6.750	17.71	9.83	3.44
0.667	2.46	3.750	3.94	6.833	7.87	9.92	3.44
0.750	2.46	3.833	3.94	6.917	7.87	10.00	3.44
0.833	2.46	3.917	3.94	7.000	7.87	10.08	3.44
0.917	2.46	4.000	3.94	7.083	7.87	10.17	3.44
1.000	2.46	4.083	3.94	7.167	7.87	10.25	3.44
1.083	2.46	4.167	3.94	7.250	7.87	10.33	1.97

1.167	2.46	4.250	3.94	7.333	5.90	10.42	1.97
1.250	2.46	4.333	5.90	7.417	5.90	10.50	1.97
1.333	2.46	4.417	5.90	7.500	5.90	10.58	1.97
1.417	2.46	4.500	5.90	7.583	5.90	10.67	1.97
1.500	2.46	4.583	5.90	7.667	5.90	10.75	1.97
1.583	2.46	4.667	5.90	7.750	5.90	10.83	1.97
1.667	2.46	4.750	5.90	7.833	5.90	10.92	1.97
1.750	2.46	4.833	7.87	7.917	5.90	11.00	1.97
1.833	2.46	4.917	7.87	8.000	5.90	11.08	1.97
1.917	2.46	5.000	7.87	8.083	5.90	11.17	1.97
2.000	2.46	5.083	7.87	8.167	5.90	11.25	1.97
2.083	2.46	5.167	7.87	8.250	5.90	11.33	1.97
2.167	2.46	5.250	7.87	8.333	3.44	11.42	1.97
2.250	2.46	5.333	11.81	8.417	3.44	11.50	1.97
2.333	2.95	5.417	11.81	8.500	3.44	11.58	1.97
2.417	2.95	5.500	11.81	8.583	3.44	11.67	1.97
2.500	2.95	5.583	11.81	8.667	3.44	11.75	1.97
2.583	2.95	5.667	11.81	8.750	3.44	11.83	1.97
2.667	2.95	5.750	11.81	8.833	3.44	11.92	1.97
2.750	2.95	5.833	47.23	8.917	3.44	12.00	1.97
2.833	2.95	5.917	47.23	9.000	3.44	12.08	1.97
2.917	2.95	6.000	47.23	9.083	3.44	12.17	1.97
3.000	2.95	6.083	129.89	9.167	3.44	12.25	1.97
3.083	2.95	6.167	129.89	9.250	3.44		

Max.Eff.Inten.(mm/hr)= 129.89 30.03  
over (min) 5.00 35.00  
Storage Coeff. (min)= 3.03 (ii) 30.23 (ii)  
Unit Hyd. Tpeak (min)= 5.00 35.00  
Unit Hyd. peak (cms)= 0.27 0.04

\*TOTALS\*

PEAK FLOW (cms)= 0.43 0.13 0.481 (iii)  
TIME TO PEAK (hrs)= 6.25 6.67 6.25  
RUNOFF VOLUME (mm)= 97.40 32.32 53.01  
TOTAL RAINFALL (mm)= 98.40 98.40 98.40  
RUNOFF COEFFICIENT = 0.99 0.33 0.54

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
```

```
-----
              (ha) (cms) (hrs) (mm)
ID1= 1 ( 0001): 2.74 0.127 6.58 27.52
+ ID2= 2 ( 0002): 3.74 0.481 6.25 53.01
=====
ID = 3 ( 0004): 6.48 0.554 6.25 42.23
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
              (ha) (cms) (hrs) (mm)
ID1= 3 ( 0004): 6.48 0.554 6.25 42.23
+ ID2= 2 ( 0003): 34.84 7.257 6.25 61.56
=====
ID = 1 ( 0004): 41.32 7.811 6.25 58.53
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A L
V V I SS U U A A L
V V I SSSSS UUUUU A A LLLLL
```

```
000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000
```

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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\voind.dat

Output filename:  
C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\9a9bfb6f1-2e91-44d2-9a36-3f0f4ff7d2c1\scena  
Summary filename:  
C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\9a9bfb6f1-2e91-44d2-9a36-3f0f4ff7d2c1\scena

DATE: 10-16-2025

TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
\*\* SIMULATION : f. 100yr 12hr 15min SCS Type \*\*  
\*\*\*\*\*

-----  
| READ STORM | Filename: C:\Users\msimon\AppData  
| | Local\Temp\  
| Ptotal=108.00 mm | 02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\435f87b5  
| | Comments: f. 100yr 12hr 15min SCS Type II (MTO)  
-----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.00	3.25	4.32	6.50	19.44	9.75	3.78
0.25	2.70	3.50	4.32	6.75	8.64	10.00	3.78
0.50	2.70	3.75	4.32	7.00	8.64	10.25	2.16
0.75	2.70	4.00	4.32	7.25	6.48	10.50	2.16
1.00	2.70	4.25	6.48	7.50	6.48	10.75	2.16
1.25	2.70	4.50	6.48	7.75	6.48	11.00	2.16
1.50	2.70	4.75	8.64	8.00	6.48	11.25	2.16
1.75	2.70	5.00	8.64	8.25	3.78	11.50	2.16
2.00	2.70	5.25	12.96	8.50	3.78	11.75	2.16
2.25	3.24	5.50	12.96	8.75	3.78	12.00	2.16
2.50	3.24	5.75	51.84	9.00	3.78		
2.75	3.24	6.00	142.56	9.25	3.78		
3.00	3.24	6.25	19.44	9.50	3.78		

-----  
| CALIB |  
| NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0  
| ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00  
| | U.H. Tp(hrs)= 0.43  
-----

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	3.24	6.250	142.56	9.33	3.78
0.167	0.00	3.250	3.24	6.333	19.44	9.42	3.78
0.250	0.00	3.333	4.32	6.417	19.44	9.50	3.78
0.333	2.70	3.417	4.32	6.500	19.44	9.58	3.78
0.417	2.70	3.500	4.32	6.583	19.44	9.67	3.78
0.500	2.70	3.583	4.32	6.667	19.44	9.75	3.78
0.583	2.70	3.667	4.32	6.750	19.44	9.83	3.78
0.667	2.70	3.750	4.32	6.833	8.64	9.92	3.78
0.750	2.70	3.833	4.32	6.917	8.64	10.00	3.78
0.833	2.70	3.917	4.32	7.000	8.64	10.08	3.78
0.917	2.70	4.000	4.32	7.083	8.64	10.17	3.78
1.000	2.70	4.083	4.32	7.167	8.64	10.25	3.78
1.083	2.70	4.167	4.32	7.250	8.64	10.33	2.16
1.167	2.70	4.250	4.32	7.333	6.48	10.42	2.16
1.250	2.70	4.333	6.48	7.417	6.48	10.50	2.16
1.333	2.70	4.417	6.48	7.500	6.48	10.58	2.16
1.417	2.70	4.500	6.48	7.583	6.48	10.67	2.16
1.500	2.70	4.583	6.48	7.667	6.48	10.75	2.16
1.583	2.70	4.667	6.48	7.750	6.48	10.83	2.16
1.667	2.70	4.750	6.48	7.833	6.48	10.92	2.16
1.750	2.70	4.833	8.64	7.917	6.48	11.00	2.16
1.833	2.70	4.917	8.64	8.000	6.48	11.08	2.16
1.917	2.70	5.000	8.64	8.083	6.48	11.17	2.16
2.000	2.70	5.083	8.64	8.167	6.48	11.25	2.16
2.083	2.70	5.167	8.64	8.250	6.48	11.33	2.16
2.167	2.70	5.250	8.64	8.333	3.78	11.42	2.16
2.250	2.70	5.333	12.96	8.417	3.78	11.50	2.16
2.333	3.24	5.417	12.96	8.500	3.78	11.58	2.16
2.417	3.24	5.500	12.96	8.583	3.78	11.67	2.16
2.500	3.24	5.583	12.96	8.667	3.78	11.75	2.16
2.583	3.24	5.667	12.96	8.750	3.78	11.83	2.16
2.667	3.24	5.750	12.96	8.833	3.78	11.92	2.16
2.750	3.24	5.833	51.84	8.917	3.78	12.00	2.16
2.833	3.24	5.917	51.84	9.000	3.78	12.08	2.16
2.917	3.24	6.000	51.84	9.083	3.78	12.17	2.16
3.000	3.24	6.083	142.56	9.167	3.78	12.25	2.16
3.083	3.24	6.167	142.56	9.250	3.78		

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.150 (i)

TIME TO PEAK (hrs)= 6.583

RUNOFF VOLUME (mm)= 32.476

TOTAL RAINFALL (mm)= 108.000

RUNOFF COEFFICIENT = 0.301

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

3.083 3.24 | 6.167 142.56 | 9.250 3.78 |

-----  
 | CALIB |  
 | NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 -----  
 U.H. Tp(hrs)= 0.16

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	3.24	6.250	142.56	9.33	3.78
0.167	0.00	3.250	3.24	6.333	19.44	9.42	3.78
0.250	0.00	3.333	4.32	6.417	19.44	9.50	3.78
0.333	2.70	3.417	4.32	6.500	19.44	9.58	3.78
0.417	2.70	3.500	4.32	6.583	19.44	9.67	3.78
0.500	2.70	3.583	4.32	6.667	19.44	9.75	3.78
0.583	2.70	3.667	4.32	6.750	19.44	9.83	3.78
0.667	2.70	3.750	4.32	6.833	8.64	9.92	3.78
0.750	2.70	3.833	4.32	6.917	8.64	10.00	3.78
0.833	2.70	3.917	4.32	7.000	8.64	10.08	3.78
0.917	2.70	4.000	4.32	7.083	8.64	10.17	3.78
1.000	2.70	4.083	4.32	7.167	8.64	10.25	3.78
1.083	2.70	4.167	4.32	7.250	8.64	10.33	2.16
1.167	2.70	4.250	4.32	7.333	6.48	10.42	2.16
1.250	2.70	4.333	6.48	7.417	6.48	10.50	2.16
1.333	2.70	4.417	6.48	7.500	6.48	10.58	2.16
1.417	2.70	4.500	6.48	7.583	6.48	10.67	2.16
1.500	2.70	4.583	6.48	7.667	6.48	10.75	2.16
1.583	2.70	4.667	6.48	7.750	6.48	10.83	2.16
1.667	2.70	4.750	6.48	7.833	6.48	10.92	2.16
1.750	2.70	4.833	8.64	7.917	6.48	11.00	2.16
1.833	2.70	4.917	8.64	8.000	6.48	11.08	2.16
1.917	2.70	5.000	8.64	8.083	6.48	11.17	2.16
2.000	2.70	5.083	8.64	8.167	6.48	11.25	2.16
2.083	2.70	5.167	8.64	8.250	6.48	11.33	2.16
2.167	2.70	5.250	8.64	8.333	3.78	11.42	2.16
2.250	2.70	5.333	12.96	8.417	3.78	11.50	2.16
2.333	3.24	5.417	12.96	8.500	3.78	11.58	2.16
2.417	3.24	5.500	12.96	8.583	3.78	11.67	2.16
2.500	3.24	5.583	12.96	8.667	3.78	11.75	2.16
2.583	3.24	5.667	12.96	8.750	3.78	11.83	2.16
2.667	3.24	5.750	12.96	8.833	3.78	11.92	2.16
2.750	3.24	5.833	51.84	8.917	3.78	12.00	2.16
2.833	3.24	5.917	51.84	9.000	3.78	12.08	2.16
2.917	3.24	6.000	51.84	9.083	3.78	12.17	2.16
3.000	3.24	6.083	142.56	9.167	3.78	12.25	2.16

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 8.251 (i)  
 TIME TO PEAK (hrs)= 6.250  
 RUNOFF VOLUME (mm)= 70.079  
 TOTAL RAINFALL (mm)= 108.000  
 RUNOFF COEFFICIENT = 0.649

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

-----  
 | CALIB |  
 | STANDHYD ( 0002) | Area (ha)= 3.74  
 | ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80  
 -----

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.00	3.167	3.24	6.250	142.56	9.33	3.78
0.167	0.00	3.250	3.24	6.333	19.44	9.42	3.78
0.250	0.00	3.333	4.32	6.417	19.44	9.50	3.78
0.333	2.70	3.417	4.32	6.500	19.44	9.58	3.78
0.417	2.70	3.500	4.32	6.583	19.44	9.67	3.78
0.500	2.70	3.583	4.32	6.667	19.44	9.75	3.78
0.583	2.70	3.667	4.32	6.750	19.44	9.83	3.78
0.667	2.70	3.750	4.32	6.833	8.64	9.92	3.78
0.750	2.70	3.833	4.32	6.917	8.64	10.00	3.78
0.833	2.70	3.917	4.32	7.000	8.64	10.08	3.78
0.917	2.70	4.000	4.32	7.083	8.64	10.17	3.78
1.000	2.70	4.083	4.32	7.167	8.64	10.25	3.78
1.083	2.70	4.167	4.32	7.250	8.64	10.33	2.16
1.167	2.70	4.250	4.32	7.333	6.48	10.42	2.16
1.250	2.70	4.333	6.48	7.417	6.48	10.50	2.16
1.333	2.70	4.417	6.48	7.500	6.48	10.58	2.16
1.417	2.70	4.500	6.48	7.583	6.48	10.67	2.16
1.500	2.70	4.583	6.48	7.667	6.48	10.75	2.16
1.583	2.70	4.667	6.48	7.750	6.48	10.83	2.16

1.667	2.70	4.750	6.48	7.833	6.48	10.92	2.16
1.750	2.70	4.833	8.64	7.917	6.48	11.00	2.16
1.833	2.70	4.917	8.64	8.000	6.48	11.08	2.16
1.917	2.70	5.000	8.64	8.083	6.48	11.17	2.16
2.000	2.70	5.083	8.64	8.167	6.48	11.25	2.16
2.083	2.70	5.167	8.64	8.250	6.48	11.33	2.16
2.167	2.70	5.250	8.64	8.333	3.78	11.42	2.16
2.250	2.70	5.333	12.96	8.417	3.78	11.50	2.16
2.333	3.24	5.417	12.96	8.500	3.78	11.58	2.16
2.417	3.24	5.500	12.96	8.583	3.78	11.67	2.16
2.500	3.24	5.583	12.96	8.667	3.78	11.75	2.16
2.583	3.24	5.667	12.96	8.750	3.78	11.83	2.16
2.667	3.24	5.750	12.96	8.833	3.78	11.92	2.16
2.750	3.24	5.833	51.84	8.917	3.78	12.00	2.16
2.833	3.24	5.917	51.84	9.000	3.78	12.08	2.16
2.917	3.24	6.000	51.84	9.083	3.78	12.17	2.16
3.000	3.24	6.083	142.56	9.167	3.78	12.25	2.16
3.083	3.24	6.167	142.56	9.250	3.78		

Max.Eff.Inten.(mm/hr)= 142.56 40.21  
over (min) 5.00 30.00  
Storage Coeff. (min)= 2.92 (ii) 27.12 (ii)  
Unit Hyd. Tpeak (min)= 5.00 30.00  
Unit Hyd. peak (cms)= 0.28 0.04

\*TOTALS\*  
PEAK FLOW (cms)= 0.47 0.17 0.551 (iii)  
TIME TO PEAK (hrs)= 6.25 6.58 6.25  
RUNOFF VOLUME (mm)= 107.00 37.96 59.91  
TOTAL RAINFALL (mm)= 108.00 108.00 108.00  
RUNOFF COEFFICIENT = 0.99 0.35 0.55

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0001): 2.74 0.150 6.58 32.48
+ ID2= 2 ( 0002): 3.74 0.551 6.25 59.91
=====
ID = 3 ( 0004): 6.48 0.637 6.25 48.31

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----
          AREA  QPEAK  TPEAK  R.V.
          (ha)   (cms)   (hrs)   (mm)
ID1= 3 ( 0004): 6.48 0.637 6.25 48.31
+ ID2= 2 ( 0003): 34.84 8.251 6.25 70.08
=====
ID = 1 ( 0004): 41.32 8.889 6.25 66.66

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A L
V V I SSSSS UUUU A A LLLLL

```

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000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

```

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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\V02\voin.dat

Output filename:  
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8b7-c7bf-49b6-a1bf-a582a9ca895d\scena  
Summary filename:  
C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\65169  
8b7-c7bf-49b6-a1bf-a582a9ca895d\scena

DATE: 10-16-2025

TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : g. 2yr 4hr 10min Chicago \*\*  
 \*\*\*\*\*

-----  
 | CHICAGO STORM | IDF curve parameters: A= 468.366  
 | Ptotal= 35.45 mm | B= 1.500  
 C= 0.723  
 -----  
 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	2.80	1.00	15.53	2.00	5.80	3.00	3.26
0.17	3.15	1.17	80.11	2.17	5.07	3.17	3.06
0.33	3.63	1.33	19.61	2.33	4.53	3.33	2.88
0.50	4.31	1.50	11.46	2.50	4.11	3.50	2.73
0.67	5.43	1.67	8.46	2.67	3.77	3.67	2.60
0.83	7.64	1.83	6.83	2.83	3.49	3.83	2.48

-----  
 | CALIB |  
 | NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # 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	2.80	1.083	15.53	2.083	5.80	3.08	3.26
0.167	2.80	1.167	15.53	2.167	5.80	3.17	3.26
0.250	3.15	1.250	80.11	2.250	5.07	3.25	3.06
0.333	3.15	1.333	80.11	2.333	5.07	3.33	3.06
0.417	3.63	1.417	19.61	2.417	4.53	3.42	2.88
0.500	3.63	1.500	19.61	2.500	4.53	3.50	2.88
0.583	4.31	1.583	11.46	2.583	4.11	3.58	2.73

0.667	4.31	1.667	11.46	2.667	4.11	3.67	2.73
0.750	5.43	1.750	8.46	2.750	3.77	3.75	2.60
0.833	5.43	1.833	8.46	2.833	3.77	3.83	2.60
0.917	7.64	1.917	6.83	2.917	3.49	3.92	2.48
1.000	7.64	2.000	6.83	3.000	3.49	4.00	2.48

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.016 (i)  
 TIME TO PEAK (hrs)= 1.833  
 RUNOFF VOLUME (mm)= 3.693  
 TOTAL RAINFALL (mm)= 35.452  
 RUNOFF COEFFICIENT = 0.104

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

-----  
 | CALIB |  
 | NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 -----  
 U.H. Tp(hrs)= 0.16

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	2.80	1.083	15.53	2.083	5.80	3.08	3.26
0.167	2.80	1.167	15.53	2.167	5.80	3.17	3.26
0.250	3.15	1.250	80.11	2.250	5.07	3.25	3.06
0.333	3.15	1.333	80.11	2.333	5.07	3.33	3.06
0.417	3.63	1.417	19.61	2.417	4.53	3.42	2.88
0.500	3.63	1.500	19.61	2.500	4.53	3.50	2.88
0.583	4.31	1.583	11.46	2.583	4.11	3.58	2.73
0.667	4.31	1.667	11.46	2.667	4.11	3.67	2.73
0.750	5.43	1.750	8.46	2.750	3.77	3.75	2.60
0.833	5.43	1.833	8.46	2.833	3.77	3.83	2.60
0.917	7.64	1.917	6.83	2.917	3.49	3.92	2.48
1.000	7.64	2.000	6.83	3.000	3.49	4.00	2.48

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 1.327 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 11.928  
 TOTAL RAINFALL (mm)= 35.452  
 RUNOFF COEFFICIENT = 0.336

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

```

-----
| CALIB |
| STANDHYD ( 0002) | Area (ha)= 3.74
| ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80
-----

```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.80	1.083	15.53	2.083	5.80	3.08	3.26
0.167	2.80	1.167	15.53	2.167	5.80	3.17	3.26
0.250	3.15	1.250	80.11	2.250	5.07	3.25	3.06
0.333	3.15	1.333	80.11	2.333	5.07	3.33	3.06
0.417	3.63	1.417	19.61	2.417	4.53	3.42	2.88
0.500	3.63	1.500	19.61	2.500	4.53	3.50	2.88
0.583	4.31	1.583	11.46	2.583	4.11	3.58	2.73
0.667	4.31	1.667	11.46	2.667	4.11	3.67	2.73
0.750	5.43	1.750	8.46	2.750	3.77	3.75	2.60
0.833	5.43	1.833	8.46	2.833	3.77	3.83	2.60
0.917	7.64	1.917	6.83	2.917	3.49	3.92	2.48
1.000	7.64	2.000	6.83	3.000	3.49	4.00	2.48

Max.Eff.Inten.(mm/hr)=	80.11	2.88
over (min)	5.00	75.00
Storage Coeff. (min)=	3.67 (ii)	73.20 (ii)
Unit Hyd. Tpeak (min)=	5.00	75.00
Unit Hyd. peak (cms)=	0.25	0.02

\*TOTALS\*

PEAK FLOW (cms)=	0.25	0.01	0.251 (iii)
TIME TO PEAK (hrs)=	1.33	2.75	1.33
RUNOFF VOLUME (mm)=	34.45	4.48	14.00
TOTAL RAINFALL (mm)=	35.45	35.45	35.45
RUNOFF COEFFICIENT =	0.97	0.13	0.39

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
-----
ID1= 1 ( 0001): 2.74 0.016 1.83 3.69
+ ID2= 2 ( 0002): 3.74 0.251 1.33 14.00
=====
ID = 3 ( 0004): 6.48 0.254 1.33 9.64
-----

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 | AREA QPEAK TPEAK R.V.
| (ha) (cms) (hrs) (mm)
-----
ID1= 3 ( 0004): 6.48 0.254 1.33 9.64
+ ID2= 2 ( 0003): 34.84 1.327 1.42 11.93
=====
ID = 1 ( 0004): 41.32 1.447 1.42 11.57
-----

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U AAAA L
V V I SS U U AAAA L
V V I SS U U AAAA L
VV I SSSSS UUUU A A LLLLL

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000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000

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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\voind.dat

Output filename:

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Summary filename:

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DATE: 10-16-2025

TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
\*\* SIMULATION : h. 5yr 4hr 10min Chicago \*\*  
\*\*\*\*\*

CHICAGO STORM | IDF curve parameters: A= 628.120  
Ptotal= 46.77 mm | B= 1.500  
C= 0.726

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	3.66	1.00	20.45	2.00	7.59	3.00	4.25
0.17	4.12	1.17	106.65	2.17	6.64	3.17	3.99
0.33	4.74	1.33	25.87	2.33	5.93	3.33	3.76
0.50	5.64	1.50	15.06	2.50	5.37	3.50	3.57
0.67	7.11	1.67	11.10	2.67	4.93	3.67	3.39
0.83	10.02	1.83	8.96	2.83	4.56	3.83	3.23

CALIB |  
NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0  
ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00

U.H. Tp(hrs)= 0.43

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	3.66	1.083	20.45	2.083	7.59	3.08	4.25
0.167	3.66	1.167	20.45	2.167	7.59	3.17	4.25
0.250	4.12	1.250	106.65	2.250	6.64	3.25	3.99
0.333	4.12	1.333	106.65	2.333	6.64	3.33	3.99
0.417	4.74	1.417	25.87	2.417	5.93	3.42	3.76
0.500	4.74	1.500	25.87	2.500	5.93	3.50	3.76
0.583	5.64	1.583	15.06	2.583	5.37	3.58	3.57
0.667	5.64	1.667	15.06	2.667	5.37	3.67	3.57
0.750	7.11	1.750	11.10	2.750	4.93	3.75	3.39
0.833	7.11	1.833	11.10	2.833	4.93	3.83	3.39
0.917	10.02	1.917	8.96	2.917	4.56	3.92	3.23
1.000	10.02	2.000	8.96	3.000	4.56	4.00	3.23

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.030 (i)  
TIME TO PEAK (hrs)= 1.833  
RUNOFF VOLUME (mm)= 6.619  
TOTAL RAINFALL (mm)= 46.768  
RUNOFF COEFFICIENT = 0.142

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

CALIB |  
NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.16

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	3.66	1.083	20.45	2.083	7.59	3.08	4.25
0.167	3.66	1.167	20.45	2.167	7.59	3.17	4.25
0.250	4.12	1.250	106.65	2.250	6.64	3.25	3.99
0.333	4.12	1.333	106.65	2.333	6.64	3.33	3.99
0.417	4.74	1.417	25.87	2.417	5.93	3.42	3.76
0.500	4.74	1.500	25.87	2.500	5.93	3.50	3.76

0.583	5.64	1.583	15.06	2.583	5.37	3.58	3.57
0.667	5.64	1.667	15.06	2.667	5.37	3.67	3.57
0.750	7.11	1.750	11.10	2.750	4.93	3.75	3.39
0.833	7.11	1.833	11.10	2.833	4.93	3.83	3.39
0.917	10.02	1.917	8.96	2.917	4.56	3.92	3.23
1.000	10.02	2.000	8.96	3.000	4.56	4.00	3.23

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 2.341 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 19.513  
 TOTAL RAINFALL (mm)= 46.768  
 RUNOFF COEFFICIENT = 0.417

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

-----  
 CALIB  
 STANDHYD ( 0002) | Area (ha)= 3.74  
 ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	3.66	1.083	20.45	2.083	7.59	3.08	4.25
0.167	3.66	1.167	20.45	2.167	7.59	3.17	4.25
0.250	4.12	1.250	106.65	2.250	6.64	3.25	3.99
0.333	4.12	1.333	106.65	2.333	6.64	3.33	3.99
0.417	4.74	1.417	25.87	2.417	5.93	3.42	3.76
0.500	4.74	1.500	25.87	2.500	5.93	3.50	3.76
0.583	5.64	1.583	15.06	2.583	5.37	3.58	3.57
0.667	5.64	1.667	15.06	2.667	5.37	3.67	3.57
0.750	7.11	1.750	11.10	2.750	4.93	3.75	3.39
0.833	7.11	1.833	11.10	2.833	4.93	3.83	3.39
0.917	10.02	1.917	8.96	2.917	4.56	3.92	3.23
1.000	10.02	2.000	8.96	3.000	4.56	4.00	3.23

Max. Eff. Inten. (mm/hr)= 106.65 5.52

over (min)	5.00	60.00	
Storage Coeff. (min)=	3.27 (ii)	56.86 (ii)	
Unit Hyd. Tpeak (min)=	5.00	60.00	
Unit Hyd. peak (cms)=	0.27	0.02	
			*TOTALS*
PEAK FLOW (cms)=	0.34	0.02	0.340 (iii)
TIME TO PEAK (hrs)=	1.33	2.42	1.33
RUNOFF VOLUME (mm)=	45.77	7.99	20.00
TOTAL RAINFALL (mm)=	46.77	46.77	46.77
RUNOFF COEFFICIENT =	0.98	0.17	0.43

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |  
 | 1 + 2 = 3 | AREA QPEAK TPEAK R.V.  
 (ha) (cms) (hrs) (mm)  
 ID1= 1 ( 0001): 2.74 0.030 1.83 6.62  
 + ID2= 2 ( 0002): 3.74 0.340 1.33 20.00  
 =====  
 ID = 3 ( 0004): 6.48 0.347 1.33 14.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
 ADD HYD ( 0004) |  
 | 3 + 2 = 1 | AREA QPEAK TPEAK R.V.  
 (ha) (cms) (hrs) (mm)  
 ID1= 3 ( 0004): 6.48 0.347 1.33 14.34  
 + ID2= 2 ( 0003): 34.84 2.341 1.42 19.51  
 =====  
 ID = 1 ( 0004): 41.32 2.497 1.42 18.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
 V V I SSSSS U U A L (v 6.2.2015)  
 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  
 W I SSSS UUUU A A LLLL

000 TTTT TTTT H H Y Y M M 000 TM  
 O O T T H H Y Y M M O O  
 O O T T H H Y Y M M O O  
 000 T T H H Y M M 000

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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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 b50-2deb-4770-adca-4407a32f3145\scena

DATE: 10-16-2025 TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : i. 10yr 4hr 10min Chicago \*\*  
 \*\*\*\*\*

-----  
 | CHICAGO STORM |  
Ptotal= 54.48 mm

IDF curve parameters: A= 731.673  
 B= 1.500  
 C= 0.726

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	4.26	1.00	23.82	2.00	8.85	3.00	4.96
0.17	4.80	1.17	124.24	2.17	7.73	3.17	4.65
0.33	5.52	1.33	30.13	2.33	6.90	3.33	4.39
0.50	6.57	1.50	17.55	2.50	6.26	3.50	4.15
0.67	8.28	1.67	12.93	2.67	5.74	3.67	3.95
0.83	11.67	1.83	10.44	2.83	5.31	3.83	3.77

-----  
 | CALIB |  
 | NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00  
 -----  
 U.H. Tp(hrs)= 0.43

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	4.26	1.083	23.82	2.083	8.85	3.08	4.96
0.167	4.26	1.167	23.82	2.167	8.85	3.17	4.96
0.250	4.80	1.250	124.24	2.250	7.73	3.25	4.65
0.333	4.80	1.333	124.24	2.333	7.73	3.33	4.65
0.417	5.52	1.417	30.13	2.417	6.90	3.42	4.39
0.500	5.52	1.500	30.13	2.500	6.90	3.50	4.39
0.583	6.57	1.583	17.55	2.583	6.26	3.58	4.15
0.667	6.57	1.667	17.55	2.667	6.26	3.67	4.15
0.750	8.28	1.750	12.93	2.750	5.74	3.75	3.95
0.833	8.28	1.833	12.93	2.833	5.74	3.83	3.95
0.917	11.67	1.917	10.44	2.917	5.31	3.92	3.77
1.000	11.67	2.000	10.44	3.000	5.31	4.00	3.77

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.041 (i)  
 TIME TO PEAK (hrs)= 1.833  
 RUNOFF VOLUME (mm)= 9.009  
 TOTAL RAINFALL (mm)= 54.478  
 RUNOFF COEFFICIENT = 0.165

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

-----  
 | CALIB |  
 | NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0

|ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 ----- U.H. Tp(hrs)= 0.16

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	4.26	1.083	23.82	2.083	8.85	3.08	4.96
0.167	4.26	1.167	23.82	2.167	8.85	3.17	4.96
0.250	4.80	1.250	124.24	2.250	7.73	3.25	4.65
0.333	4.80	1.333	124.24	2.333	7.73	3.33	4.65
0.417	5.52	1.417	30.13	2.417	6.90	3.42	4.39
0.500	5.52	1.500	30.13	2.500	6.90	3.50	4.39
0.583	6.57	1.583	17.55	2.583	6.26	3.58	4.15
0.667	6.57	1.667	17.55	2.667	6.26	3.67	4.15
0.750	8.28	1.750	12.93	2.750	5.74	3.75	3.95
0.833	8.28	1.833	12.93	2.833	5.74	3.83	3.95
0.917	11.67	1.917	10.44	2.917	5.31	3.92	3.77
1.000	11.67	2.000	10.44	3.000	5.31	4.00	3.77

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 3.107 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.167  
 TOTAL RAINFALL (mm)= 54.478  
 RUNOFF COEFFICIENT = 0.462

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

-----  
 CALIB  
 |STANDHYD ( 0002)| Area (ha)= 3.74  
 |ID= 1 DT= 5.0 min| Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	1.19	2.55
Dep. Storage (mm)	1.00	5.00
Average Slope (%)	1.00	2.00
Length (m)	157.90	170.00
Mannings n	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
------	------	------	------	------	------	------	------

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	4.26	1.083	23.82	2.083	8.85	3.08	4.96
0.167	4.26	1.167	23.82	2.167	8.85	3.17	4.96
0.250	4.80	1.250	124.24	2.250	7.73	3.25	4.65
0.333	4.80	1.333	124.24	2.333	7.73	3.33	4.65
0.417	5.52	1.417	30.13	2.417	6.90	3.42	4.39
0.500	5.52	1.500	30.13	2.500	6.90	3.50	4.39
0.583	6.57	1.583	17.55	2.583	6.26	3.58	4.15
0.667	6.57	1.667	17.55	2.667	6.26	3.67	4.15
0.750	8.28	1.750	12.93	2.750	5.74	3.75	3.95
0.833	8.28	1.833	12.93	2.833	5.74	3.83	3.95
0.917	11.67	1.917	10.44	2.917	5.31	3.92	3.77
1.000	11.67	2.000	10.44	3.000	5.31	4.00	3.77

Max.Eff.Inten.(mm/hr)= 124.24 8.00  
 over (min) 5.00 50.00  
 Storage Coeff. (min)= 3.08 (ii) 49.27 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 50.00  
 Unit Hyd. peak (cms)= 0.27 0.02

\*TOTALS\*

PEAK FLOW (cms)= 0.40 0.03 0.400 (iii)  
 TIME TO PEAK (hrs)= 1.33 2.17 1.33  
 RUNOFF VOLUME (mm)= 53.48 10.83 24.39  
 TOTAL RAINFALL (mm)= 54.48 54.48 54.48  
 RUNOFF COEFFICIENT = 0.98 0.20 0.45

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 59.0 Ia = Dep. 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 ( 0004)|  
 | 1 + 2 = 3 | AREA QPEAK TPEAK R.V.  
 (ha) (cms) (hrs) (mm)  
 ID1= 1 ( 0001): 2.74 0.041 1.83 9.01  
 + ID2= 2 ( 0002): 3.74 0.400 1.33 24.39  
 =====  
 ID = 3 ( 0004): 6.48 0.410 1.33 17.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
 | ADD HYD ( 0004)|

```

| 3 + 2 = 1 |
-----
ID1= 3 ( 0004):   AREA   QPEAK   TPEAK   R.V.
                  (ha)    (cms)   (hrs)   (mm)
+ ID2= 2 ( 0003):   6.48   0.410  1.33   17.88
                  34.84   3.107  1.42   25.17
=====
ID = 1 ( 0004):   41.32   3.288  1.42   24.03

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

=====
V  V  I  SSSSS  U  U  A  L          (v 6.2.2015)
V  V  I  SS    U  U  A  A  L
V  V  I  SS    U  U  A  A  A  L
V  V  I  SS    U  U  A  A  L
V  V  I  SSSSS  UUUUU  A  A  LLLLL
000  TTTTT  TTTTT  H  H  Y  Y  M  M  000  TM
O  O  T  T  H  H  Y  Y  MM  MM  O  O
O  O  T  T  H  H  Y  M  M  O  O
000  T  T  H  H  Y  M  M  000

```

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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\V02\voin.dat  
 Output filename:  
 C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\bfe4c  
 656-44e1-4b36-941d-b06e5f3fcbac\scena  
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DATE: 10-16-2025                      TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

```

-----
*****
** SIMULATION : j. 25yr 4hr 10min Chicago **
*****

```

```

-----
| CHICAGO STORM | IDF curve parameters: A= 860.583
| Ptotal= 64.08 mm | B= 1.500
| | C= 0.726
-----

```

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	5.02	1.00	28.02	2.00	10.41	3.00	5.83
0.17	5.64	1.17	146.13	2.17	9.10	3.17	5.47
0.33	6.49	1.33	35.44	2.33	8.12	3.33	5.16
0.50	7.73	1.50	20.64	2.50	7.36	3.50	4.89
0.67	9.74	1.67	15.21	2.67	6.75	3.67	4.65
0.83	13.73	1.83	12.27	2.83	6.25	3.83	4.43

```

-----
| CALIB |
| NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0
| ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.43
-----

```

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.02	1.083	28.02	2.083	10.41	3.08	5.83
0.167	5.02	1.167	28.02	2.167	10.41	3.17	5.83
0.250	5.64	1.250	146.13	2.250	9.10	3.25	5.47
0.333	5.64	1.333	146.13	2.333	9.10	3.33	5.47
0.417	6.49	1.417	35.44	2.417	8.12	3.42	5.16
0.500	6.49	1.500	35.44	2.500	8.12	3.50	5.16
0.583	7.73	1.583	20.64	2.583	7.36	3.58	4.89
0.667	7.73	1.667	20.64	2.667	7.36	3.67	4.89
0.750	9.74	1.750	15.21	2.750	6.75	3.75	4.65
0.833	9.74	1.833	15.21	2.833	6.75	3.83	4.65
0.917	13.73	1.917	12.27	2.917	6.25	3.92	4.43
1.000	13.73	2.000	12.27	3.000	6.25	4.00	4.43

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.058 (i)  
 TIME TO PEAK (hrs)= 1.833  
 RUNOFF VOLUME (mm)= 12.385  
 TOTAL RAINFALL (mm)= 64.077  
 RUNOFF COEFFICIENT = 0.193

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

-----  
 | CALIB |  
 | NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 |-----| U.H. Tp(hrs)= 0.16

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.02	1.083	28.02	2.083	10.41	3.08	5.83
0.167	5.02	1.167	28.02	2.167	10.41	3.17	5.83
0.250	5.64	1.250	146.13	2.250	9.10	3.25	5.47
0.333	5.64	1.333	146.13	2.333	9.10	3.33	5.47
0.417	6.49	1.417	35.44	2.417	8.12	3.42	5.16
0.500	6.49	1.500	35.44	2.500	8.12	3.50	5.16
0.583	7.73	1.583	20.64	2.583	7.36	3.58	4.89
0.667	7.73	1.667	20.64	2.667	7.36	3.67	4.89
0.750	9.74	1.750	15.21	2.750	6.75	3.75	4.65
0.833	9.74	1.833	15.21	2.833	6.75	3.83	4.65
0.917	13.73	1.917	12.27	2.917	6.25	3.92	4.43
1.000	13.73	2.000	12.27	3.000	6.25	4.00	4.43

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 4.131 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 32.610  
 TOTAL RAINFALL (mm)= 64.077  
 RUNOFF COEFFICIENT = 0.509

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

-----  
 | CALIB |

| STANDHYD ( 0002) | Area (ha)= 3.74  
 | ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80

-----  
 IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 1.19 2.55  
 Dep. Storage (mm)= 1.00 5.00  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 157.90 170.00  
 Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.02	1.083	28.02	2.083	10.41	3.08	5.83
0.167	5.02	1.167	28.02	2.167	10.41	3.17	5.83
0.250	5.64	1.250	146.13	2.250	9.10	3.25	5.47
0.333	5.64	1.333	146.13	2.333	9.10	3.33	5.47
0.417	6.49	1.417	35.44	2.417	8.12	3.42	5.16
0.500	6.49	1.500	35.44	2.500	8.12	3.50	5.16
0.583	7.73	1.583	20.64	2.583	7.36	3.58	4.89
0.667	7.73	1.667	20.64	2.667	7.36	3.67	4.89
0.750	9.74	1.750	15.21	2.750	6.75	3.75	4.65
0.833	9.74	1.833	15.21	2.833	6.75	3.83	4.65
0.917	13.73	1.917	12.27	2.917	6.25	3.92	4.43
1.000	13.73	2.000	12.27	3.000	6.25	4.00	4.43

Max.Eff.Inten.(mm/hr)= 146.13 12.66  
 over (min) = 5.00 45.00  
 Storage Coeff. (min)= 2.89 (ii) 41.32 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 45.00  
 Unit Hyd. peak (cms)= 0.28 0.03

\*TOTALS\*

PEAK FLOW (cms)= 0.47 0.05 0.476 (iii)  
 TIME TO PEAK (hrs)= 1.33 2.08 1.33  
 RUNOFF VOLUME (mm)= 63.08 14.81 30.16  
 TOTAL RAINFALL (mm)= 64.08 64.08 64.08  
 RUNOFF COEFFICIENT = 0.98 0.23 0.47

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 59.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.



---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.56	1.083	31.07	2.083	11.54	3.08	6.46
0.167	5.56	1.167	31.07	2.167	11.54	3.17	6.46
0.250	6.26	1.250	162.04	2.250	10.09	3.25	6.06
0.333	6.26	1.333	162.04	2.333	10.09	3.33	6.06
0.417	7.20	1.417	39.30	2.417	9.00	3.42	5.72
0.500	7.20	1.500	39.30	2.500	9.00	3.50	5.72
0.583	8.57	1.583	22.88	2.583	8.16	3.58	5.42
0.667	8.57	1.667	22.88	2.667	8.16	3.67	5.42
0.750	10.80	1.750	16.86	2.750	7.49	3.75	5.15
0.833	10.80	1.833	16.86	2.833	7.49	3.83	5.15
0.917	15.22	1.917	13.61	2.917	6.93	3.92	4.91
1.000	15.22	2.000	13.61	3.000	6.93	4.00	4.91

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.071 (i)  
 TIME TO PEAK (hrs)= 1.833  
 RUNOFF VOLUME (mm)= 15.097  
 TOTAL RAINFALL (mm)= 71.054  
 RUNOFF COEFFICIENT = 0.212

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

-----

CALIB	Area (ha)	Curve Number (CN)
NASHYD ( 0003)	34.84	84.0
ID= 1 DT= 5.0 min	Ia (mm)= 4.65	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.16	

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.56	1.083	31.07	2.083	11.54	3.08	6.46
0.167	5.56	1.167	31.07	2.167	11.54	3.17	6.46
0.250	6.26	1.250	162.04	2.250	10.09	3.25	6.06
0.333	6.26	1.333	162.04	2.333	10.09	3.33	6.06
0.417	7.20	1.417	39.30	2.417	9.00	3.42	5.72
0.500	7.20	1.500	39.30	2.500	9.00	3.50	5.72
0.583	8.57	1.583	22.88	2.583	8.16	3.58	5.42
0.667	8.57	1.667	22.88	2.667	8.16	3.67	5.42
0.750	10.80	1.750	16.86	2.750	7.49	3.75	5.15
0.833	10.80	1.833	16.86	2.833	7.49	3.83	5.15
0.917	15.22	1.917	13.61	2.917	6.93	3.92	4.91

1.000 15.22 | 2.000 13.61 | 3.000 6.93 | 4.00 4.91

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 4.915 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 38.242  
 TOTAL RAINFALL (mm)= 71.054  
 RUNOFF COEFFICIENT = 0.538

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

-----

CALIB	Area (ha)	Total Imp(%)	Dir. Conn.(%)
STANDHYD ( 0002)	3.74	31.80	31.80
ID= 1 DT= 5.0 min			

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	1.19	2.55
Dep. Storage (mm)	1.00	5.00
Average Slope (%)	1.00	2.00
Length (m)	157.90	170.00
Mannings n	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	5.56	1.083	31.07	2.083	11.54	3.08	6.46
0.167	5.56	1.167	31.07	2.167	11.54	3.17	6.46
0.250	6.26	1.250	162.04	2.250	10.09	3.25	6.06
0.333	6.26	1.333	162.04	2.333	10.09	3.33	6.06
0.417	7.20	1.417	39.30	2.417	9.00	3.42	5.72
0.500	7.20	1.500	39.30	2.500	9.00	3.50	5.72
0.583	8.57	1.583	22.88	2.583	8.16	3.58	5.42
0.667	8.57	1.667	22.88	2.667	8.16	3.67	5.42
0.750	10.80	1.750	16.86	2.750	7.49	3.75	5.15
0.833	10.80	1.833	16.86	2.833	7.49	3.83	5.15
0.917	15.22	1.917	13.61	2.917	6.93	3.92	4.91
1.000	15.22	2.000	13.61	3.000	6.93	4.00	4.91

Max. Eff. Inten. (mm/hr)= 162.04 over (min)= 5.00  
 Storage Coeff. (min)= 2.77 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.28

\*TOTALS\*

```

PEAK FLOW      (cms)=      0.52      0.06      0.532 (iii)
TIME TO PEAK   (hrs)=      1.33      1.92      1.33
RUNOFF VOLUME  (mm)=      70.05     17.99     34.54
TOTAL RAINFALL (mm)=      71.05     71.05     71.05
RUNOFF COEFFICIENT =      0.99      0.25      0.49

```

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3       |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0001):	2.74	0.071	1.83	15.10
+ ID2= 2 ( 0002):	3.74	0.532	1.33	34.54
=====				
ID = 3 ( 0004):	6.48	0.549	1.33	26.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0004) |
| 3 + 2 = 1       |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0004):	6.48	0.549	1.33	26.32
+ ID2= 2 ( 0003):	34.84	4.915	1.42	38.24
=====				
ID = 1 ( 0004):	41.32	5.157	1.42	36.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

=====

```

V V I SSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
WV I SSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O

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O O T T H H Y M M O O
000 T T H H Y M M 000
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```

\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

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Summary filename:  
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7a6-ae19-4fcf-8670-20f19e5d3980\scena

DATE: 10-16-2025

TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

-----

```

*****
** SIMULATION : 1. 100yr 4hr 10min Chicago **
*****

```

```

| CHICAGO STORM |
| Ptotal= 78.11 mm |
-----

```

IDF curve parameters: A=1049.085  
B= 1.500  
C= 0.726

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 hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	6.12	1.00	34.16	2.00	12.68	3.00	7.10
0.17	6.88	1.17	178.13	2.17	11.09	3.17	6.67
0.33	7.92	1.33	43.20	2.33	9.90	3.33	6.29

0.50	9.43	1.50	25.16	2.50	8.97	3.50	5.96
0.67	11.87	1.67	18.54	2.67	8.23	3.67	5.66
0.83	16.74	1.83	14.96	2.83	7.62	3.83	5.40

```

-----
| CALIB
| NASHYD ( 0001) | Area (ha)= 2.74 Curve Number (CN)= 53.0
| ID= 1 DT= 5.0 min | Ia (mm)= 4.70 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.43

```

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

```

-----
|----- TRANSFORMED HYETOGRAPH -----
|
| TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
| hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
|-----
| 0.083 6.12 | 1.083 34.16 | 2.083 12.68 | 3.08 7.10
| 0.167 6.12 | 1.167 34.16 | 2.167 12.68 | 3.17 7.10
| 0.250 6.88 | 1.250 178.13 | 2.250 11.09 | 3.25 6.67
| 0.333 6.88 | 1.333 178.13 | 2.333 11.09 | 3.33 6.67
| 0.417 7.92 | 1.417 43.20 | 2.417 9.90 | 3.42 6.29
| 0.500 7.92 | 1.500 43.20 | 2.500 9.90 | 3.50 6.29
| 0.583 9.43 | 1.583 25.16 | 2.583 8.97 | 3.58 5.96
| 0.667 9.43 | 1.667 25.16 | 2.667 8.97 | 3.67 5.96
| 0.750 11.87 | 1.750 18.54 | 2.750 8.23 | 3.75 5.66
| 0.833 11.87 | 1.833 18.54 | 2.833 8.23 | 3.83 5.66
| 0.917 16.74 | 1.917 14.96 | 2.917 7.62 | 3.92 5.40
| 1.000 16.74 | 2.000 14.96 | 3.000 7.62 | 4.00 5.40

```

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.085 (i)  
TIME TO PEAK (hrs)= 1.833  
RUNOFF VOLUME (mm)= 18.043  
TOTAL RAINFALL (mm)= 78.112  
RUNOFF COEFFICIENT = 0.231

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

```

-----
| CALIB
| NASHYD ( 0003) | Area (ha)= 34.84 Curve Number (CN)= 84.0
| ID= 1 DT= 5.0 min | Ia (mm)= 4.65 # of Linear Res.(N)= 3.00
|-----
| U.H. Tp(hrs)= 0.16

```

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	6.12	1.083	34.16	2.083	12.68	3.08	7.10
0.167	6.12	1.167	34.16	2.167	12.68	3.17	7.10
0.250	6.88	1.250	178.13	2.250	11.09	3.25	6.67
0.333	6.88	1.333	178.13	2.333	11.09	3.33	6.67
0.417	7.92	1.417	43.20	2.417	9.90	3.42	6.29
0.500	7.92	1.500	43.20	2.500	9.90	3.50	6.29
0.583	9.43	1.583	25.16	2.583	8.97	3.58	5.96
0.667	9.43	1.667	25.16	2.667	8.97	3.67	5.96
0.750	11.87	1.750	18.54	2.750	8.23	3.75	5.66
0.833	11.87	1.833	18.54	2.833	8.23	3.83	5.66
0.917	16.74	1.917	14.96	2.917	7.62	3.92	5.40
1.000	16.74	2.000	14.96	3.000	7.62	4.00	5.40

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 5.735 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 44.092  
TOTAL RAINFALL (mm)= 78.112  
RUNOFF COEFFICIENT = 0.564

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

```

-----
| CALIB
| STANDHYD ( 0002) | Area (ha)= 3.74
| ID= 1 DT= 5.0 min | Total Imp(%)= 31.80 Dir. Conn.(%)= 31.80
|-----

```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	6.12	1.083	34.16	2.083	12.68	3.08	7.10
0.167	6.12	1.167	34.16	2.167	12.68	3.17	7.10
0.250	6.88	1.250	178.13	2.250	11.09	3.25	6.67
0.333	6.88	1.333	178.13	2.333	11.09	3.33	6.67

0.417	7.92	1.417	43.20	2.417	9.90	3.42	6.29
0.500	7.92	1.500	43.20	2.500	9.90	3.50	6.29
0.583	9.43	1.583	25.16	2.583	8.97	3.58	5.96
0.667	9.43	1.667	25.16	2.667	8.97	3.67	5.96
0.750	11.87	1.750	18.54	2.750	8.23	3.75	5.66
0.833	11.87	1.833	18.54	2.833	8.23	3.83	5.66
0.917	16.74	1.917	14.96	2.917	7.62	3.92	5.40
1.000	16.74	2.000	14.96	3.000	7.62	4.00	5.40

Max.Eff.Inten.(mm/hr)= 178.13 20.07  
over (min) 5.00 35.00  
Storage Coeff. (min)= 2.67 (ii) 34.63 (ii)  
Unit Hyd. Tpeak (min)= 5.00 35.00  
Unit Hyd. peak (cms)= 0.29 0.03

\*TOTALS\*  
0.591 (iii)

PEAK FLOW (cms)= 0.58 0.08  
TIME TO PEAK (hrs)= 1.33 1.83 1.33  
RUNOFF VOLUME (mm)= 77.11 21.41 39.12  
TOTAL RAINFALL (mm)= 78.11 78.11 78.11  
RUNOFF COEFFICIENT = 0.99 0.27 0.50

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |
| 1 + 2 = 3 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0001):	2.74	0.085	1.83	18.04
+ ID2= 2 ( 0002):	3.74	0.591	1.33	39.12
=====				
ID = 3 ( 0004):	6.48	0.612	1.33	30.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
| ADD HYD ( 0004) |
| 3 + 2 = 1 |
-----

```

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0004):	6.48	0.612	1.33	30.21
+ ID2= 2 ( 0003):	34.84	5.735	1.42	44.09
=====				

ID = 1 ( 0004): 41.32 6.008 1.42 41.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
-----
*****
*****
*****
V V I SSSSS U U A L (v 6.2.2015)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSSS UUUUU A A LLLLL
*****
*****
```

```
000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
```

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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\V02\voin.dat

Output filename:  
C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\b7063  
c54-b4ac-474a-a539-3753dc994bad\scena  
Summary filename:  
C:\Users\msimon\AppData\Local\Civica\XH5\85b3ca3e-edf7-4e9a-9366-ec6ce41121ee\b7063  
c54-b4ac-474a-a539-3753dc994bad\scena

DATE: 10-16-2025

TIME: 03:38:38

USER:

COMMENTS: \_\_\_\_\_

```
-----
*****
** SIMULATION : timmins **
*****
```

-----  
READ STORM
Ptotal=193.00 mm

Filename: C:\Users\msimon\AppData\Local\Temp\02815bcb-08d2-49aa-8ec5-4eb7e3bc8688\0f62c24c  
 Comments: tim

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	15.00	3.00	3.00	6.00	43.00	9.00	13.00
1.00	20.00	4.00	5.00	7.00	20.00	10.00	13.00
2.00	10.00	5.00	20.00	8.00	23.00	11.00	8.00

-----  
 | CALIB |  
 | NASHYD ( 0001) |  
 | ID= 1 DT= 5.0 min |

Area (ha)= 2.74 Curve Number (CN)= 53.0  
 Ia (mm)= 4.70 # 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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00

2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Unit Hyd Qpeak (cms)= 0.243

PEAK FLOW (cms)= 0.150 (i)  
 TIME TO PEAK (hrs)= 7.083  
 RUNOFF VOLUME (mm)= 85.730  
 TOTAL RAINFALL (mm)= 193.000  
 RUNOFF COEFFICIENT = 0.444

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

-----  
 | CALIB |  
 | NASHYD ( 0003) |  
 | ID= 1 DT= 5.0 min |

Area (ha)= 34.84 Curve Number (CN)= 84.0  
 Ia (mm)= 4.65 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.16

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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00

1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Unit Hyd Qpeak (cms)= 8.317

PEAK FLOW (cms)= 3.716 (i)  
 TIME TO PEAK (hrs)= 7.000  
 RUNOFF VOLUME (mm)= 149.181  
 TOTAL RAINFALL (mm)= 193.000  
 RUNOFF COEFFICIENT = 0.773

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

-----			
CALIB			
STANDHYD ( 0002)	Area (ha)=	3.74	
ID= 1 DT= 5.0 min	Total Imp(%)=	31.80	Dir. Conn.(%)= 31.80

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.19	2.55
Dep. Storage (mm)=	1.00	5.00
Average Slope (%)=	1.00	2.00
Length (m)=	157.90	170.00
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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Max.Eff.Inten.(mm/hr)= 43.00 25.48  
 over (min) 5.00 35.00  
 Storage Coeff. (min)= 4.71 (ii) 33.76 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 35.00  
 Unit Hyd. peak (cms)= 0.22 0.03

\*TOTALS\*

PEAK FLOW (cms)= 0.14 0.14 0.277 (iii)  
 TIME TO PEAK (hrs)= 6.92 7.25 7.00  
 RUNOFF VOLUME (mm)= 192.00 96.96 127.18  
 TOTAL RAINFALL (mm)= 193.00 193.00 193.00

RUNOFF COEFFICIENT = 0.99 0.50 0.66

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 59.0 Ia = Dep. 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 ( 0004) |  
1 + 2 = 3
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 1 ( 0001): 2.74 0.150 7.08 85.73  
+ ID2= 2 ( 0002): 3.74 0.277 7.00 127.18  
-----  
ID = 3 ( 0004): 6.48 0.423 7.00 109.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
-----  
| ADD HYD ( 0004) |  
3 + 2 = 1
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 3 ( 0004): 6.48 0.423 7.00 109.65  
+ ID2= 2 ( 0003): 34.84 3.716 7.00 149.18  
-----  
ID = 1 ( 0004): 41.32 4.138 7.00 142.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH  
=====

**Table 12: Future Conditions Major Drainage System Model Peak Flow Summary**

WATERCOURSE / OUTLET		AREA (ha)	DESIGN STORM PEAK FLOW (m <sup>3</sup> /s, % Increase)			
			1:5-YEAR	1:25-YEAR	1:100-YEAR	TIMMINS
Watercourse 1	Upstream of Spill	239.4	10.8/28%	18.0/18%	24.6/16%	19.9/2%
	Downstream of Spill	63.7	2.1/5%	2.50/5%	2.9/5%	3.8/0%
Watercourse 2		32.8	0.4/49%	0.7/30%	1.0/22%	1.2/2%
Watercourse 6	Upstream of Spill	16.1	16.1/45%	25.3/36%	33.7/31%	31.6/5%
	Downstream of Spill	2.7	2.7/292%	4.11/256%	5.5/255%	3.0/8%
Watercourse 7	Upstream of Spill	7.9	7.9/16%	12.7/10%	16.5/7%	12.3/0%
	Downstream of Spill	0.5	0.5/42%	0.9/31%	1.1/23%	1.0/5%
Outlet 8		19.6	0.6/19%	0.9/10%	1.3/6%	1.3/-1%
Watercourse 9		191.8	7.0/19%	11.1/11%	14.8/9%	14.1/0%
Watercourse 10		67.6	5.6/28%	8.7/14%	11.8/15%	6.4/2%
Outlet 13		81.7	8.341%	12.729%	16.926%	7.94%
Watercourse 14		93.0	4.5/19%	7.1/9%	9.8/11%	7.9/1%
Outlet 45		31.5	2.1/27%	3.7/28%	4.9/22%	2.5/1%
Watercourse 15		80.0	4.7/12%	8.2/16%	12.1/20%	7.3/1%
Watercourse 18		24.4	1.0/16%	1.6/12%	2.3/9%	1.8/1%
Watercourse 19		341.1	17.4/21%	29.7/13%	40.7/8%	29.0/0%
Watercourse 21		112.2	6.1/20%	9.6/12%	13.2/9%	9.5/0%
Watercourse 22		60.8	2.1/56%	3.7/51%	5.1/46%	4.1/14%
Outlet 23		15.1	0.5/19%	0.8/12%	1.1/9%	1.0/0%



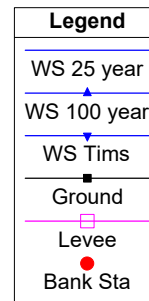
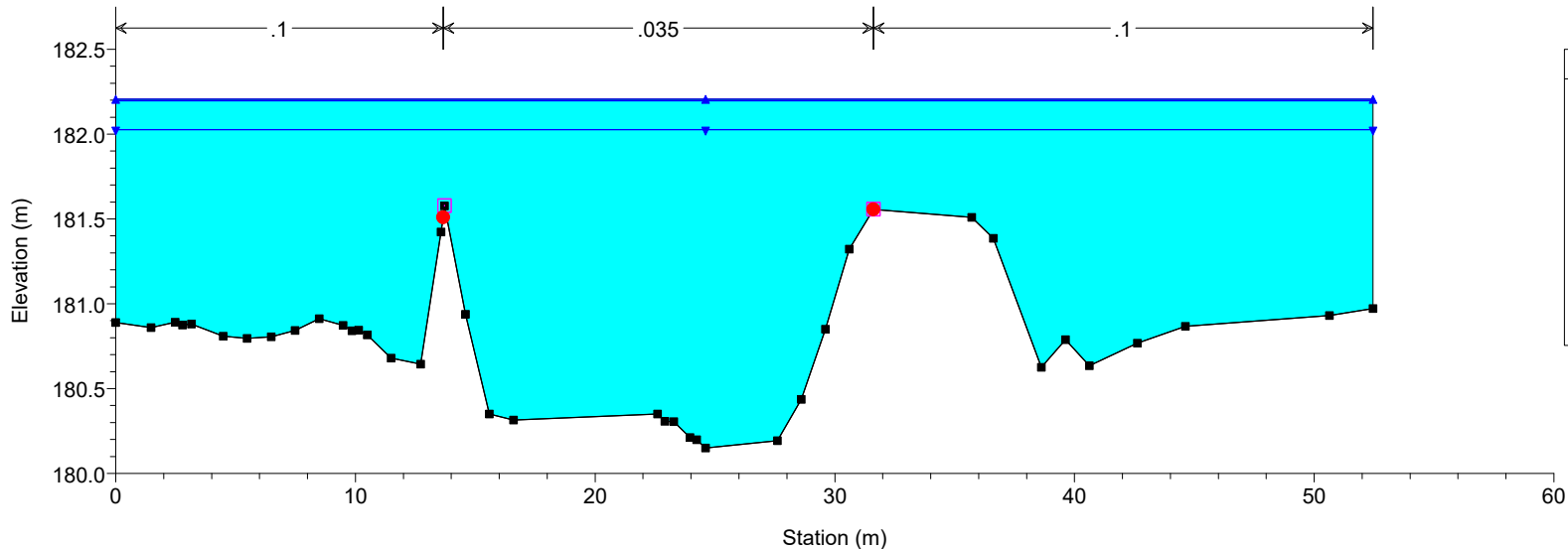
WATERCOURSE / OUTLET	AREA (ha)	DESIGN STORM PEAK FLOW (m <sup>3</sup> /s, % Increase)			
		1:5-YEAR	1:25-YEAR	1:100-YEAR	TIMMINS
Outlet 24	21.6	0.6/21%	1.1/13%	1.5/10%	1.4/0%
Outlet 25	56.6	3.3/17%	5.4/11%	7.1/8%	5.1/0%
Outlet 26	113.7	5.1/17%	8.0/11%	10.5/8%	9.0/0%
Watercourse 28	56.2	4.0/20%	6.4/12%	8.3/8%	5.0/1%
Watercourse 29	23.4	1.2/30%	2.0/17%	2.7/14%	1.7/1%
Outlet 30	34.8	2.0/23%	3.3/13%	4.6/10%	2.8/1%
Watercourse 31	129.5	7.8/23%	12.6/16%	17.3/16%	11.2/0%
Watercourse 32	352.6	13.9/17%	22.4/11%	29.8/9%	27.2/0%
Outlet 33	60.5	3.0/23%	5.0/15%	6.8/12%	4.4/2%
Watercourse 34	575.5	24.7/19%	39.0/8%	50.6/8%	44.9/0%
Watercourse 40	115.3	1.9/22%	3.4/20%	4.8/18%	5.5/9%
Watercourse 41	14.6	0.6/17%	1.0/10%	1.3/9%	0.8/0%
Watercourse 42	29.0	1.3/73%	2.1/78%	2.9/70%	1.7/21%
Silver Creek North of Holly Court (50)	29.2	0.9/69%	1.7/56%	2.3/32%	2.4/6%
Silver Creek South of Holly Court (50)	199.0	10.3/7%	15.5/2%	19.8/2%	17.0/0%
Silver Creek South of Mount View Court (50)	1,412.3	39.9/33%	68.6/28%	93.8/24%	92.5/18%
Indian Brook (51)	3,544.5	97.1/18%	157.0/11%	210.7/9%	223.8/0%
Watercourse 52	310.0	3.4/22%	6.1/14%	8.6/10%	12.2/0%
Little Beaver River (54)	1,559.7	45.1/21%	73.8/14%	98.1/10%	99.4/1%
Watercourse 55	160.3	8.2/17%	13.1/11%	17.4/8%	13.9/0%
Boulder Channel (56)	311.1	4.5/21%	11.5/15%	15.9/7%	19.0/-1%



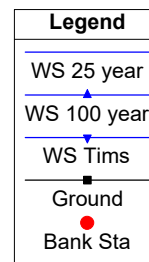
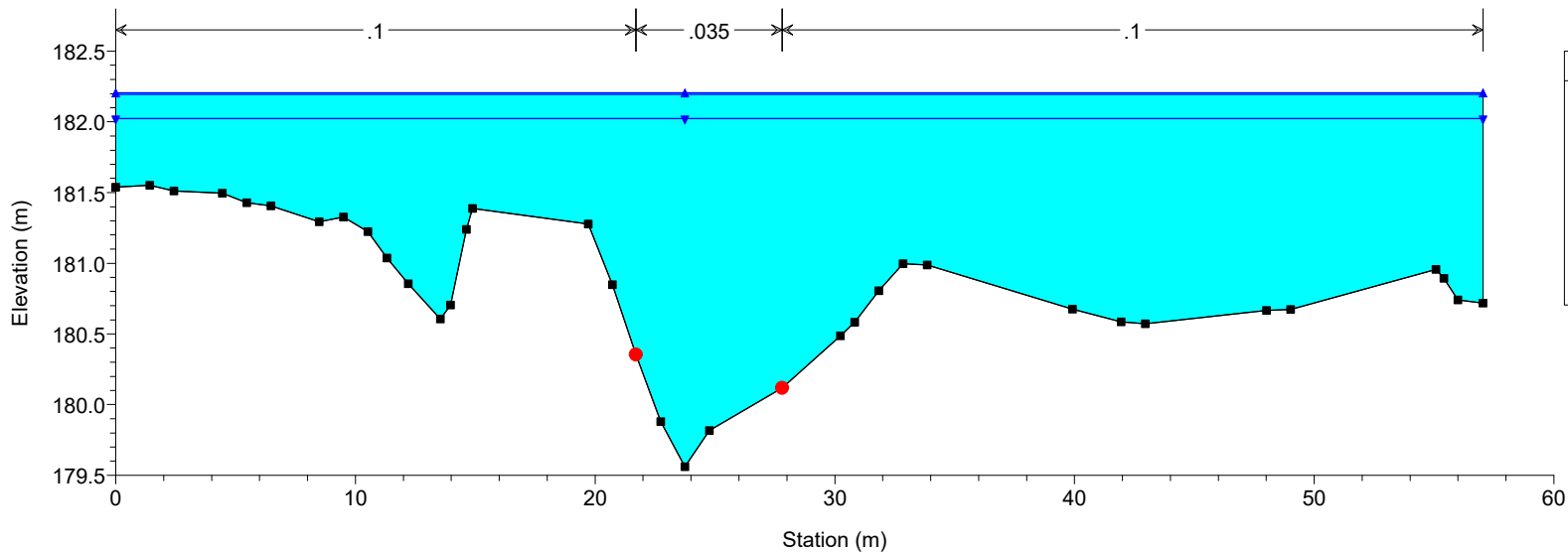
# APPENDIX C

## Hydraulic Model Results

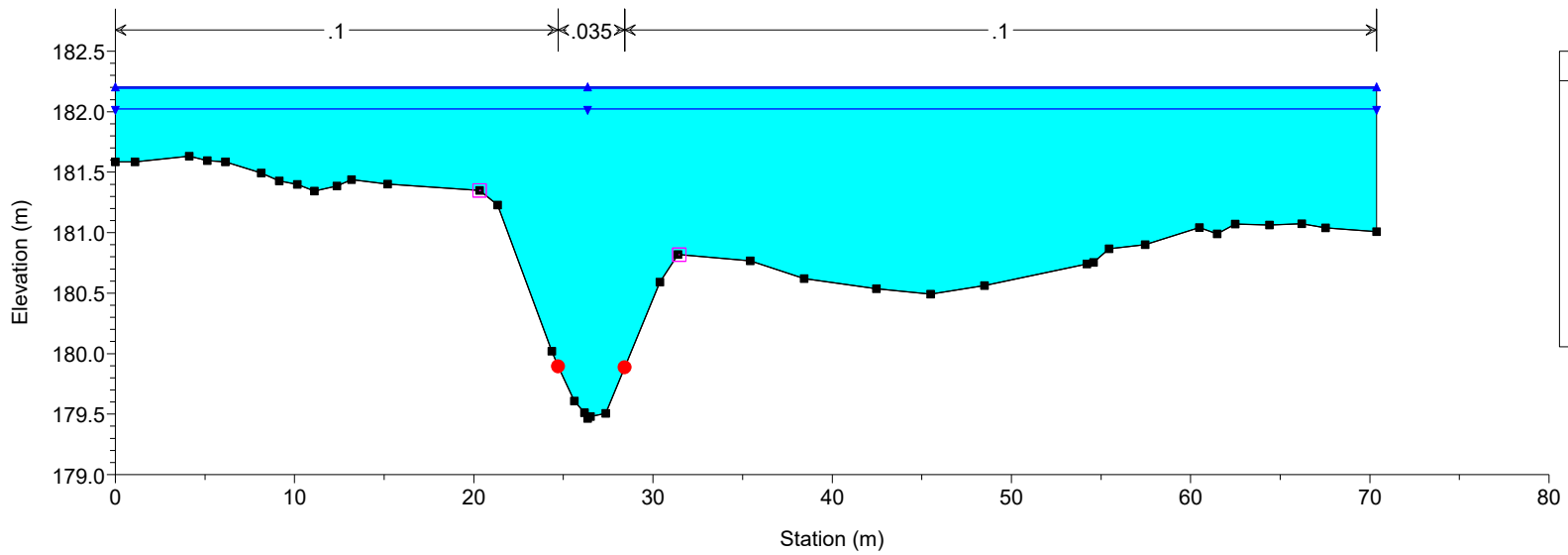
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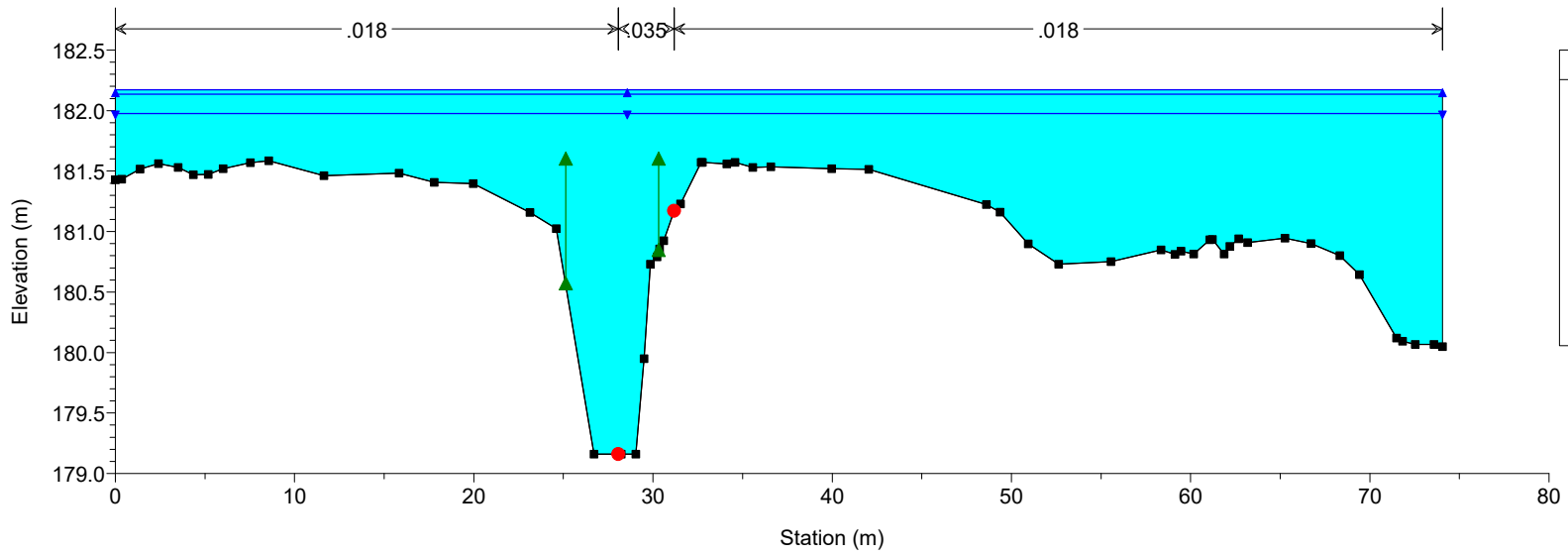
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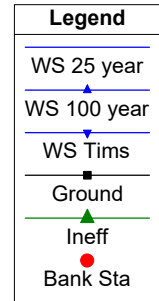
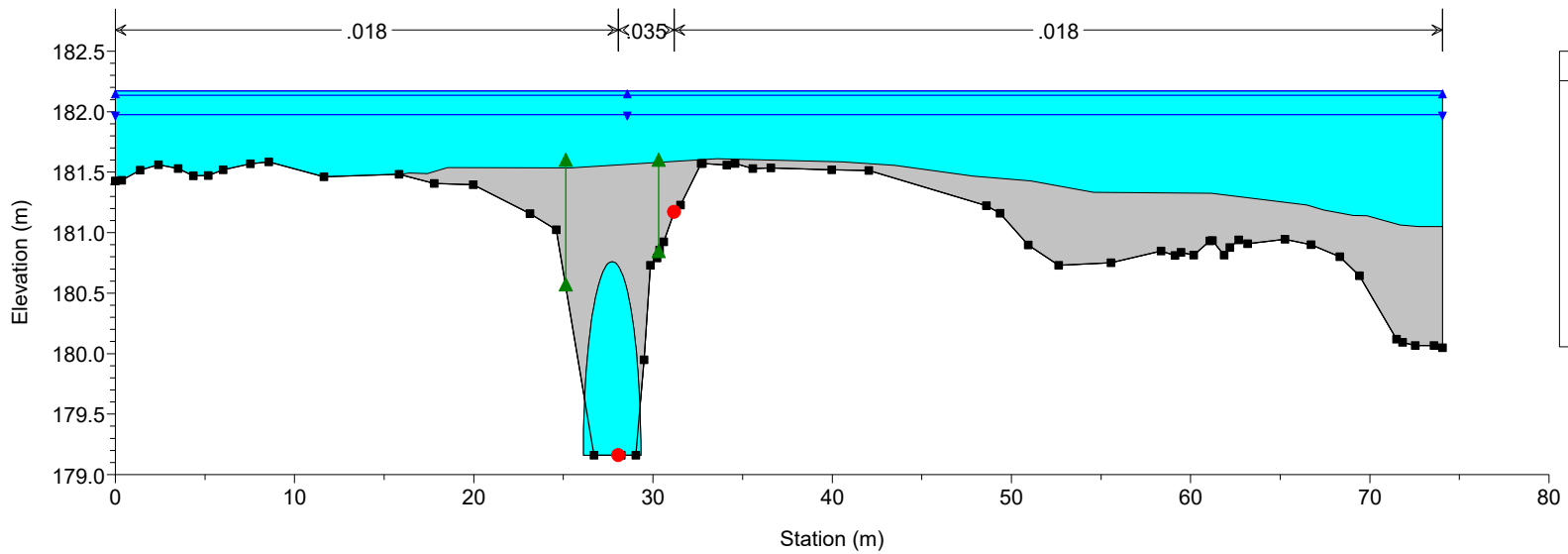
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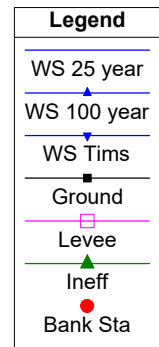
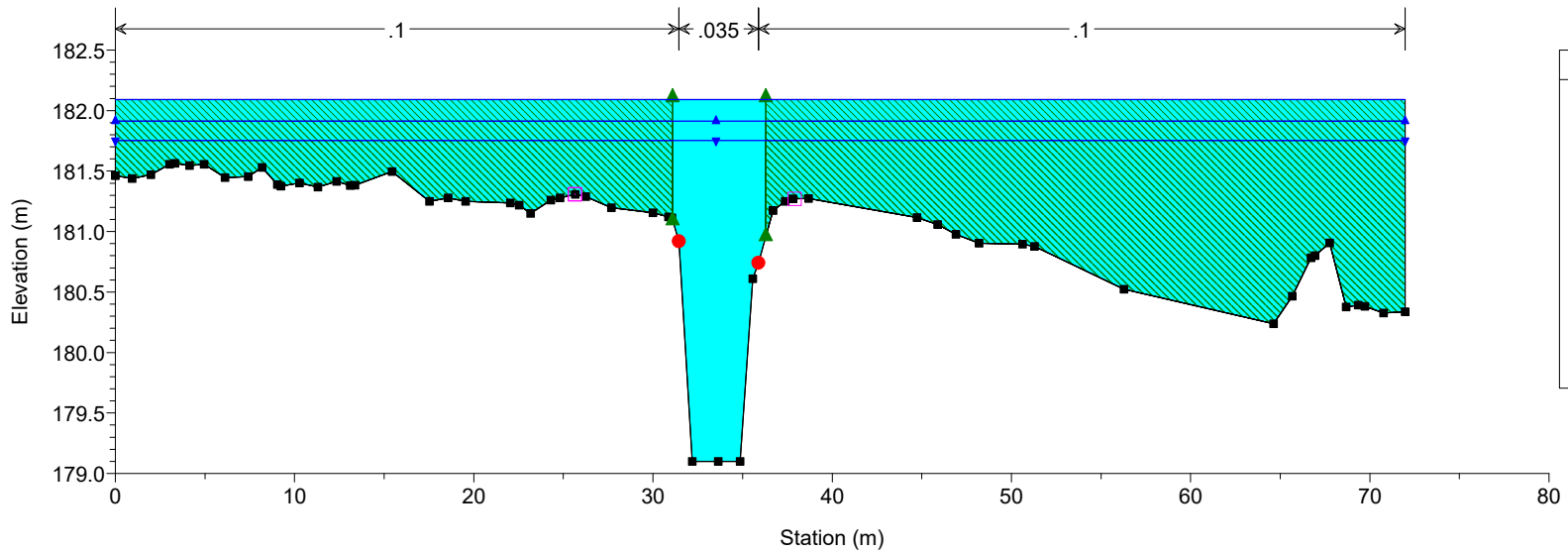
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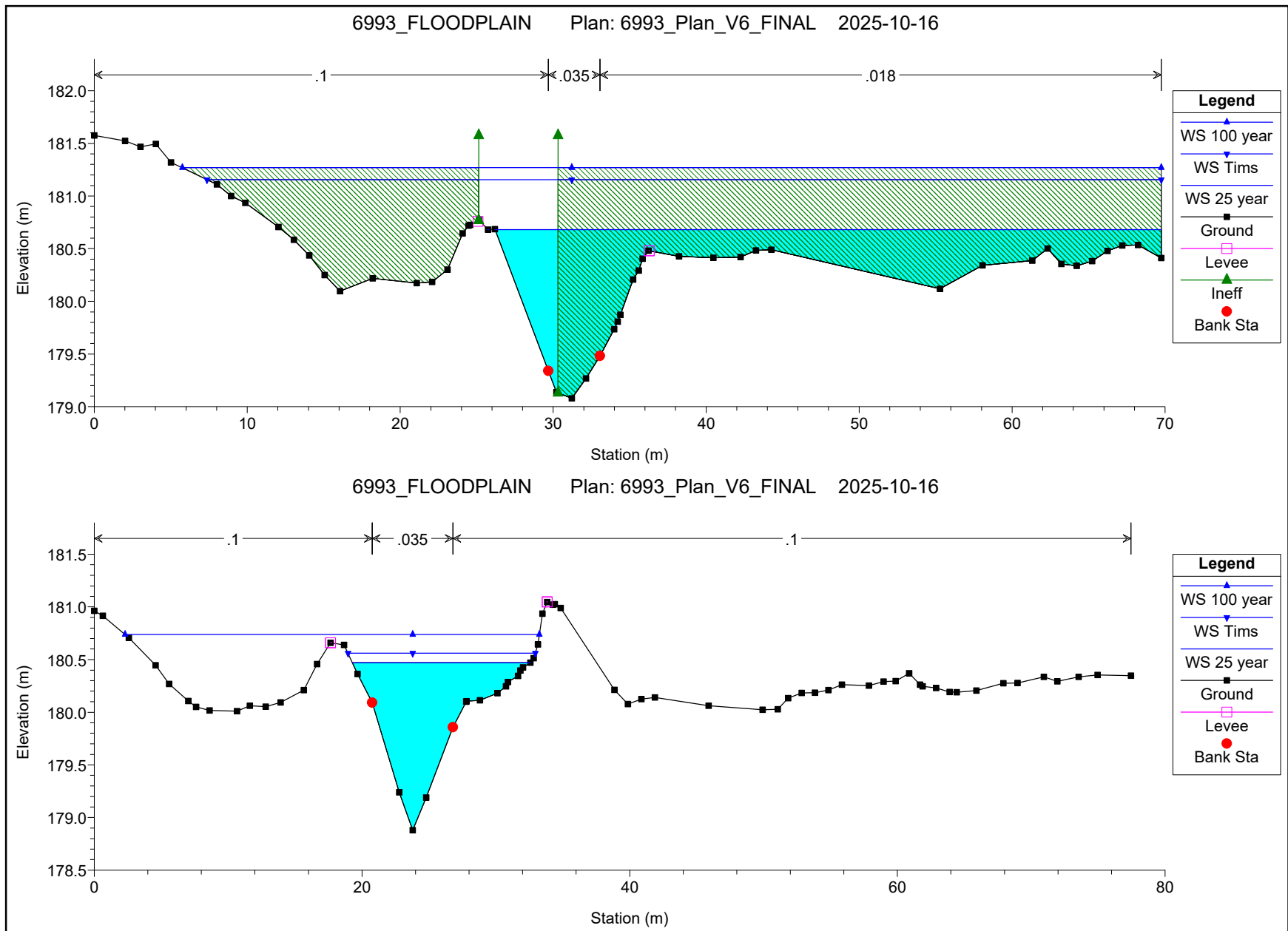


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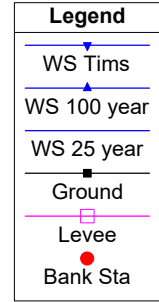
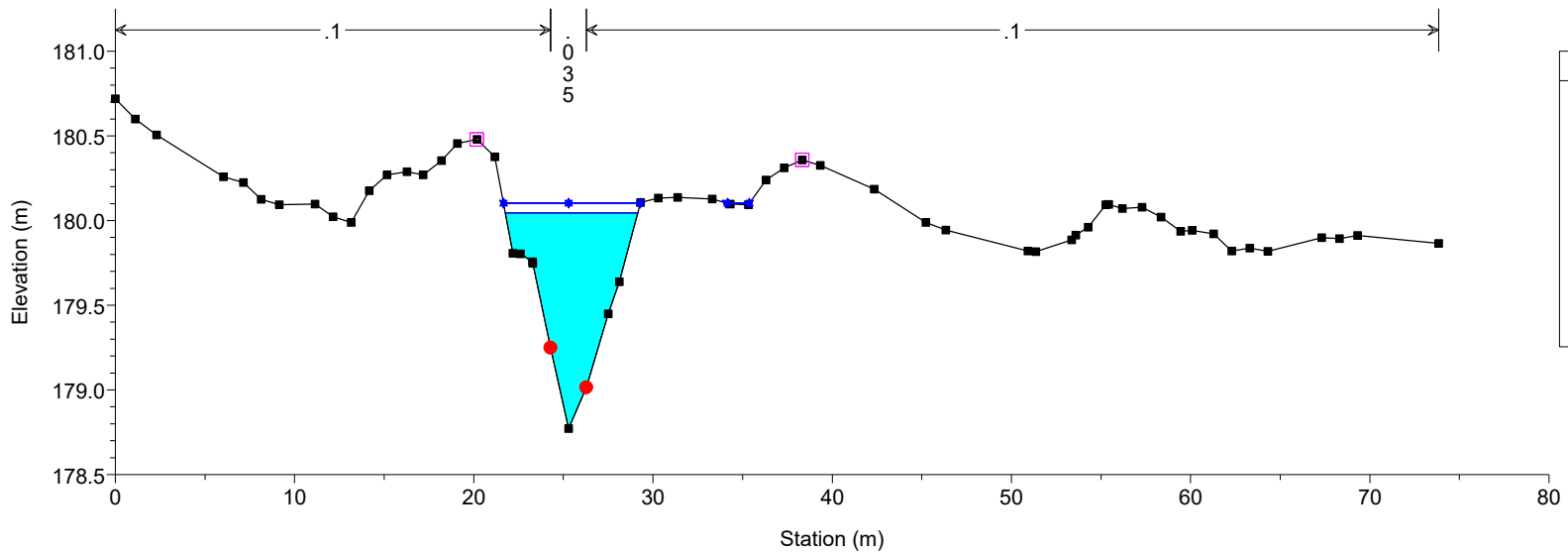


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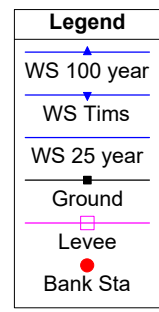
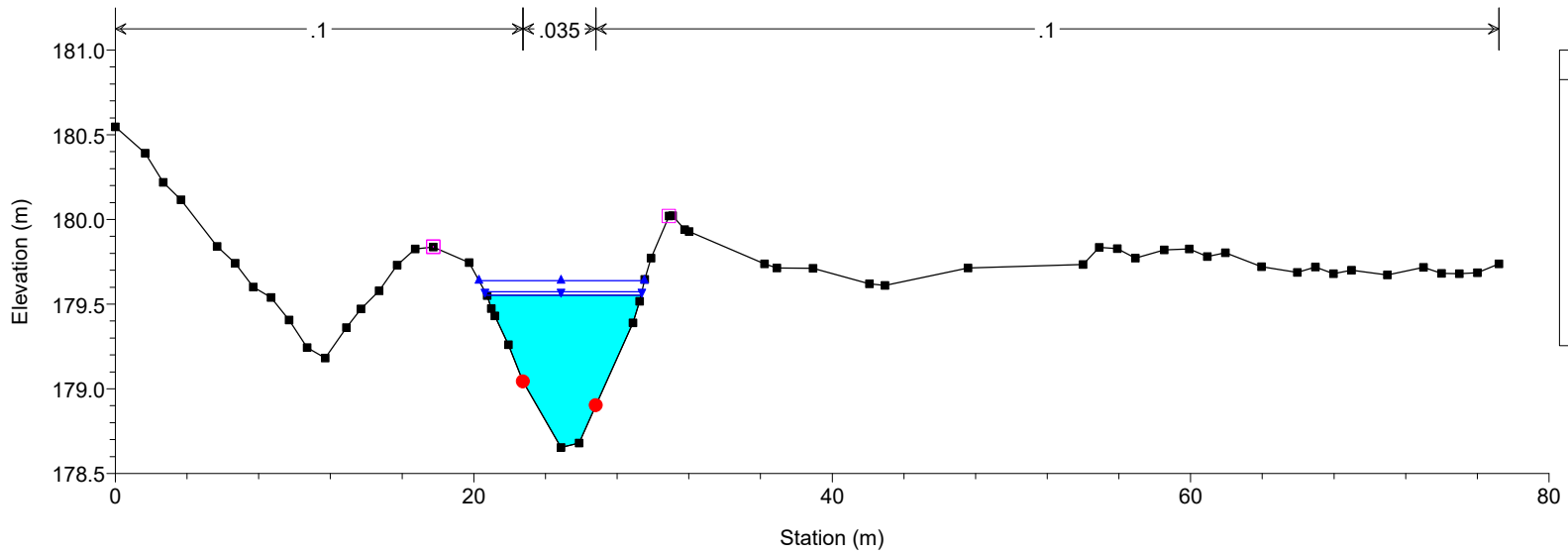




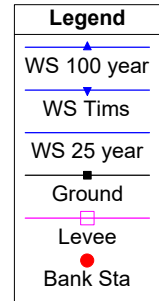
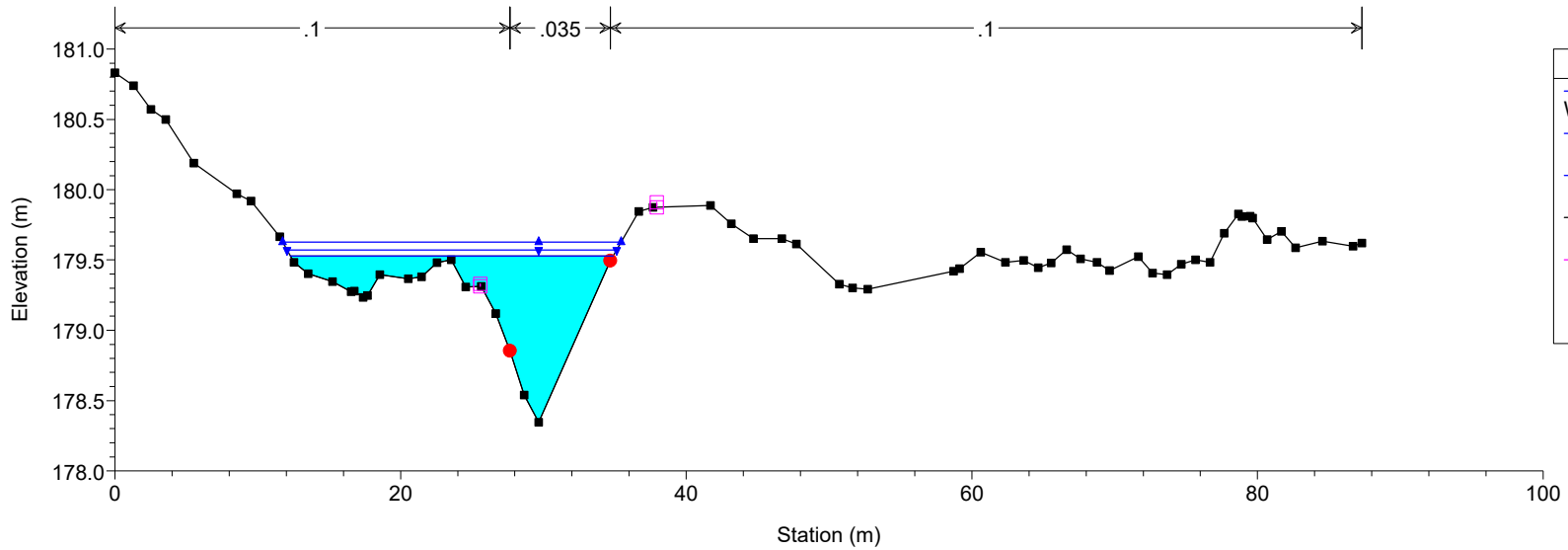
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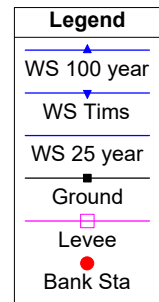
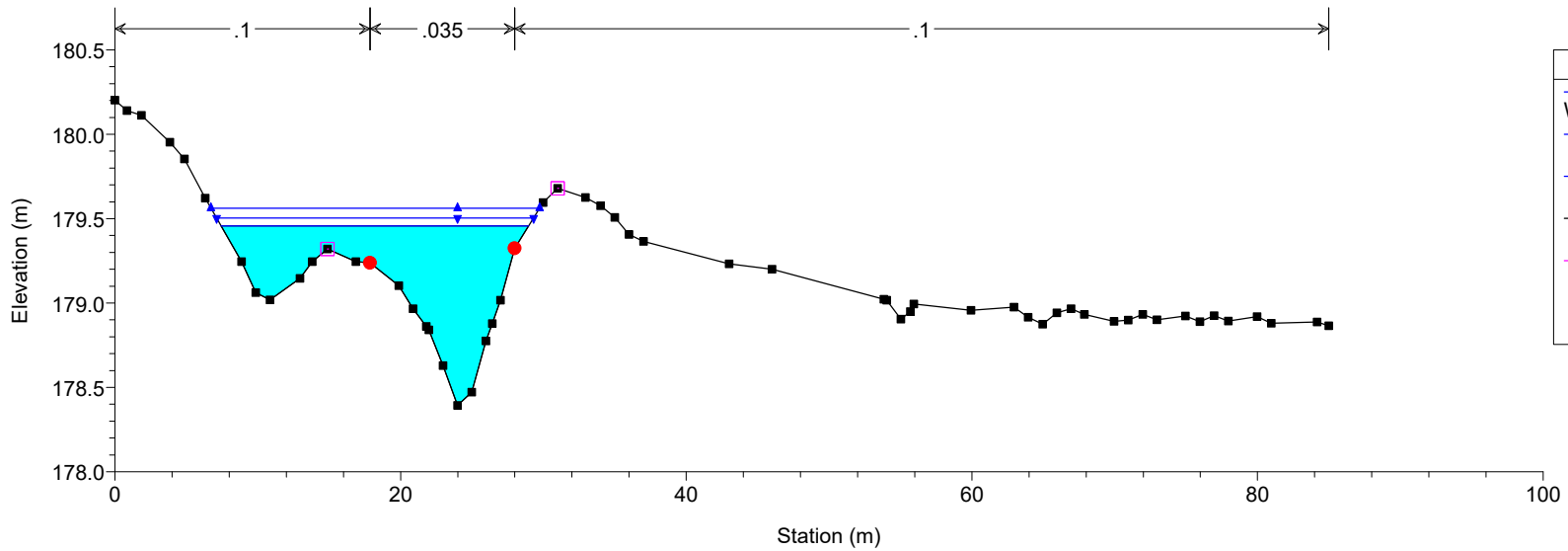
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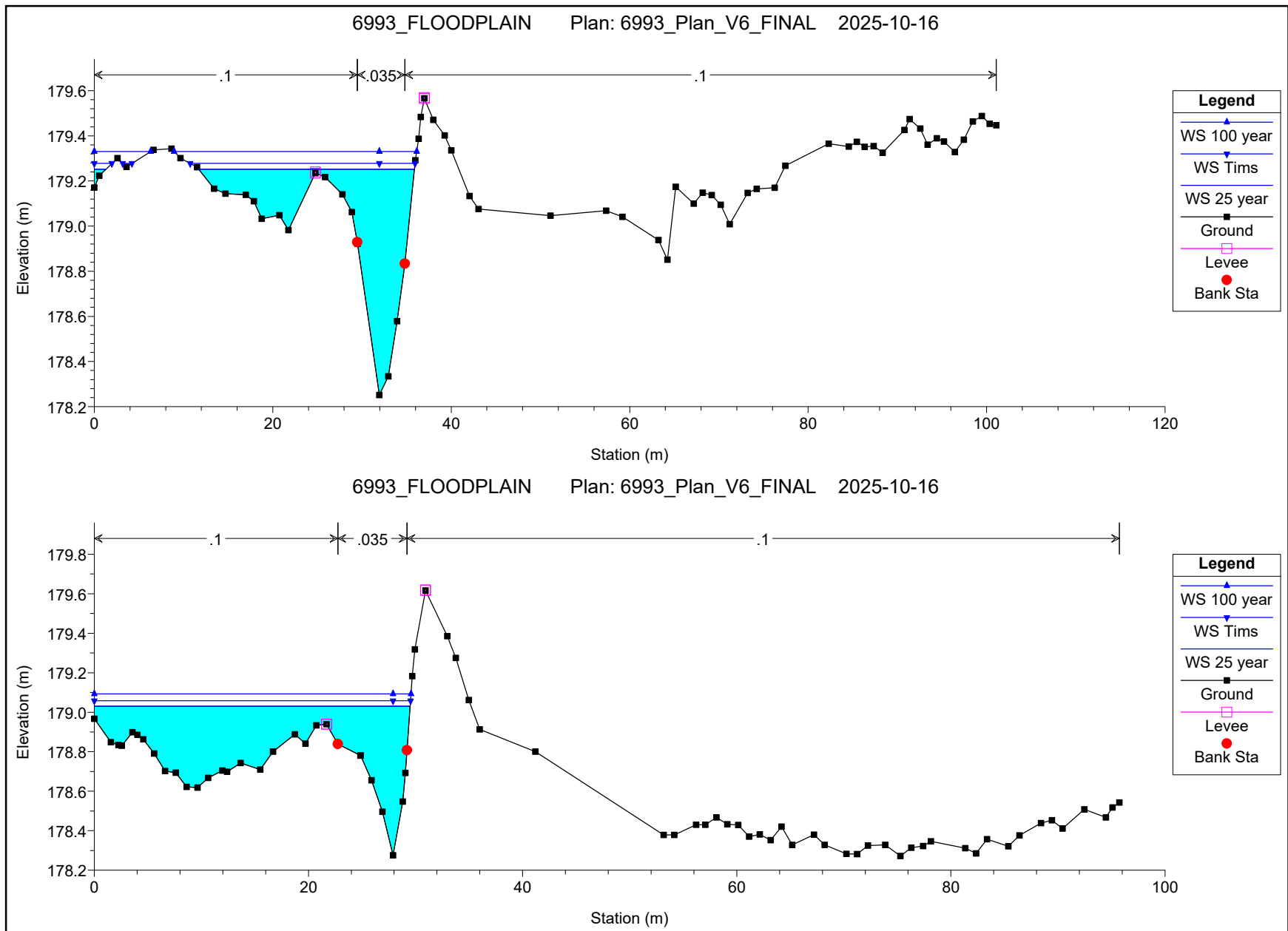


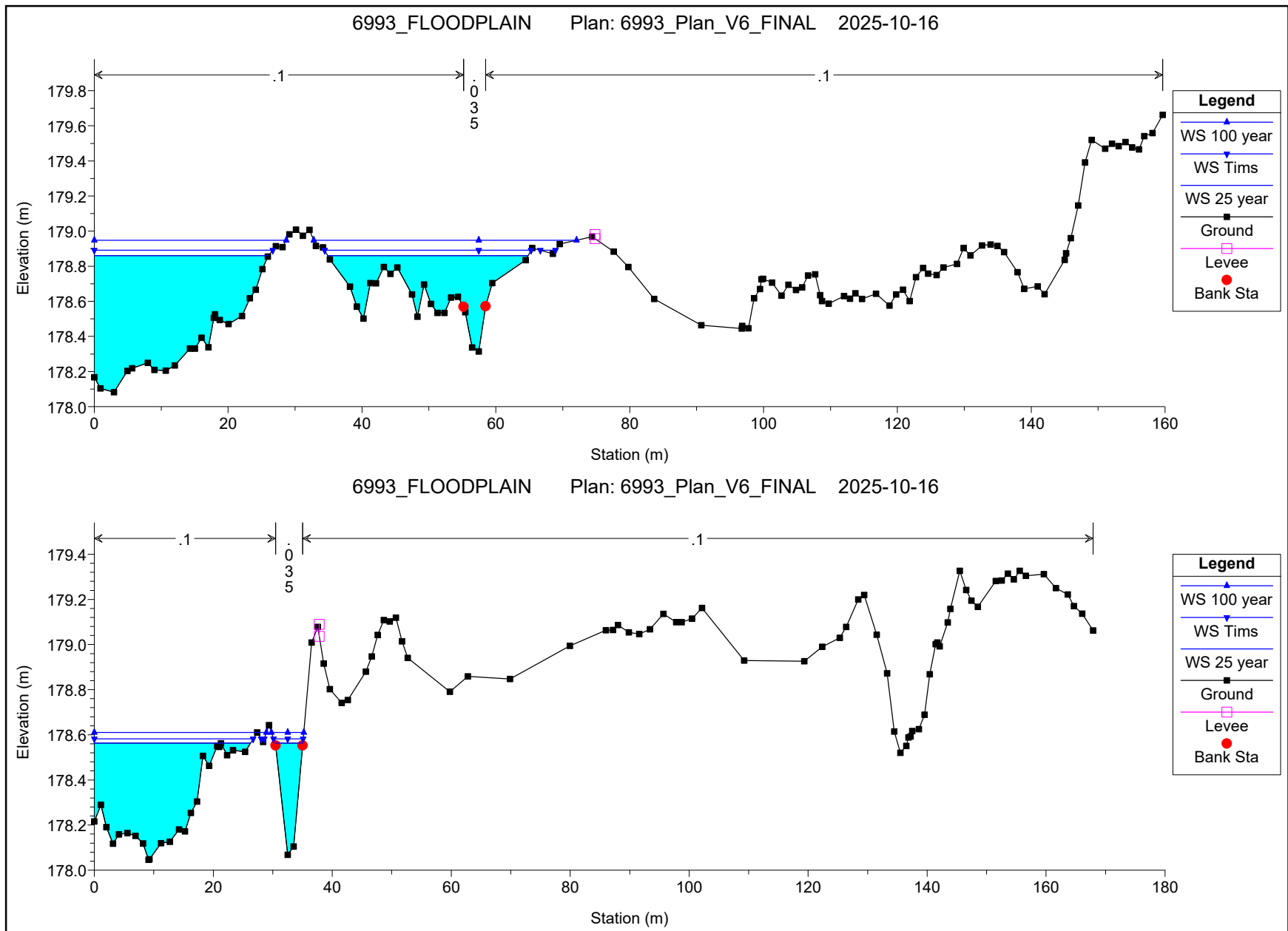
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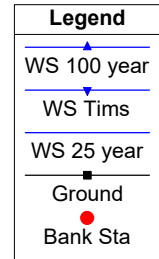
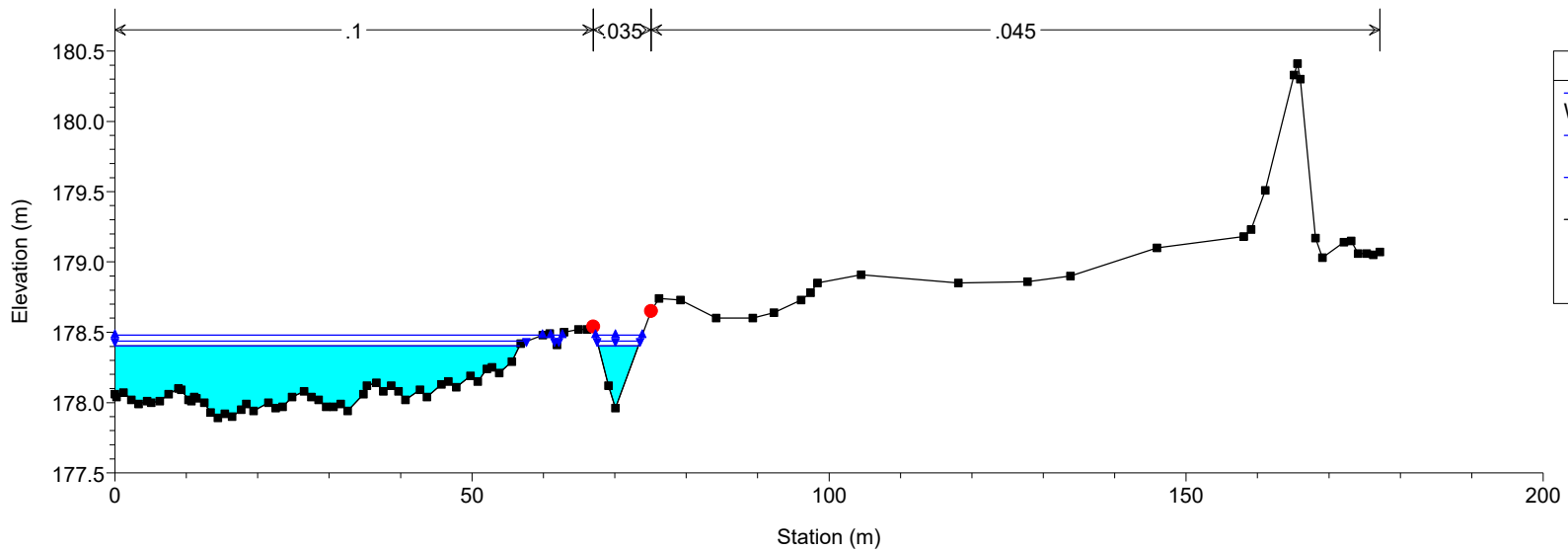
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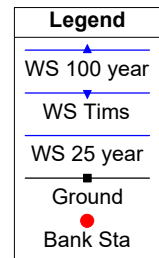
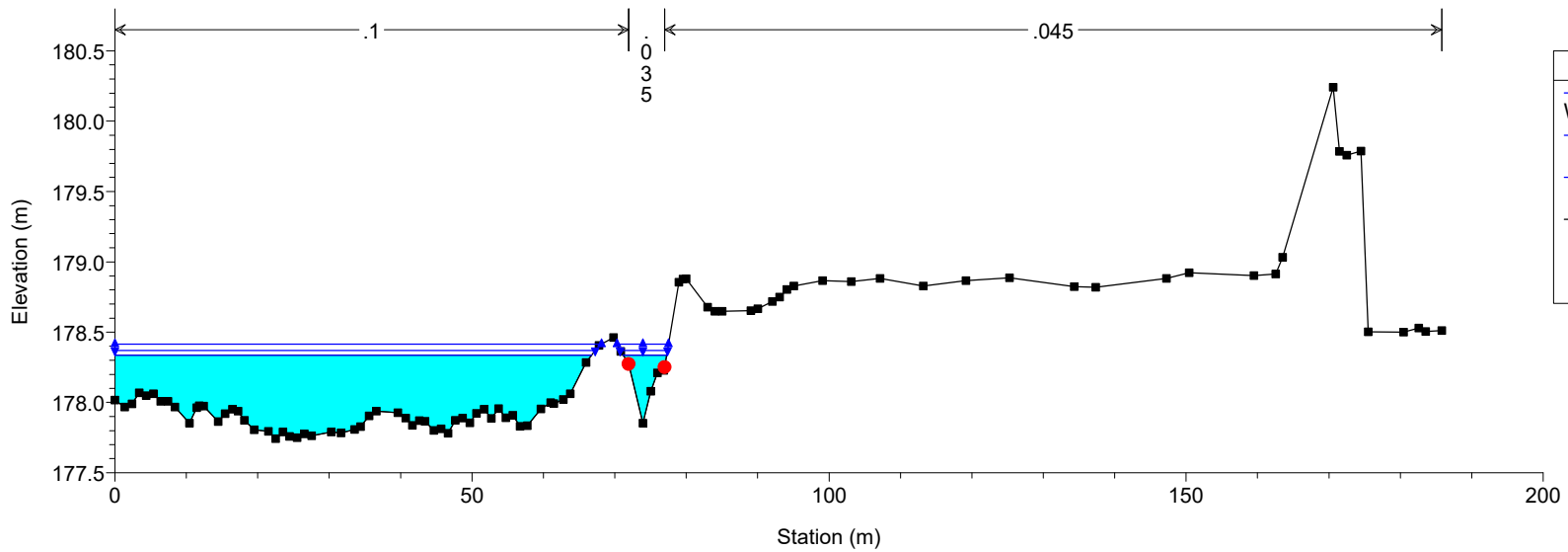




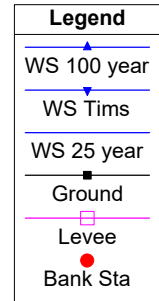
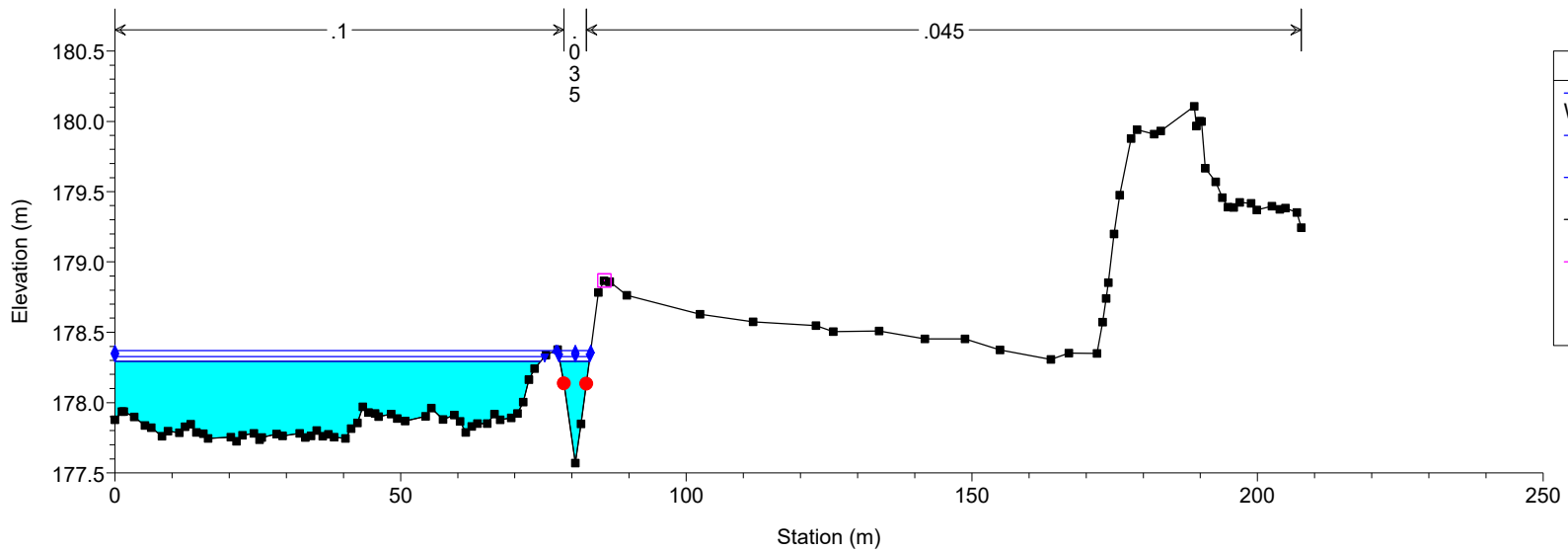
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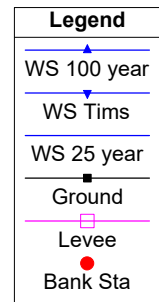
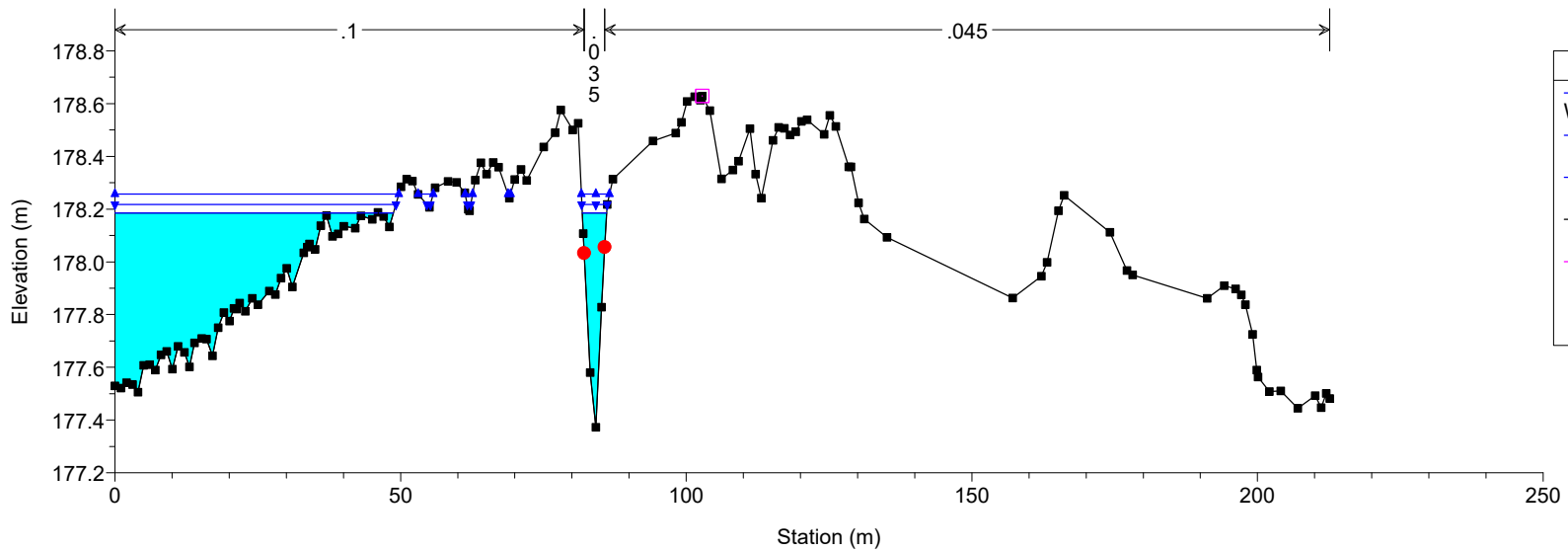
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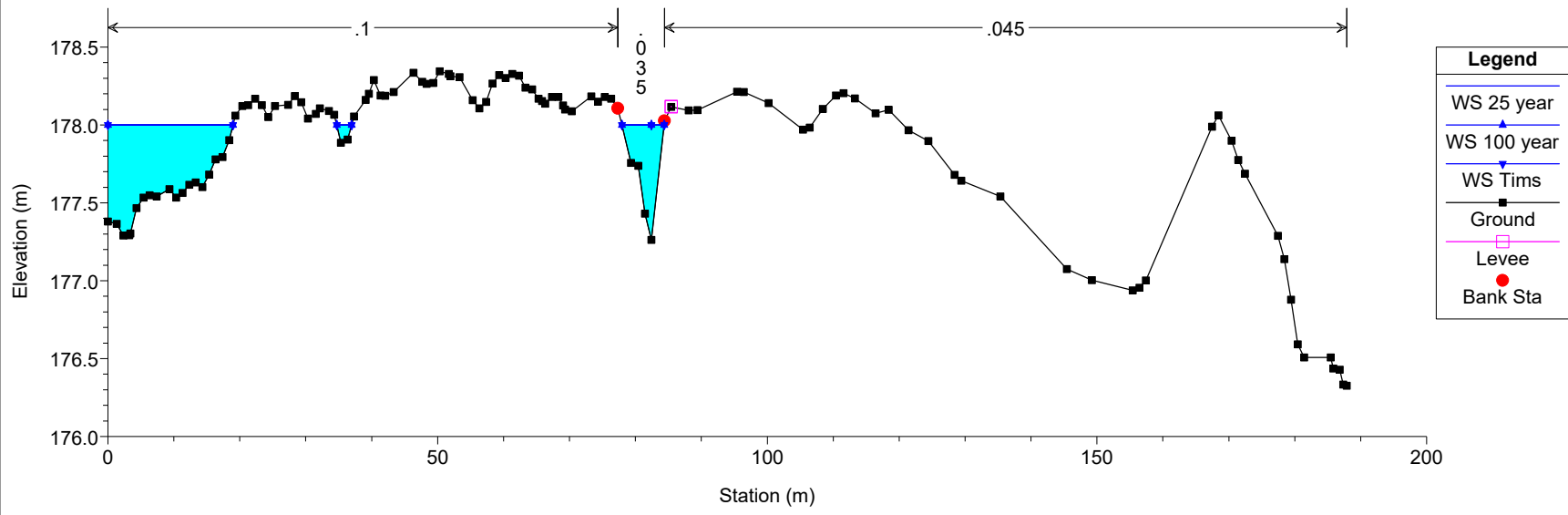
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6993\_FLOODPLAIN Plan: 6993\_Plan\_V6\_FINAL 2025-10-16



6993\_FLOODPLAIN Plan: 6993\_Plan\_V6\_FINAL 2025-10-16



HEC-RAS Plan: 2025.10.10 V6\_FINAL River: 6993\_River Reach: Reach 1

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	446	25 year	8.00	180.15	182.21	180.62	182.21	0.000022	0.19	74.33	52.45	0.05
Reach 1	446	100 year	10.50	180.15	182.20	180.68	182.20	0.000038	0.25	73.80	52.45	0.06
Reach 1	446	Tims	9.00	180.15	182.03	180.65	182.03	0.000041	0.24	64.92	52.45	0.06
Reach 1	424	25 year	8.00	179.56	182.21		182.21	0.000031	0.27	78.37	57.04	0.06
Reach 1	424	100 year	10.50	179.56	182.19		182.20	0.000055	0.36	77.74	57.04	0.08
Reach 1	424	Tims	9.00	179.56	182.02		182.03	0.000058	0.35	68.07	57.04	0.08
Reach 1	400	25 year	8.00	179.46	182.20	180.40	182.21	0.000030	0.29	91.81	70.38	0.06
Reach 1	400	100 year	10.50	179.46	182.19	180.56	182.20	0.000053	0.38	91.00	70.38	0.08
Reach 1	400	Tims	9.00	179.46	182.02	180.46	182.03	0.000057	0.38	79.06	70.38	0.08
Reach 1	394	25 year	8.00	179.16	182.17	180.17	182.20	0.000070	0.34	13.19	74.06	0.07
Reach 1	394	100 year	10.50	179.16	182.14	180.35	182.18	0.000127	0.45	13.00	74.06	0.09
Reach 1	394	Tims	9.00	179.16	181.98	180.25	182.01	0.000115	0.41	12.17	74.06	0.09
Reach 1	388		Culvert									
Reach 1	384	25 year	8.00	179.10	182.09	180.02	182.11	0.000268	0.68	12.47	71.98	0.13
Reach 1	384	100 year	10.50	179.10	181.91	180.19	181.96	0.000590	0.96	11.53	71.98	0.20
Reach 1	384	Tims	9.00	179.10	181.75	180.09	181.79	0.000546	0.88	10.70	71.98	0.19
Reach 1	373	25 year	8.00	179.08	180.68	180.68	181.78	0.025390	5.64	3.27	43.64	1.49
Reach 1	373	100 year	10.50	179.08	181.27	181.27	181.79	0.009263	4.27	6.29	64.00	0.95
Reach 1	373	Tims	9.00	179.08	181.16	181.16	181.63	0.008904	4.03	5.70	62.39	0.92
Reach 1	335	25 year	8.00	178.88	180.47	179.97	180.54	0.001781	1.20	8.30	13.30	0.37
Reach 1	335	100 year	10.50	178.88	180.74	180.09	180.78	0.000963	1.03	20.07	30.97	0.28
Reach 1	335	Tims	9.00	178.88	180.56	180.02	180.63	0.001666	1.23	9.53	14.00	0.37
Reach 1	313	25 year	8.00	178.77	180.04	180.04	180.43	0.010756	3.01	4.57	7.38	0.92
Reach 1	313	100 year	10.50	178.77	180.10	180.10	180.67	0.015154	3.69	5.01	8.82	1.10
Reach 1	313	Tims	9.00	178.77	180.11	180.11	180.52	0.011011	3.15	5.04	8.96	0.94
Reach 1	288	25 year	8.00	178.65	179.55	179.51	179.82	0.010094	2.37	4.50	8.61	0.87
Reach 1	288	100 year	10.50	178.65	179.64	179.64	179.99	0.011834	2.76	5.27	9.23	0.96
Reach 1	288	Tims	9.00	178.65	179.57	179.56	179.89	0.011626	2.59	4.68	8.75	0.94
Reach 1	266	25 year	8.00	178.35	179.53	179.30	179.63	0.004392	1.48	7.92	22.61	0.56
Reach 1	266	100 year	10.50	178.35	179.63	179.46	179.75	0.004450	1.62	10.22	23.71	0.58
Reach 1	266	Tims	9.00	178.35	179.57	179.37	179.68	0.004384	1.53	8.90	23.08	0.57
Reach 1	242	25 year	8.00	178.39	179.46	179.26	179.53	0.003824	1.23	8.67	21.54	0.51
Reach 1	242	100 year	10.50	178.39	179.56	179.36	179.64	0.003608	1.33	11.01	23.03	0.51
Reach 1	242	Tims	9.00	178.39	179.50	179.32	179.58	0.003654	1.26	9.70	22.20	0.51
Reach 1	225	25 year	8.00	178.25	179.25	179.15	179.43	0.007315	1.93	6.41	25.46	0.72
Reach 1	225	100 year	10.50	178.25	179.33	179.33	179.54	0.008015	2.16	8.75	33.50	0.77
Reach 1	225	Tims	9.00	178.25	179.28	179.21	179.48	0.007959	2.06	7.10	28.19	0.76
Reach 1	202	25 year	8.00	178.28	179.03	179.03	179.17	0.016935	2.00	8.17	29.50	1.00
Reach 1	202	100 year	10.50	178.28	179.09	179.09	179.25	0.016386	2.16	10.00	29.58	1.01
Reach 1	202	Tims	9.00	178.28	179.06	179.06	179.20	0.016541	2.06	8.95	29.54	1.00
Reach 1	182	25 year	8.00	178.31	178.86	178.51	178.88	0.004148	1.06	19.59	55.98	0.51
Reach 1	182	100 year	10.50	178.31	178.95	178.52	178.97	0.004057	1.19	25.00	67.95	0.52
Reach 1	182	Tims	9.00	178.31	178.89	178.52	178.91	0.004217	1.12	21.37	59.76	0.52
Reach 1	158	25 year	8.00	178.07	178.56	178.48	178.65	0.027249	2.06	8.78	30.95	1.21
Reach 1	158	100 year	10.50	178.07	178.61	178.50	178.73	0.030183	2.39	10.33	34.38	1.30
Reach 1	158	Tims	9.00	178.07	178.58	178.50	178.68	0.028313	2.18	9.37	32.20	1.24
Reach 1	138	25 year	8.00	177.96	178.40		178.41	0.005155	0.76	21.10	62.30	0.51
Reach 1	138	100 year	10.50	177.96	178.48		178.49	0.004788	0.81	25.97	68.09	0.50
Reach 1	138	Tims	9.00	177.96	178.44		178.45	0.004935	0.78	23.10	64.29	0.50
Reach 1	115	25 year	8.00	177.85	178.34		178.34	0.002006	0.50	30.17	72.87	0.32
Reach 1	115	100 year	10.50	177.85	178.42		178.42	0.001958	0.59	36.00	75.37	0.33
Reach 1	115	Tims	9.00	177.85	178.37		178.38	0.001959	0.54	32.68	73.91	0.32
Reach 1	88	25 year	8.00	177.57	178.29	177.97	178.30	0.001306	0.58	35.05	79.66	0.28
Reach 1	88	100 year	10.50	177.57	178.37	178.01	178.38	0.001355	0.66	41.39	82.96	0.29
Reach 1	88	Tims	9.00	177.57	178.33	177.99	178.33	0.001299	0.61	37.83	80.65	0.28

HEC-RAS Plan: 2025.10.10 V6\_FINAL River: 6993\_River Reach: Reach 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Reach 1	60	25 year	8.00	177.37	178.18	177.96	178.21	0.005531	1.29	17.61	52.72	0.58
Reach 1	60	100 year	10.50	177.37	178.26	178.02	178.29	0.005500	1.40	21.61	59.06	0.59
Reach 1	60	Tims	9.00	177.37	178.22	177.96	178.25	0.005514	1.34	19.39	54.81	0.58
Reach 1	36	25 year	8.00	177.26	178.00	177.85	178.05	0.010756	1.43	10.63	27.68	0.78
Reach 1	36	100 year	10.50	177.26	178.00	177.91	178.09	0.018530	1.88	10.63	27.68	1.02
Reach 1	36	Tims	9.00	177.26	178.00	177.87	178.07	0.013614	1.61	10.63	27.68	0.87

# LIST OF FIGURES AND DRAWINGS

Figure 1:	Site Location
Figure 2:	Catchment Plan
Drawing C101:	Floodplain Mapping



GEORGIAN BAY

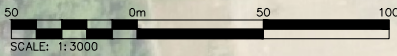
SITE  
LOCATION



DELPHI LANE

HIGHWAY 26

GEORGIAN  
PEAKS SKI  
CLUB



Legend



= SUBJECT  
LANDS

Project

SZEKELY PROPERTY  
TOWN OF THE BLUE MOUNTAINS

Drawing

129 DELPHI LANE



Drawn By	T.M.	Design By	T.M.	Project	2615-6993	
Scale	N.T.S.	Date	10/09/2025	Check By	J.K.	
					Drawing	FIG. 1



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TEMPORARY BENCHMARKS	
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VAN HARTEN LAND SURVEYORS, OCTOBER 11, 2024	

No.	ISSUE	DATE: YYYY/MM/DD
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Town		Engineer	

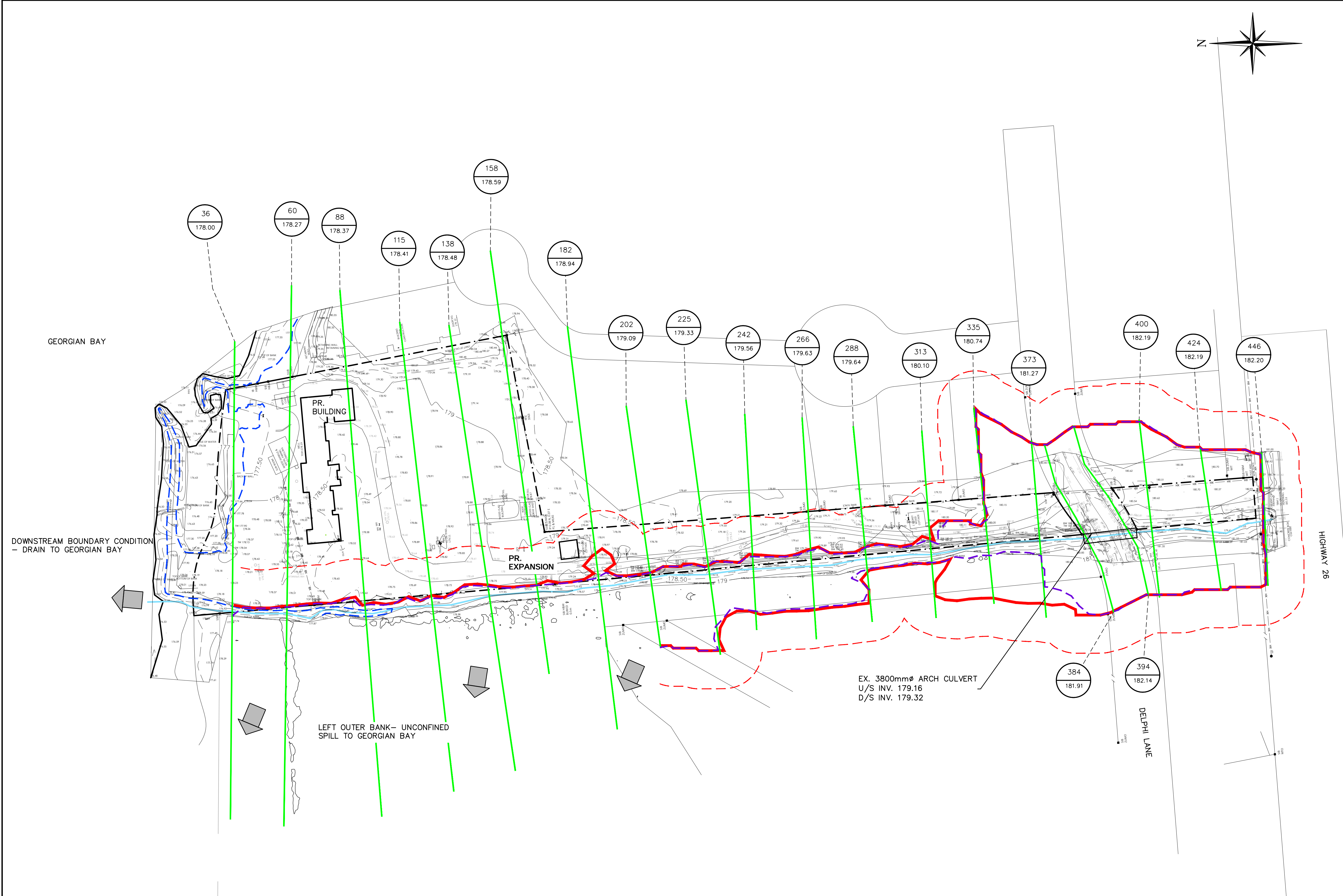
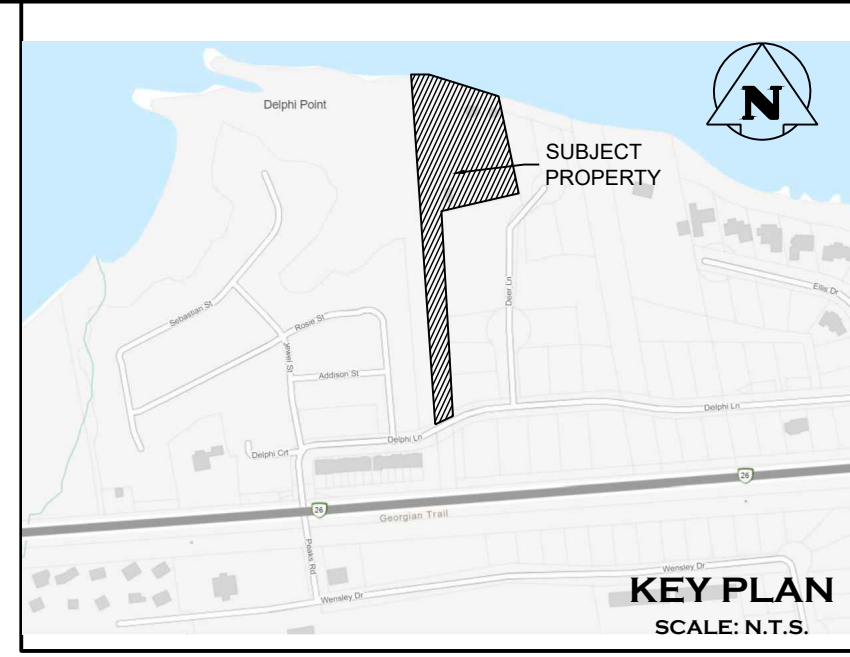
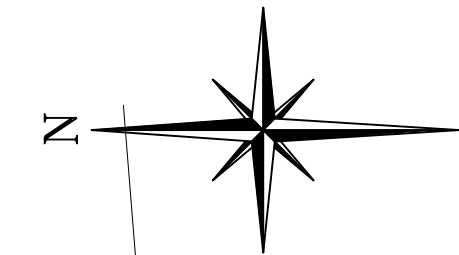
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**SZEKELY PROPERTY – 129 DELPHI LANE**  
TOWN OF THE BLUE MOUNTAINS

CATCHMENT PLAN

CROZIER

Drawn By	T.M.	Design By	T.M. / J.K.	Project	2615-6993
Check By	J.K.	Check By	J.K. / R.W.	Drawing	<b>FIGURE 2</b>



**LEGEND**

- PROPERTY LINE
- WATERCOURSE
- CROSS SECTION ID
- WATER SURFACE ELEVATION (100-YEAR)
- SPILL FLOW DIRECTION
- EXISTING GRADE
- EX. CONTOUR
- CROSS SECTION
- 25-YEAR FREQUENT FLOODING HAZARD
- 100-YEAR REGULATORY FLOODLINE
- 100-YEAR 15m BUFFER
- 100-YEAR GEORGIAN BAY HIGH WATER LEVEL 177.90m (TATHAM, JAN 2025)

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**TEMPORARY BENCHMARKS**

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SZEKELY PROPERTY – 129 DELPHI LANE  
TOWN OF THE BLUE MOUNTAINS

FLOODPLAIN DELINEATION PLAN

**CROZIER**  
CONSULTING ENGINEERS

Drawn By	T.M.	Design By	T.M. / J.K.	Project	2615-6993
Check By	J.K.	Check By	J.K. / R.W.	Drawing	<b>C101</b>