



Stantec Consulting Ltd.
400-1305 Riverbend Road
London ON N6K 0J5

March 4, 2025

Project/File: 161500301

Sarah Mastroianni

Niagara Peninsula Conservation Authority (NPCA)
3350 Merrittville Highway, Unit 9, Thorold, Ontario L2V 4Y6

Dear Sarah Mastroianni,

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

In response to your email dated June 24, 2024, and in support of the above-noted Stormwater Management Report herein referred to as the SWM Report, this letter serves to present the specifics of Stormwater Management Facility (SWMF) No. 4 and west lands Site Alteration at the Project Eagle Site. This letter is intended to be read in conjunction with the submitted site alteration drawings as part of the package.

1 Existing Conditions Hydrologic Model

Based on the information provided in the SWM Report and the existing drainage catchments, the site includes four internal catchments and four external catchments, as shown in Figure 1 (attached) and summarized in Table 1.

Table 1. Existing Drainage Catchments

Area ID	Location	Area (ha)	Flow Direction
100	North	33.14	Drains north then west towards the Welland Canal
101	Southeast	31.29	Drains southeast towards the Lyon's Creek drain, ultimately towards the Welland Canal
102	Southwest	9.10	Drains south towards the municipal drain, ultimately draining west towards the Welland Canal
103	West	4.45	Drains west towards the Welland Canal

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

300	External Area Northwest	10.68	Drains into the north ditch, ultimately towards the Welland Canal through an existing culvert
301	External Area West	25.55	Drains north to south through the canal roadside ditch that leads into the Welland Canal
302	External Area Southwest	23.13	Drains south to a municipal drain that connects to the Welland Canal
303	External Area Southeast	7.80	Drains southeast to the Lyon's Creek

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

2 Interim Conditions

In the interim condition, the western lands will include a proposed high-voltage electrical substation in the middle, SWMF No. 4 to the north, and two berms, one to the west, alongside the Welland Canal, and another to the south, before Headwater Drainage Feature (HDF) H2S2.

To convey clean water from the site to the receiving watercourses, an interim sediment basin, diversion swales, and silt fences at the outlets are proposed. The contributing drainage area for each interim facility follows the Erosion and Sediment Control (ESC) plan, which is attached and summarized in the following table.

Table 2. Interim Drainage Catchments

Area ID	Location	Area (ha)	Flow Direction
N	North	5.17	Flows from the Sediment Basin No. 4 to the outlet at the Welland Canal
C	Center	1.55	Flows south, ultimately to Sediment Basin No. 2
W	West	0.52	Drains to the Welland Canal
S	South	0.39	Drains to Lyon's Creek

The sediment basin is designed according to the *Sustainable Technologies Evaluation Program (STEP) Erosion & Sediment Control Guide for Urban Construction* (TRCA, 2020). Additionally, the diversion swales are designed to convey flows from the 10-year, 3-hour Chicago storm event, as discussed in the following sections.

2.1 Sediment Basins

The proposed location for the ultimate SWMF No. 4 is intended to function as an interim sediment basin, with an outlet to the existing watercourse in the western lands. The other three sediment basins were addressed in the previous *Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Preliminary Stormwater Management Report* (Stantec, July 2024).

Pond 4 will serve as an interim sediment basin with a permanent pool at an elevation of 181.95 m. The bottom and top of the sediment basin are at elevations of 180.95 m and 182.80 m, respectively. The outlet

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

structure for this sediment basin will consist of dual orifices: a 100 mm diameter orifice at 181.95 m and a 250 mm orifice at 182.15 m, along with an overflow ditch inlet catchbasin (DICB) at an elevation of 182.55 m. Additional details are provided in the table below and in the stage-storage-discharge calculations attached to this letter.

Table 3 - Sediment Basin 4 Requirements

Target Permanent Pool	956 m ³
Provided Permanent Pool	1867 m ³
Minimum Active Storage	646 m ³
Provided Active Storage	3398 m ³

A hydrologic model was prepared to simulate interim conditions. Input and output files for the SWMHYMO model are provided in the attachments. The Soil Conservation Service (SCS) Curve Number was selected conservatively, based on a comparison between catchments 102 and 103 under existing conditions. SWMHYMO parameters were calculated for each interim catchment.

The table below demonstrates that water quantity targets have been met, as post-development peak flow rates align with target discharges established through existing conditions modeling in the SWM report. The drawdown times for all storm events exceed 48 hours, except for the 25 mm storm event, which has a drawdown time of 47.4 hours. These durations are sufficient to promote sediment settlement within the sediment basins.

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

Table 4. Sediment Basin 4 Performance Characteristics

Storm Event	25 mm	2- year	5- year	10- year	25- year	50- year	100- year	Hurricane Hazel
Existing Flows Towards West Lands (m ³ /s)	0.195	0.378	0.489	0.581	0.73	0.847	0.968	0.643
Proposed Flows to the Sediment Pond 4 (m ³ /s)	0.183	0.349	0.443	0.518	0.635	0.731	0.825	0.750
Proposed Flows from the Sediment Pond 4 (m ³ /s)	0.007	0.010	0.026	0.041	0.056	0.068	0.076	0.684
Proposed Flows from the Western Berm (m ³ /s)	0.054	0.091	0.116	0.138	0.174	0.198	0.225	0.076
Total Proposed Flows to the Welland Canal (m ³ /s)	0.061	0.101	0.142	0.179	0.230	0.266	0.301	0.760
Maximum Storage Volume (m ³)	527	979	1,203	1,355	1,587	1,814	2,022	3,276
Maximum Ponding Depth (m)	0.16	0.28	0.34	0.38	0.44	0.49	0.54	0.82
Maximum Ponding Elevation (m)	182.11	182.23	182.29	182.33	182.39	182.44	182.49	182.77
Drawdown Time (hours)	47.4	63.0	66.4	67.9	69.3	70.4	71.2	73.1

Flows from the central catchment and the southern catchment drains to sediment basin 2, which outlets to HDF H2S2. Sediment basin 2 maintains the baseflow of HDF H2S2 and controls proposed flows to the 2-year existing condition flow rate of 0.881 m³/s.

As shown in the table below, water quantity targets have been met. The total peak flow rates from the central catchment, southern berm, and the outflow from sediment basin 2 are all below the target 2-year discharge, as determined through existing conditions modeling.

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

Table 5. Sediment Basin 2 Performance Characteristics

Storm Event	25 mm	2- year	5- year	10- year	25- year	50- year	100- year	Hurricane Hazel
Proposed Flows from the Sediment Pond 2 (m ³ /s)	0.018	0.048	0.100	0.123	0.145	0.166	0.184	1.776
Proposed Flows from the Central Catchment (m ³ /s)	0.080	0.150	0.191	0.225	0.279	0.320	0.363	0.226
Proposed Flows from the Southern Berm (m ³ /s)	0.028	0.051	0.066	0.079	0.100	0.114	0.130	0.057
Total Proposed Flows to H2S2 (m ³ /s)	0.126	0.249	0.357	0.427	0.524	0.600	0.677	2.059

2.2 Diversion Swale

A diversion swale is required to carry flows from the central catchment to sediment basin 2. The capacity of the swale has been calculated and is sufficient to carry the expected 10-year design flows. Calculations are provided in the attachments. The swale has sufficient capacity at their designed depth to safely convey water to the receiving watercourses.

2.3 Silt Fences

Silt fences will be installed along the western and southern boundaries of the site, just before the receiving watercourses. A heavy-duty silt fence barrier will be placed west of the berm along the Welland Canal, while a robust silt fence barrier will be installed to the south for the Lyon's Creek watercourse.

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

3 Erosion and Sediment Control

The following approach to erosion and sediment control onsite has been prepared to minimize the potential impacts associated with onsite erosion and/or offsite transport of sediment to downstream areas.

Prior to any grading or servicing works commencing onsite, erosion and sedimentation control measures shall be implemented as detailed on the Pre-grading, Erosion and Sedimentation Control Plans. The erosion and sedimentation controls will include the following items:

- Steep slopes (>3:1) shall have erosion blankets.
- Light and/or heavy-duty silt fencing will be erected on all Site boundaries where there is potential for runoff to be discharged offsite, to protect adjacent downstream lands from migration of sediment in overland flow. The location of this fencing will be adjacent to the limit of grading. Silt fence attached to page wire fencing will be installed periodically throughout the Site adjacent to sensitive areas. Robust silt fencing with straw bales between shall be erected at the limit of grading along the entire southern Site limit that is adjacent to the Lyon's Creek Drain. All silt fencing shall be erected before grading begins to protect adjacent and downstream areas from migration of sediment in overland flow.
- Erosion control berms/swales will be located in appropriate (critical) areas to divert flows to temporary sediment basins.
- A construction entrance feature ("mud-mat") will be provided at all Site entrances to minimize the offsite transport of sediment via construction vehicles.
- Swales constructed onsite will have temporary rock check dams to help attenuate flows and encourage deposition of suspended sediment where appropriate.
- All disturbed areas where construction is not expected for 30 days shall be re-vegetated with 50 mm of topsoil and hydro-seeding according to OPSS 572.
- During construction, all catchbasins are to be sealed until roads are paved to prevent sediment deposition in the catchbasin's sumps and conveyance of silt to the SWMF.

The erosion control measures shall be maintained in good repair during the entire construction period and shall only be removed as contributing drainage areas are restored and stabilized.

Reference: West Lands Site Alteration Addendum to Project Eagle, Port Colborne, Ontario, Stormwater Management Report

4 Conclusion

- The proposed total flow discharges from sediment basin 4 and other catchments in the western lands under the interim conditions are below the water quantity targets for all storm events.
- The drawdown times for sediment basin 4 under the interim conditions exceed 48 hours, except for the 25 mm storm event, which has a drawdown time of 47.4 hours.
- The proposed total flow discharges from the central catchment, southern berm, and sediment basin 2 meet the water quantity targets for the 2-year storm event.
- In addition to the ESC measures for the site, special attention will be given to ESC measures to protect the retained HDF H2S2.

We trust this information meets your requirements and addresses any inquiries you may have regarding the site alteration at the Project Eagle Site, west lands. Should you need any further details or clarification, please do not hesitate to contact the undersigned.

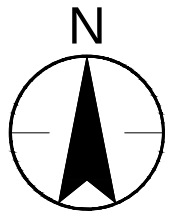
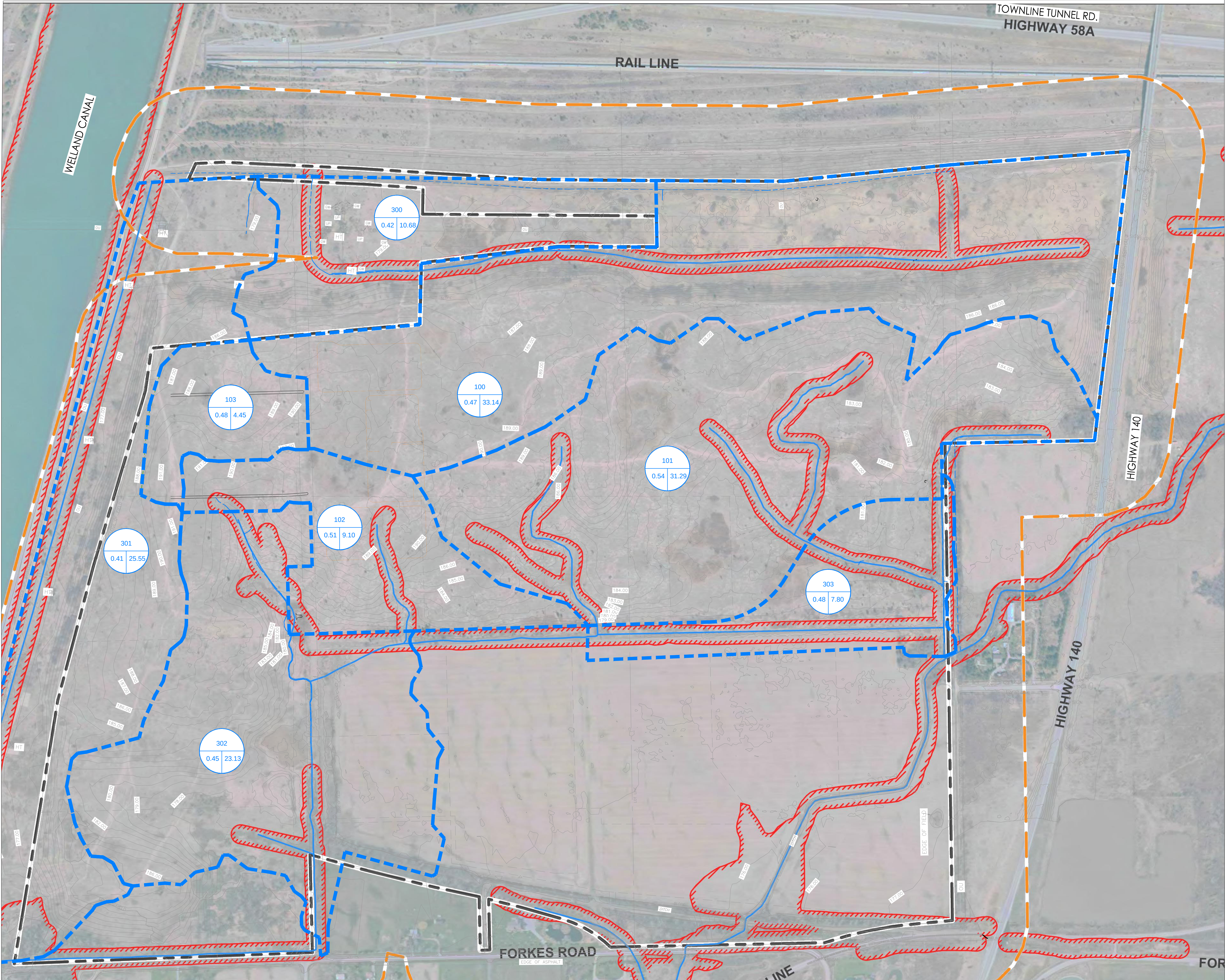
Regards,

STANTEC CONSULTING LTD.

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Senior Water Resources Engineer
Direct: (519) 675 6669
Fax: (519) 645 6575
Adam.Kristoferson@stantec.com

Attachment: Figure 1 – Existing Storm Drainage Area Plan
C-A-05 – Site Alteration Plan, Site Grading and Erosion & Sediment Control, West Lands
C-A-06 – Site Alteration Plan, Sediment Basin #4 Details
SWMHYMO Parameters – Interim Conditions
Sediment Basin Design Calculations – Interim Conditions
Diversion Swale Sizing – Interim Conditions
SWMHYMO Model Input and Output File – Interim Conditions, Site Alteration

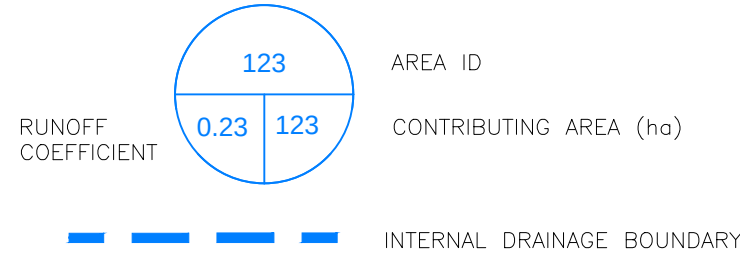


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Liability Note:
The Contractor shall verify and be responsible for all dimensions.
DO NOT scale the drawing - any errors or omissions shall be
reported to Stantec without delay.

Notes

Legend



Disclaimer

- Preliminary grading and cut-fill based on conceptual site plan created by others.
- Surface information used for cut fill plan taken from Gray architects and engineers conceptual design plan. Topographic survey required for precise calculations.
- This is a compiled plan and should not be considered a plan of survey.
- This is a conceptual design expected to outlet to nearby existing creek.
- Existing creek elevations shown are not accurate and are to be field verified to confirmed actual creek bottom elevations.

Revision

Revision	By	Appd.	YY.MM.DD
1. FOR SITE PLAN APPROVAL - SUBMISSION 2	DJL	AKK	24.12.17
Issued	By	Appd.	YY.MM.DD
File Name: 161581318_c.sxd	DJL	AKK	DJL
	Dwn.	Chkd.	Dsgn.
Permit-Seal			

Client/Project



PROJECT EAGLE

Port Colborne, ON Canada

Title

EXISTING STORM DRAINAGE
AREA PLAN

Project No.
161581318

Drawing No.



Sheet

Revision

1

1 of 2

0

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2024.12.16 2:40 PM by: jason.g.2024

PREGRADING SPECIFICATION

—PRE-GRADING TO BE AS FOLLOWS:

- 0.10m± FOR GRASSSED AREAS
- 0.15m± FOR TEMP. SEDIMENT BASIN, SEDIMENT TRAP AND SWALES.
- 0.475m± FOR CONCRETE PAD AREAS.
- 0.50m± FOR BUILDING PAD AND TANKS YARDS.
- 0.54m± FOR PARKING LOT AREA.
- 0.67m± FOR HEAVY DUTY LANEWAY

—PRE-GRADING OF ALL INTERNAL ROAD RIGHT OF WAYS TO BE AS FOLLOWS:

- 0.67m± FOR ALL HEAVY DUTY LANEWAYS EXCLUDING CONCRETE PAD AREAS.

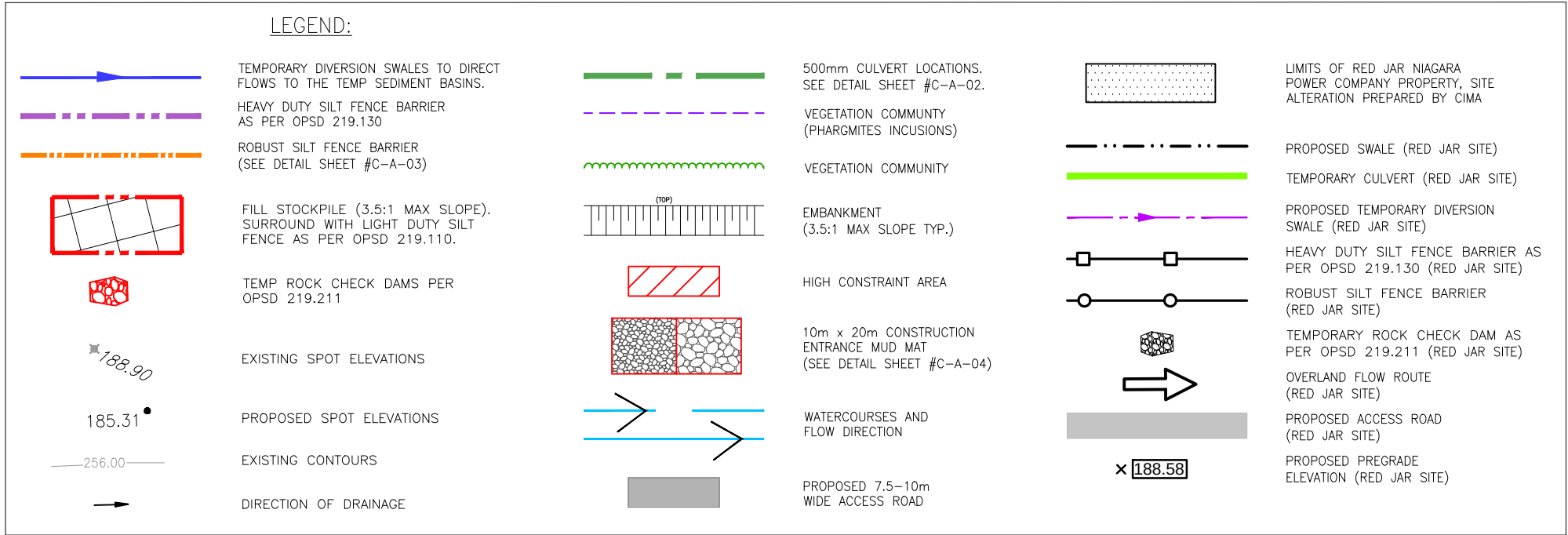
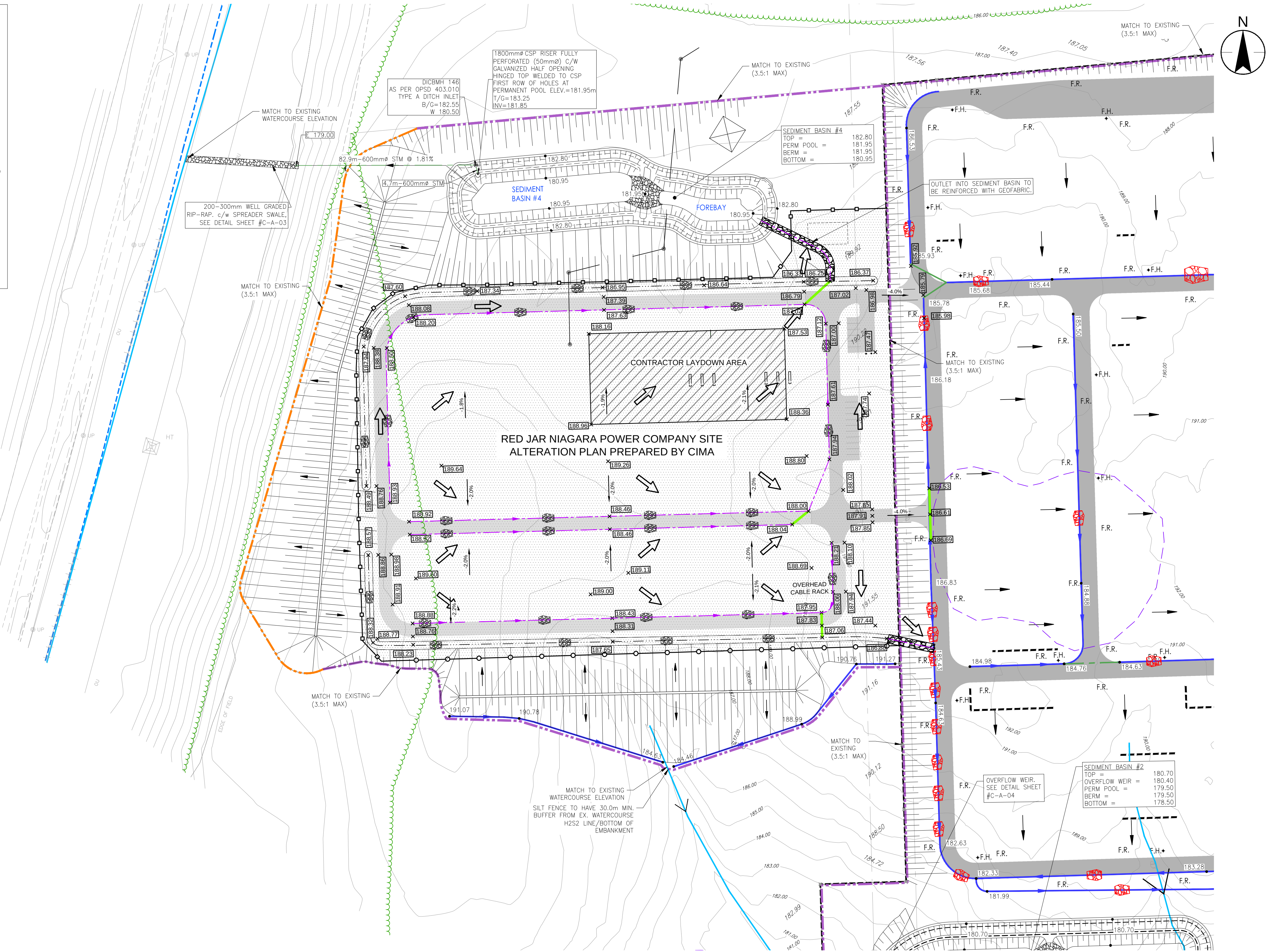
—PRE-GRADING OF TEMP. SEDIMENT BASINS, SEDIMENT TRAP AND SWALES TO BE AS FOLLOWS:

- 0.15m± FOR SWMF #1, #2, & #3, #4, SEDIMENT TRAP AND SWALES.

—PRE-GRADE TEMPORARY TRANSITION SLOPE AND SWALES TO 0.15m± TO PROVIDE FOR 150mm TOPSOIL & SEED (AND EROSION CONTROL BLANKET WHERE NOTED)

NOTE:

1. ALL STOCK PILE SLOPES TO BE MAX 3.5:1.
2. TEMPORARY SEDIMENT BASINS #1, #2, #3 & #4 – POST PRE-GRADE, INSTALL 150mm TOPSOIL & GRASS SEED, TOPSOIL AND GRASS TO REMAIN IN PLACE UNTIL BLOCK DEVELOPS.
3. THE OWNER SHALL IMPLEMENT STREET CLEANING MEASURES ON EXISTING MUNICIPAL R.O.W.'S WHEN REQUESTED BY THE CITY.
4. IF SEDIMENT ACCUMULATED WITHIN THE ESC CONTROLS IS TO BE REMOVED OFFSITE, TESTING OF THE SEDIMENT FOLLOWING MECF STANDARDS WILL BE REQUIRED TO DETERMINE AN APPROPRIATE DISPOSAL SITE.



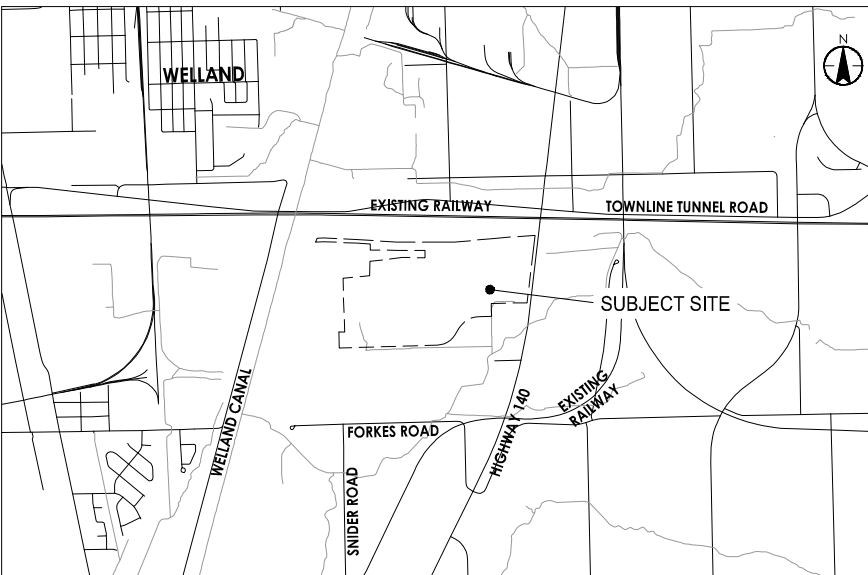
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Key Plan N.T.S.



Legend

--- PROPERTY BOUNDARY

3. ADDENDUM TO INCLUDE WEST LANDS	SB	DV	25.02.07
2. AS PER NPCA COMMENTS	DUL	DV	24.07.30
1. FOR SITE ALTERATION PERMIT ADDENDUM	DUL	DV	24.07.22

Issued/Revision

Permit/Seal

Client/Project Logo

AsahiKASEI

Client/Project
MANUFACTURING FACILITY

PROJECT EAGLE
5088 HIGHWAY 140

PORT COLBORNE, ON
CANADA

Site
SITE ALTERATION PLAN
EROSION & SEDIMENT CONTROL
WEST LANDS

Project No.
161500301

Revision

Scale
1:1000

Drawing No.

C-A-05

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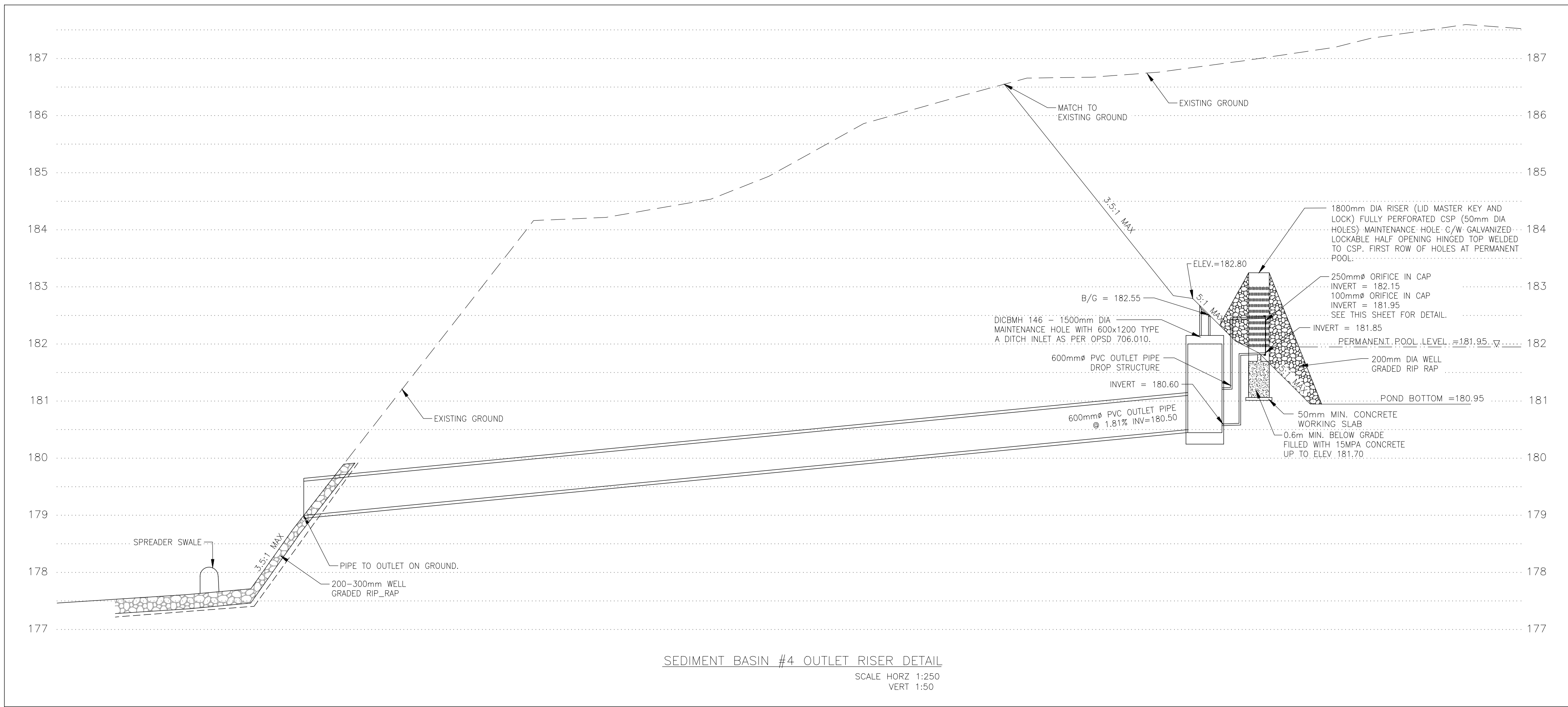
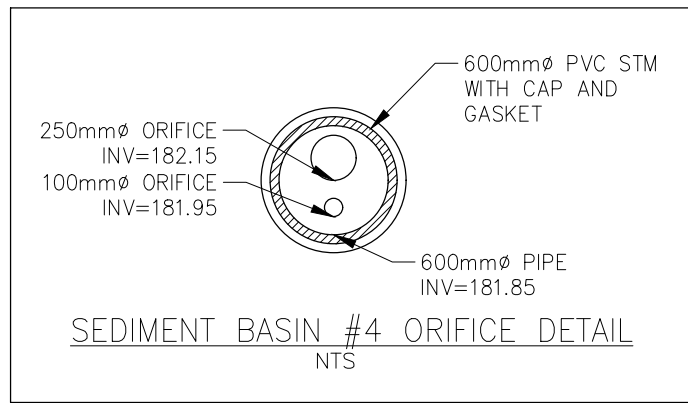
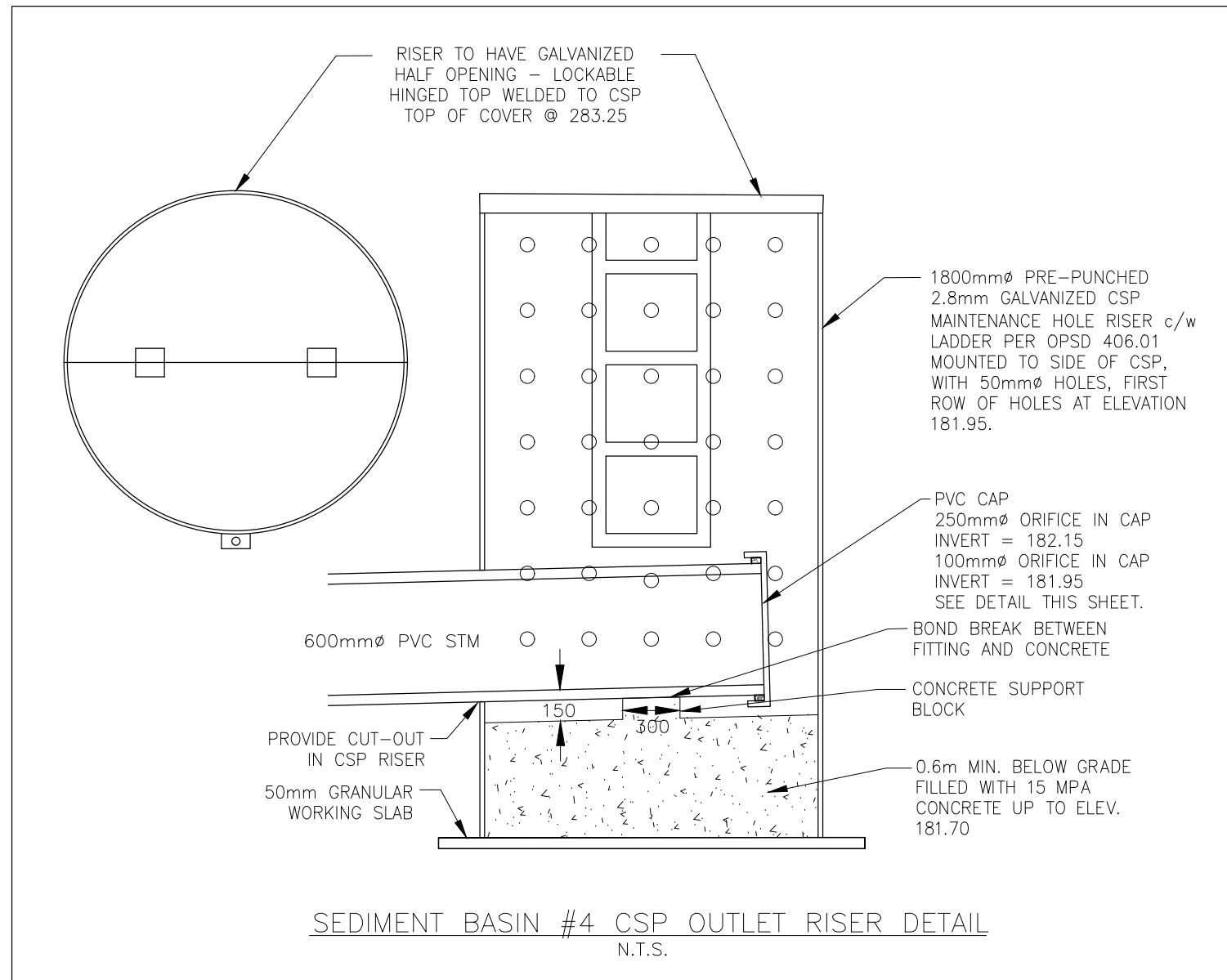
Title
SITE ALTERATION PLAN
SEDIMENT BASIN #4 DETAILS

Project No.
161500301

Scale 0 25 75 125m
1:2500

Revision

Drawing No. **C-A-06**



SWMHYMO Parameters

161500301

Project Eagle

Site Alteration Conditions - West Lands

NasHyd

Area Description	Catchment ID	Area (ha)	CN	Slope (%)	Length (m)	R.C	TC (hrs)	TP (hrs)
<u>Internal</u>								
Flows from Northern Portion to Sediment Basin 4	N	5.17	91	2.50	552	0.51	0.37	0.22
Flows from Central Portion to Sediment Basin 2	C	1.55	91	2.50	233	0.51	0.18	0.11
Flows from Western Berm to Welland Canal	W	0.52	91	28.57	37	0.51	0.02	0.01
Flows from Southern Berm to Lyons Creek	S	0.39	91	8.90	123	0.51	0.08	0.05
Flows from East Swale to Sediment Basin 2	E	0.53	91	3.13	146	0.51	0.12	0.07

Notes:

Time of Concentration calculated using the Airport Method
(For areas less than 100 ha, and RC less than 0.4)

$$T_c = [3.26 (1.1-C) L^{0.5}] / S^{0.33}$$

Where: C = Runoff Coefficient according to MTO Design chart 1.07
L = Length of Overland Flow (m)
S = Slope (%)

Time of Concentration calculated using the Bransby Williams Method
(For areas less than 100 ha, and RC greater than 0.4)

$$T_c = 0.057 * L / [(Sw^{0.2}) * (A^{0.1})]$$

Where: tc = time of concentration, minutes
L = catchment or watershed length, m
Sw = catchment or watershed slope, %
A = catchment or watershed area, ha

Time to Peak (hr)

$$T_p = T_c(N-1)/N$$

Where: N = number of linear resevoirs (N=3)

Subject: West Lands Sediment Basin - Stage/Storage/Discharge
Project: Project Eagle Site Alt
Project No.: 161500301
Date: 2-Mar-25

Requirements	Orifice 1	Orifice 2	Overflow DICB	Pipe 1
Basin Side Slope: 5	Orifice Elevation (m): 1.00	Orifice Elevation (m): 1.20	Overflow DICB Elevation (m): 1.60	Pipe invert Elevation (m): 180.50
Drainage Area (ha): 5.17	Orifice Diameter (mm): 100	Orifice Diameter (mm): 250	Ditch Inlet Width (m): 1.2	Pipe Diameter (mm): 600
Min Perm. Pool Vol (m ³ /ha): 185	Orifice Discharge Coefficient: 0.6	Orifice Discharge Coefficient: 0.6	Grate Slope: 5:1	Manning's'n: 0.013
Target Perm. Pool Vol (m ³): 956	Orifice Area (sq. m): 0.0079	Orifice Area (sq. m): 0.0491		Pipe Area (sq. m): 0.2827
Min Active Storage(m ³): 646				Slope (%): 1.81
Note: Design based on STEP Erosion & Sediment Control Guidelines for Urban Construction (2020)				Pipe Length (m): 82.9

	Elevation (m)	Discharge (cms)	Active Storage (cu. m)	Total Vol. (cu. m.)	Cum. Det. Time (hrs)	Depth (m)	Area (sq. m)	Incr. Vol. (cu. m)	Permanent Pool (cu. m)	Orifice 1 Head (m)	Orifice 1 Discharge (cms)	Orifice 2 Head (m)	Orifice 2 Discharge (cms)	Total Orifice Outflow (cms)	Incr. Det. Time (hrs)	Overflow DICB Discharge (cms)	Pipe 1 (cms)	Control (cms)
Bottom of Sediment Basin	180.95	0.000		0		0	1368		0.0									
	181.05	0.000		106		0.10	1503	106.1	106.1									
	181.15	0.000		221		0.20	1642	114.5	220.6									
	181.25	0.000		344		0.30	1784	123.1	343.7									
	181.35	0.000		476		0.40	1929	131.9	475.6									
	181.45	0.000		616		0.50	2079	140.9	616.5									
	181.55	0.000		832		0.60	2234	215.7	832.2									
	181.65	0.000		1064		0.70	2394	231.4	1063.6									
	181.75	0.000		1311		0.80	2562	247.8	1311.4									
	181.85	0.000		1576		0.90	2739	265.0	1576.4									
Permanent Pool	181.95	0.000	0.0	1867	0.0	1.00	3082	291.0	1867.4						0.0			
	182.05	0.005	324.3	2192	38.6	1.10	3405	324.3		0.05	0.005			0.005	38.6			0.000
	182.15	0.008	674.1	2542	53.8	1.20	3591	349.8		0.15	0.008			0.008	15.2			0.000
	182.25	0.010	1042.7	2910	64.9	1.30	3782	368.6		0.25	0.010			0.010	11.1			0.000
	182.35	0.048	1430.8	3298	68.6	1.40	3980	388.1		0.35	0.012	0.07	0.036	0.048	3.7			0.000
	182.45	0.069	1837.5	3705	70.5	1.50	4153	406.6		0.45	0.014	0.17	0.055	0.069	1.9			0.000
	182.55	0.084	2261.4	4129	72.1	1.60	4326	423.9		0.55	0.015	0.28	0.068	0.084	1.5			0.000
	182.65	0.256	2702.8	4570	72.8	1.70	4500.97	441.4		0.65	0.017	0.38	0.080	0.097	0.7	0.160	1.022	0.160
	182.75	0.576	3161.7	5029	73.1	1.80	4676.98	458.9		0.75	0.018	0.47	0.090	0.108	0.3	0.468	1.039	0.468
	182.80	0.799	3398.0	5265	73.2	1.85	4775.45	236.3		0.80	0.019	0.53	0.095	0.113	0.1	0.686	1.047	0.686
Top of Sediment Basin																		

Rainfall Event	Elevation (m)	Depth (m)	Volume (cu. m.)	Drawdown hr
25 mm	182.11	0.16	527	47.41
2-year	182.23	0.28	979	62.98
5-year	182.29	0.34	1,203	66.42
10-year	182.33	0.38	1,355	67.87
25-year	182.39	0.44	1,587	69.33
50-year	182.44	0.49	1,814	70.41
100-year	182.49	0.54	2,022	71.20
Hurricane Hazel	182.77	0.82	3,276	73.14

Subject: Diversion Swales Sizing
Project: Project Eagle - Site Alt
Project No.: 161500301
Client: AK
Date: 25-Feb-25

Section: East

Swale (0.4m deep)

Input Data:

Flow = 0.31 m³/s
Manning's 'n' = 0.04
Channel Slope = 3.1%
Side Slope = 3.5 m/m [3 means 3:1]
Side Slope = 3.5 m/m [3 means 3:1]
Bottom Width = 0 m [0 = triangular, +ve = trapezoidal]

Calculated Values:

Velocity = 1.16 m/s
Area = 0.268 m²
Wetted Perimeter = 2.016 m
Hydraulic Radius (R) = 0.133 m

Configuration:

3.5 :1 \ \ / / 3.5 :1
0.00 m

Depth Estimate:

Estimated Flow Depth : **0.277 m** lhs-rhs = 7E-04
Note: Calculations are correct when lhs-rhs = 0

```
00001> 2      Metric units
00002> #*****
00003> # Project Name: [Project Eagle]      Project Number: [161500301]
00004> # Date       : 2025-02-24
00005> # Modeller    : [AA]
00006> # Company     : Stantec Consulting Ltd. (London)
00007> # License #    : 4730904
00008> #*****
00009> #
00010> #
00011> # This model represents the hydrologic characteristics of the Site Alteration
00012> # conditions.
00013> # Storm events modeled are:
00014> # 2YR, 5YR, 10YR, 25YR, 50YR,
00015> # and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
00016> # 25 mm 4hr Chicago Storm
00017> # Regional Storm Event: 48hr Hurricane Hazel
00018> #
00019> #*****
00020> #-----|
00021> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
00022> # ["lnd25mm.4hr"] <--storm filename, one per line for NSTORM
00023> #-----|
00024> READ STORM      STORM_FILENAME=["STORM.001"]
00025> #-----|
00026> #*****
00027> #
00028> # Site Alt Conditions
00029> # North to Sediment Basin 4 (N)
00030> #
00031> #*****
00032> DESIGN NASHYD      ID=[01], NHYD=["N"], DT=[1]min, AREA=[5.17] (ha),
00033> DWF=[0.0] (cms), CN/C=[91], TP=[0.22]hrs,
00034> RAINFALL=[ , , , ] (mm/hr), END=-1
00035> #-----|
00036> ROUTE RESERVOIR      IDout=[02], NHYD=["Basin"], IDin=[01],
00037> RDT=[1] (min),
00038> TABLE of ( OUTFLOW-STORAGE ) values
00039> ( cms ) - ( ha-m )
00040> [ 0.0 , 0.0 ]
00041> [ 0.005 , 0.0324 ]
00042> [ 0.008 , 0.0674 ]
00043> [ 0.010 , 0.1043 ]
00044> [ 0.048 , 0.1431 ]
00045> [ 0.069 , 0.1838 ]
00046> [ 0.084 , 0.2261 ]
00047> [ 0.256 , 0.2703 ]
00048> [ 0.576 , 0.3162 ]
00049> [ 0.799 , 0.3398 ]
00050> [ -1 , -1 ] (max twenty pts)
00051> IDovf=[03], NHYDovf=["Overflow"]
00052> #-----|
00053> #*****
00054> #
00055> # Site Alt Conditions
00056> # Center and East to Sediment Basin 2 (C) & (E)
00057> #
00058> #*****
00059> DESIGN NASHYD      ID=[04], NHYD=["C"], DT=[1]min, AREA=[1.55] (ha),
00060> DWF=[0.0] (cms), CN/C=[91], TP=[0.11]hrs,
00061> RAINFALL=[ , , , ] (mm/hr), END=-1
00062> #-----|
00063> DESIGN NASHYD      ID=[05], NHYD=["E"], DT=[1]min, AREA=[0.53] (ha),
00064> DWF=[0.0] (cms), CN/C=[91], TP=[0.07]hrs,
00065> RAINFALL=[ , , , ] (mm/hr), END=-1
00066> #-----|
00067> ADD HYD      IDsum=[06], NHYD=["ToBasin2"], IDs to add=[04,05]
00068> #-----|
00069> #*****
00070> #
00071> # Site Alt Conditions
00072> # West to Welland Canal (W)
00073> #
00074> #*****
00075> DESIGN NASHYD      ID=[07], NHYD=["W"], DT=[1]min, AREA=[0.52] (ha),
00076> DWF=[0.0] (cms), CN/C=[91], TP=[0.01]hrs,
00077> RAINFALL=[ , , , ] (mm/hr), END=-1
00078> #-----|
00079> #*****
00080> #
00081> # Site Alt Conditions
00082> # South to Lyons Creek (S)
00083> #
00084> #*****
00085> DESIGN NASHYD      ID=[08], NHYD=["S"], DT=[1]min, AREA=[0.39] (ha),
00086> DWF=[0.0] (cms), CN/C=[91], TP=[0.05]hrs,
00087> RAINFALL=[ , , , ] (mm/hr), END=-1
00088> #-----|
00089> #-----|
00090> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[2]
00091> # ["002YR.HYD"] <--storm filename, one per line for NSTORM ti
00092> #-----|
00093> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[5]
00094> # ["005YR.HYD"] <--storm filename, one per line for NSTORM ti
00095> #-----|
00096> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[10]
00097> # ["10YR.HYD"] <--storm filename, one per line for NSTORM tim
00098> #-----|
00099> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[25]
00100> # ["25YR.HYD"] <--storm filename, one per line for NSTORM tim
00101> #-----|
00102> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[50]
00103> # ["50YR.HYD"] <--storm filename, one per line for NSTORM tim
00104> #-----|
00105> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[100]
00106> # ["100YR.HYD"] <--storm filename, one per line for NSTORM ti
00107> #-----|
00108> START      TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[251]
00109> # ["hurhaz48.stm"] <--storm filename, one per line for NSTORM
00110> #-----|
00111> FINISH
00112>
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00001> =====
00002>
00003> SSSSS W W M M H H Y Y M M O O 999 999 =====
00004> S W W W M M M H H Y Y M M M O O 9 9 9 9
00005> SSSSS W W M M M H H H H Y Y M M M O O ## 9 9 9 9 Ver 4.05
00006> S W W M M M H H Y Y M M O O 9999 9999 Sept 2011
00007> SSSSS W W M M H H Y Y M M O O 9 9 9 =====
00008>
00009> StormWater Management Hydrologic Model 999 999 =====
00010>
00011> *****
00012> ***** SWMHYMO Ver/4.05 *****
00013> ***** A single event and continuous hydrologic simulation model *****
00014> ***** based on the principles of HYMO and its successors *****
00015> ***** OTTHYMO-83 and OTTHYMO-89. *****
00016> *****
00017> ***** Distributed by: J.F. Sabourin and Associates Inc. *****
00018> ***** DATE: 2025-03-03 TIME: 09:54:29 RUN COUNTER: 000679 *****
00019> ***** Gatineau, Quebec: (819) 243-6858 *****
00020> ***** E-Mail: swmhyom@fsa.Com *****
00021> *****
00022>
00023> *****
00024> ***** Licensed user: Stantec Consulting Ltd. (Kitchener) *****
00025> ***** Kitchener SERIAL#:4730904 *****
00026> *****
00027> *****
00028> *****
00029> ***** PROGRAM ARRAY DIMENSIONS *****
00030> ***** Maximum value for ID numbers : 10 *****
00031> ***** Max. number of rainfall points: 105408 *****
00032> ***** Max. number of flow points : 105408 *****
00033> *****
00034> *****
00035> *****
00036> ***** D E T A I L E D O U T P U T *****
00037> *****
00038> ***** DATE: 2025-03-03 TIME: 09:54:29 RUN COUNTER: 000679 *****
00039> *****
00040> * Input filename: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\sitealt.DAT *
00041> * Output filename: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\sitealt.out *
00042> * Summary filename: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\sitealt.sum *
00043> * User comments: *
00044> * 1: *
00045> * 2: *
00046> * 3: *
00047> *****
00048>
00049> -----
00050> 001:0001-----
00051> *# *****
00052> *# Project Name: [Project Eagle] Project Number: [161500301]
00053> *# Date : 2025-02-24
00054> *# Modeller : [AA]
00055> *# Company : Stantec Consulting Ltd. (London)
00056> *# License # : 4730904
00057> *# *****
00058> *# *****
00059> *# *****
00060> *# This model represents the hydrologic characteristics of the Site Alteration
00061> *# conditions.
00062> *# Storm events modeled are:
00063> *# 2YR, 5YR, 10YR, 25YR, 50YR,
00064> *# and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
00065> *# 25 mm 4hr Chicago Storm
00066> *# Regional Storm Event: 48hr Hurricane Hazel
00067> *# *****
00068> *# *****
00069> *# *****
00070> | START | Project dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00071> |-----| Rainfall dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00072> | TZERO = .00 hrs on 0
00073> | METOUT= 2 (output = METRIC)
00074> | NRUN = 001
00075> | NSTORM= 1
00076> | # 1=ldn25mm.4hr
00077> |-----|
00078> 001:0002-----
00079> *# *****
00080> | READ STORM | Filename: 25mm, 4hr Chicago Storm from London IDF
00081> | Ptotal= 25.05 mm | Comments: 25mm, 4hr Chicago Storm from London IDF
00082> |-----|
00083> | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
00084> | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr |
00085> |.08 1.406 | 1.08 6.875 | 2.08 4.268 | 3.08 1.931 |
00086> |.17 1.497 | 1.17 10.874 | 2.17 3.856 | 3.17 1.851 |
00087> |.25 1.601 | 1.25 25.649 | 2.25 3.521 | 3.25 1.779 |
00088> |.33 1.722 | 1.33 75.607 | 2.33 3.242 | 3.33 1.712 |
00089> |.42 1.866 | 1.42 33.194 | 2.42 3.006 | 3.42 1.650 |
00090> |.50 2.039 | 1.50 18.435 | 2.50 2.804 | 3.50 1.594 |
00091> |.58 2.251 | 1.58 12.551 | 2.58 2.629 | 3.58 1.541 |
00092> |.67 2.519 | 1.67 9.468 | 2.67 2.477 | 3.67 1.492 |
00093> |.75 2.866 | 1.75 7.594 | 2.75 2.342 | 3.75 1.446 |
00094> |.83 3.335 | 1.83 6.343 | 2.83 2.222 | 3.83 1.404 |
00095> |.92 4.007 | 1.92 5.451 | 2.92 2.115 | 3.92 1.364 |
00096> |1.00 5.048 | 2.00 4.784 | 3.00 2.018 | 4.00 1.326 |
00097> |-----|
00098> *# *****
00099> 001:0003-----
00100> *# *****
00101> *# *****
00102> *# Site Alt Conditions
00103> *# North to Sediment Basin 4 (N)
00104> *# *****
00105> *# *****
00106> *# *****
00107> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00
00108> | 01:N DT=.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00109> | U.H. Tp(hrs)= .220
00110> |-----|
00111> | Unit Hyd Qpeak (cms)= .898
00112> |-----|
00113> | PEAK FLOW (cms)= .183 (i)
00114> | TIME TO PEAK (hrs)= 1.600
00115> | RUNOFF VOLUME (mm)= 11.393
00116> | TOTAL RAINFALL (mm)= 25.048
00117> | RUNOFF COEFFICIENT = .455
00118> |-----|
00119> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00120> |-----|
00121> |-----|
00122> 001:0004-----
00123> *# *****
00124> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
00125> | IN>01:(N ) |
00126> | OUT<02:(Basin ) | *****
00127> |-----|
00128> | OUTFLOW STORAGE | OUTFLOW STORAGE |
00129> | (cms) (ha.m.) | (cms) (ha.m.) |
00130> |.000 .0000E+00 | .069 .1838E+00
00131> |.005 .3240E-01 | .084 .2261E+00
00132> |.008 .6740E-01 | .256 .2703E+00
00133> |.010 .1043E+00 | .576 .3162E+00
00134> |.048 .1431E+00 | .799 .3398E+00
00135> |-----|
00135> ROUTING RESULTS AREA QPEAK TPEAK R.V.
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00136> ----- (ha) (cms) (hrs) (mm)
00137> INFLOW >01: (N ) 5.17 .183 1.600 11.393
00138> OUTFLOW<02: (Basin ) 5.17 .007 4.300 11.393
00139> OVERFLOW<03: (Overfl) .00 .000 .000 .000
00140>
00141> TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
00142> CUMULATIVE TIME OF OVERFLOWS (hours)= .00
00143> PERCENTAGE OF TIME OVERFLOWING (%)= .00
00144>
00145>
00146> PEAK FLOW REDUCTION [Qout/Qin] (%)= 3.675
00147> TIME SHIFT OF PEAK FLOW (min)= 162.00
00148> MAXIMUM STORAGE USED (ha.m.)= 5.265E-01
00149>
00150> -----
00151> 001:0005-----
00152> *# *****
00153> *# *****
00154> *# Site Alt Conditions
00155> *# Center and East to Sediment Basin 2 (C) & (E)
00156> *# *****
00157> *# *****
00158> *# *****
00159> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00
00160> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00161> | U.H. Tp(hrs)= .110
00162> |-----|
00163> | Unit Hyd Qpeak (cms)= .538
00164> |-----|
00165> | PEAK FLOW (cms)= .080 (i)
00166> | TIME TO PEAK (hrs)= 1.450
00167> | RUNOFF VOLUME (mm)= 11.393
00168> | TOTAL RAINFALL (mm)= 25.048
00169> | RUNOFF COEFFICIENT = .455
00170> |-----|
00171> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00172> |-----|
00173> *# *****
00174> 001:0006-----
00175> *# *****
00176> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00
00177> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00178> | U.H. Tp(hrs)= .070
00179> |-----|
00180> | Unit Hyd Qpeak (cms)= .289
00181> |-----|
00182> | PEAK FLOW (cms)= .033 (i)
00183> | TIME TO PEAK (hrs)= 1.383
00184> | RUNOFF VOLUME (mm)= 11.393
00185> | TOTAL RAINFALL (mm)= 25.048
00186> | RUNOFF COEFFICIENT = .455
00187> |-----|
00188> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00189> |-----|
00190> *# *****
00191> 001:0007-----
00192> *# *****
00193> | ADD HYD (ToBasin2 ) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
00194> | (ha) (cms) (hrs) (mm) (cms) |
00195> | ID1 04:C 1.55 .080 1.45 11.39 .000
00196> | +ID2 05:E .53 .033 1.38 11.39 .000
00197> |-----|
00198> | SUM 06:ToBasin2 2.08 .111 1.43 11.39 .000
00199> |-----|
00200> | NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00201> |-----|
00202> *# *****
00203> 001:0008-----
00204> *# *****
00205> *# *****
00206> *# Site Alt Conditions
00207> *# West to Welland Canal (W)
00208> *# *****
00209> *# *****
00210> *# *****
00211> | DESIGN NASHYD | Area (ha)= .52 Curve Number (CN)=91.00
00212> | 07:W DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00213> | U.H. Tp(hrs)= .010
00214> |-----|
00215> | Unit Hyd Qpeak (cms)= 1.986
00216> |-----|
00217> | PEAK FLOW (cms)= .054 (i)
00218> | TIME TO PEAK (hrs)= 1.333
00219> | RUNOFF VOLUME (mm)= 11.393
00220> | TOTAL RAINFALL (mm)= 25.048
00221> | RUNOFF COEFFICIENT = .455
00222> |-----|
00223> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00224> |-----|
00225> | *** WARNING: Time step is too large for value of TP.
00226> | R.V. may be ok. Peak flow could be off.
00227> |-----|
00228> *# *****
00229> *# *****
00230> *# *****
00231> *# Site Alt Conditions
00232> *# South to Lyons Creek (S)
00233> *# *****
00234> *# *****
00235> *# *****
00236> | DESIGN NASHYD | Area (ha)= .39 Curve Number (CN)=91.00
00237> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00238> | U.H. Tp(hrs)= .050
00239> |-----|
00240> | Unit Hyd Qpeak (cms)= .298
00241> |-----|
00242> | PEAK FLOW (cms)= .028 (i)
00243> | TIME TO PEAK (hrs)= 1.367
00244> | RUNOFF VOLUME (mm)= 11.393
00245> | TOTAL RAINFALL (mm)= 25.048
00246> | RUNOFF COEFFICIENT = .455
00247> |-----|
00248> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00249> |-----|
00250> *# *****
00251> 001:0010-----
00252> *# END OF RUN : 1
00253> *# *****
00254> *# *****
00255> *# *****
00256> *# *****
00257> *# *****
00258> *# *****
00259> *# *****
00260> *# *****
00261> | START | Project dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00262> |-----| Rainfall dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00263> *# *****
00264> | METOUT= 2 (output = METRIC)
00265> | NRUN = 002
00266> | NSTORM= 1
00267> | # 1=002YR.HYD
00268> |-----|
00269> 002:0002-----
00270> *# *****
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00271> *# Project Name: [Project Eagle] Project Number: [161500301]
00272> *# Date : 2025-02-24
00273> *# Modeller : [AA]
00274> *# Company : Stantec Consulting Ltd. (London)
00275> *# License # : 4730904
00276> *#*****
00277> *#*****
00278> *#
00279> *# This model represents the hydrologic characteristics of the Site Alteration
00280> *# conditions.
00281> *# Storm events modeled are:
00282> *# 2YR, 5YR, 10YR, 25YR, 50YR,
00283> *# and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
00284> *# 25 mm 4hr Chicago Storm
00285> *# Regional Storm Event: 48hr Hurricane Hazel
00286> *#
00287> *#*****
00288> *#*****
00289> 002:0002-----
00290>
00291> | READ STORM | Filename: CHICAGO STORM 2 Years, 3hr from Colborne
00292> | Ptotal= 36.37 mm | Comments: CHICAGO STORM 2 Years, 3hr from Colborne
00293> |-----|
00294> TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
00295> hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
00296> .08 3.094 | .83 9.551 | 1.58 11.939 | 2.33 4.519
00297> .17 3.326 | .92 12.836 | 1.67 10.023 | 2.42 4.243
00298> .25 3.600 | 1.00 19.669 | 1.75 8.649 | 2.50 4.002
00299> .33 3.930 | 1.08 41.191 | 1.83 7.616 | 2.58 3.789
00300> .42 4.334 | 1.17 99.781 | 1.92 6.813 | 2.67 3.599
00301> .50 4.841 | 1.25 48.700 | 2.00 6.171 | 2.75 3.429
00302> .58 5.497 | 1.33 28.010 | 2.08 5.645 | 2.83 3.276
00303> .67 6.380 | 1.42 19.395 | 2.17 5.207 | 2.92 3.137
00304> .75 7.633 | 1.50 14.781 | 2.25 4.837 | 3.00 3.010
00305>
00306>
00307> 002:0003-----
00308> *#*****
00309> *#
00310> *# Site Alt Conditions
00311> *# North to Sediment Basin 4 (N)
00312> *#
00313> *#*****
00314>
00315> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00
00316> | 01:N DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00317> |-----| U.H. Tp(hrs)= .220
00318>
00319> Unit Hyd Qpeak (cms)= .898
00320>
00321> PEAK FLOW (cms)= .349 (i)
00322> TIME TO PEAK (hrs)= 1.433
00323> RUNOFF VOLUME (mm)= 20.269
00324> TOTAL RAINFALL (mm)= 36.371
00325> RUNOFF COEFFICIENT = .557
00326>
00327> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00328>
00329>
00330> 002:0004-----
00331>
00332> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
00333> | INP:03 |
00334> | OUT:02: (Basin ) | ***** OUTFLOW STORAGE TABLE *****
00335> |-----|
00336> OUTFLOW STORAGE | OUTFLOW STORAGE
00337> (cms) (ha.m.) | (cms) (ha.m.)
00338> .000 .0000E+00 | .069 .1838E+00
00339> .005 .3240E-01 | .084 .2261E+00
00340> .008 .6740E-01 | .256 .2703E+00
00341> .010 .1043E+00 | .576 .3162E+00
00342> .048 .1431E+00 | .799 .3398E+00
00343>
00344> ROUTING RESULTS AREA QPEAK TPEAK R.V.
00345> (ha) (cms) (hrs) (mm)
00346> INFLOW >01: (N ) 5.17 .349 1.433 20.269
00347> OUTFLOW<02: (Basin ) 5.17 .010 3.417 20.268
00348> OVERFLOW<03: (Overflow) .00 .000 .000 .000
00349>
00350> TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
00351> CUMULATIVE TIME OF OVERFLOWS (hours)= .00
00352> PERCENTAGE OF TIME OVERFLOWING (%)= .00
00353>
00354> PEAK FLOW REDUCTION [Qout/Qin](%)= 2.764
00355> TIME SHIFT OF PEAK FLOW (min)= 119.00
00356> MAXIMUM STORAGE USED (ha.m.)=.9786E-01
00357>
00358>
00359> 002:0005-----
00360> *#*****
00361> *#
00362> *# Site Alt Conditions
00363> *# Center and East to Sediment Basin 2 (C) & (E)
00364> *#
00365> *#*****
00366>
00367> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00
00368> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00369> |-----| U.H. Tp(hrs)= .110
00370>
00371> Unit Hyd Qpeak (cms)= .538
00372>
00373> PEAK FLOW (cms)= .150 (i)
00374> TIME TO PEAK (hrs)= 1.283
00375> RUNOFF VOLUME (mm)= 20.269
00376> TOTAL RAINFALL (mm)= 36.371
00377> RUNOFF COEFFICIENT = .557
00378>
00379> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00380>
00381>
00382> 002:0006-----
00383>
00384> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00
00385> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00386> |-----| U.H. Tp(hrs)= .070
00387>
00388> Unit Hyd Qpeak (cms)= .289
00389>
00390> PEAK FLOW (cms)= .061 (i)
00391> TIME TO PEAK (hrs)= 1.217
00392> RUNOFF VOLUME (mm)= 20.269
00393> TOTAL RAINFALL (mm)= 36.371
00394> RUNOFF COEFFICIENT = .557
00395>
00396> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00397>
00398>
00399> 002:0007-----
00400>
00401> | ADD HYD (ToBasin2 ) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
00402> |-----| (ha) (cms) (hrs) (mm) (cms)
00403> | 04:C 1.55 .150 1.28 20.27 .000
00404> +ID 05:E .53 .061 1.22 20.27 .000
00405> *****
```

```
00406> SUM 06:ToBasin2 2.08 .207 1.27 20.27 .000
00407>
00408> NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00409>
00410>
00411> 002:0008-----
00412> *#*****
00413> *#
00414> *# Site Alt Conditions
00415> *# West to Welland Canal (W)
00416> *#
00417> *#*****
00418>
00419> | DESIGN NASHYD | Area (ha)= .52 Curve Number (CN)=91.00
00420> | 07:W DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00421> |-----| U.H. Tp(hrs)= .010
00422>
00423> Unit Hyd Qpeak (cms)= 1.986
00424>
00425> PEAK FLOW (cms)= .091 (i)
00426> TIME TO PEAK (hrs)= 1.167
00427> RUNOFF VOLUME (mm)= 20.269
00428> TOTAL RAINFALL (mm)= 36.371
00429> RUNOFF COEFFICIENT = .557
00430>
00431> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00432>
00433> *** WARNING: Time step is too large for value of TP.
00434> R.V. may be ok. Peak flow could be off.
00435>
00436> 002:0009-----
00437> *#*****
00438> *#
00439> *# Site Alt Conditions
00440> *# South to Lyons Creek (S)
00441> *#
00442> *#*****
00443>
00444> | DESIGN NASHYD | Area (ha)= .39 Curve Number (CN)=91.00
00445> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00446> |-----| U.H. Tp(hrs)= .050
00447>
00448> Unit Hyd Qpeak (cms)= .298
00449>
00450> PEAK FLOW (cms)= .051 (i)
00451> TIME TO PEAK (hrs)= 1.183
00452> RUNOFF VOLUME (mm)= 20.269
00453> TOTAL RAINFALL (mm)= 36.371
00454> RUNOFF COEFFICIENT = .557
00455>
00456> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00457>
00458>
00459> 002:0010-----
00460>
00461> 002:0002-----
00462> ** END OF RUN : 4
00463>
00464> *****
00465>
00466>
00467>
00468>
00469>
00470>
00471> | START | Project dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00472> |-----| Rainfall dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00473> | TZERO = .00 hrs on
00474> | METOUT= 2 (output = METRIC)
00475> | NRUN = 005
00476> | NSTORM= 1
00477> | # I=005YR.HYD
00478>
00479> 005:0002-----
00480> *#*****
00481> *# Project Name: [Project Eagle] Project Number: [161500301]
00482> *# Date : 2025-02-24
00483> *# Modeller : [AA]
00484> *# Company : Stantec Consulting Ltd. (London)
00485> *# License # : 4730904
00486> *#*****
00487> *#
00488> *#
00489> *# This model represents the hydrologic characteristics of the Site Alteration
00490> *# conditions.
00491> *# Storm events modeled are:
00492> *# 2YR, 5YR, 10YR, 25YR, 50YR,
00493> *# and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
00494> *# 25 mm 4hr Chicago Storm
00495> *# Regional Storm Event: 48hr Hurricane Hazel
00496> *#
00497> *#*****
00498> *#*****
00499> 005:0002-----
00500>
00501> | READ STORM | Filename: CHICAGO STORM 5 Years, 3hr from Colborne
00502> | Ptotal= 42.70 mm | Comments: CHICAGO STORM 5 Years, 3hr from Colborne
00503> |-----|
00504> TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
00505> hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
00506> .08 3.757 | .83 11.211 | 1.58 13.931 | 2.33 5.426
00507> .17 4.031 | .92 14.951 | 1.67 11.750 | 2.42 5.105
00508> .25 4.353 | 1.00 22.713 | 1.75 10.182 | 2.50 4.823
00509> .33 4.739 | 1.08 47.493 | 1.83 9.000 | 2.58 4.573
00510> .42 5.210 | 1.17 118.092 | 1.92 8.078 | 2.67 4.351
00511> .50 5.800 | 1.25 56.211 | 2.00 7.339 | 2.75 4.151
00512> .58 6.560 | 1.33 32.225 | 2.08 6.732 | 2.83 3.971
00513> .67 7.579 | 1.42 22.401 | 2.17 6.225 | 2.92 3.808
00514> .75 9.019 | 1.50 17.161 | 2.25 5.795 | 3.00 3.658
00515>
00516>
00517> 005:0003-----
00518> *#*****
00519> *#
00520> *# Site Alt Conditions
00521> *# North to Sediment Basin 4 (N)
00522> *#
00523> *#*****
00524>
00525> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00
00526> | 01:N DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
00527> |-----| U.H. Tp(hrs)= .220
00528>
00529> Unit Hyd Qpeak (cms)= .898
00530>
00531> PEAK FLOW (cms)= .443 (i)
00532> TIME TO PEAK (hrs)= 1.417
00533> RUNOFF VOLUME (mm)= 25.595
00534> TOTAL RAINFALL (mm)= 42.701
00535> RUNOFF COEFFICIENT = .599
00536>
00537> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00538>
00539>
00540> 005:0004-----
```

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00541> -----
00542> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
00543> | IN>01:(N ) |
00544> | OUT<02:(Basin ) |
00545> -----
00546> | OUTFLOW STORAGE | OUTFLOW STORAGE |
00547> | (cms) (ha.m.) | (cms) (ha.m.) |
00548> | .000 .0000E+00 | .069 .1838E+00 |
00549> | .005 .3240E-01 | .084 .2261E+00 |
00550> | .008 .6740E-01 | .256 .2703E+00 |
00551> | .010 .1043E+00 | .576 .3162E+00 |
00552> | .048 .1431E+00 | .799 .3398E+00 |
00553> -----
00554> | ROUTING RESULTS | AREA QPEAK TPEAK R.V. |
00555> | (ha) (cms) (hrs) (mm) |
00556> | INFLOW >01: (N ) | 5.17 .443 1.417 25.595 |
00557> | OUTFLOW<02: (Basin ) | 5.17 .026 3.267 25.594 |
00558> | OVERFLOW<03: (Overfl) | .00 .000 .000 .000 |
00559> -----
00560> | TOTAL NUMBER OF SIMULATED OVERFLOWS = 0 |
00561> | CUMULATIVE TIME OF OVERFLOWS (hours)= .00 |
00562> | PERCENTAGE OF TIME OVERFLOWING (%)= .00 |
00563> -----
00564> | PEAK FLOW REDUCTION [Qout/Qin](%)= 5.801 |
00565> | TIME SHIFT OF PEAK FLOW (min)= 111.00 |
00566> | MAXIMUM STORAGE USED (ha.m.)=.1203E+00 |
00567> -----
00568> -----
00569> 005:0005-----
00570> * Site Alt Conditions
00571> * Center and East to Sediment Basin 2 (C) & (E)
00572> *
00573> *
00574> *
00575> *
00576> -----
00577> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00 |
00578> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00579> | U.H. Tp(hrs)= .110 |
00580> -----
00581> | Unit Hyd Qpeak (cms)= .538 |
00582> | PEAK FLOW (cms)= .191 (i) |
00583> | TIME TO PEAK (hrs)= 1.283 |
00584> | RUNOFF VOLUME (mm)= 25.595 |
00585> | TOTAL RAINFALL (mm)= 42.701 |
00586> | RUNOFF COEFFICIENT = .599 |
00587> -----
00588> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
00589> -----
00590> -----
00591> -----
00592> 005:0006-----
00593> -----
00594> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00 |
00595> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00596> | U.H. Tp(hrs)= .070 |
00597> -----
00598> | Unit Hyd Qpeak (cms)= .289 |
00599> | PEAK FLOW (cms)= .079 (i) |
00600> | TIME TO PEAK (hrs)= 1.217 |
00601> | RUNOFF VOLUME (mm)= 25.595 |
00602> | TOTAL RAINFALL (mm)= 42.701 |
00603> | RUNOFF COEFFICIENT = .599 |
00604> -----
00605> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
00606> -----
00607> -----
00608> -----
00609> 005:0007-----
00610> -----
00611> | ADD HYD (ToBasin2 ) | ID: NHYD AREA QPEAK TPEAK R.V. DWF |
00612> | (ha) (cms) (hrs) (mm) (cms) |
00613> | ID: 04:C DT= 1.00 | 1.55 .191 1.28 25.59 .000 |
00614> | +ID: 05:E DT= 1.00 | .53 .079 1.22 25.59 .000 |
00615> | SUM 06:ToBasin2 | 2.08 .263 1.27 25.59 .000 |
00616> -----
00617> | NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. |
00618> -----
00619> -----
00620> -----
00621> 005:0008-----
00622> * Site Alt Conditions
00623> * West to Welland Canal (W)
00624> *
00625> *
00626> *
00627> *
00628> -----
00629> | DESIGN NASHYD | Area (ha)= .52 Curve Number (CN)=91.00 |
00630> | 07:W DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00631> | U.H. Tp(hrs)= .010 |
00632> -----
00633> | Unit Hyd Qpeak (cms)= 1.986 |
00634> | PEAK FLOW (cms)= .116 (i) |
00635> | TIME TO PEAK (hrs)= 1.167 |
00636> | RUNOFF VOLUME (mm)= 25.595 |
00637> | TOTAL RAINFALL (mm)= 42.701 |
00638> | RUNOFF COEFFICIENT = .599 |
00639> -----
00640> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
00641> -----
00642> | *** WARNING: Time step is too large for value of TP. |
00643> | R.V. may be ok. Peak flow could be off. |
00644> -----
00645> -----
00646> 005:0009-----
00647> * Site Alt Conditions
00648> * South to Lyons Creek (S)
00649> *
00650> *
00651> *
00652> *
00653> -----
00654> | DESIGN NASHYD | Area (ha)= .39 Curve Number (CN)=91.00 |
00655> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00656> | U.H. Tp(hrs)= .050 |
00657> -----
00658> | Unit Hyd Qpeak (cms)= .298 |
00659> | PEAK FLOW (cms)= .066 (i) |
00660> | TIME TO PEAK (hrs)= 1.183 |
00661> | RUNOFF VOLUME (mm)= 25.595 |
00662> | TOTAL RAINFALL (mm)= 42.701 |
00663> | RUNOFF COEFFICIENT = .599 |
00664> -----
00665> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
00666> -----
00667> -----
00668> -----
00669> 005:0010-----
00670> -----
00671> 005:0002-----
00672> * END OF RUN : 9
00673> -----
00674> -----
00675> -----
```

```
00676> *****
00677> *****
00678> *****
00679> *****
00680> *****
00681> *****
00682> | START | Project dir.: C:\SWMMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00683> | | Rainfall dir.: C:\SWMMMOD-1\SWMHYMO\PROJEC-1\sitealt\
00684> -----
00685> | TZERO = .00 hrs on 0 |
00686> | METOUT= 2 (output = METRIC) |
00687> | NRUN = 010 |
00688> | NSTORM= 1 |
00689> | # 1=10YR.HYD |
00690> -----
00691> 010:0002-----
00692> * Project Name: [Project Eagle] Project Number: [161500301]
00693> *
00694> * Date : 2025-02-24
00695> * Modeller : [AA]
00696> * Company : Stantec Consulting Ltd. (London)
00697> * License # : 4730904
00698> *
00699> *
00700> *
00701> * This model represents the hydrologic characteristics of the Site Alteration
00702> * conditions.
00703> * Storm events modeled are:
00704> * 2YR, 5YR, 10YR, 25YR, 50YR,
00705> * and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
00706> * 25 mm 4hr Chicago Storm
00707> * Regional Storm Event: 48hr Hurricane Hazel
00708> *
00709> *
00710> -----
00711> 010:0002-----
00712> | READ STORM | Filename: CHICAGO STORM 10 Years, 3hr from Colborn
00713> | | Comments: CHICAGO STORM 10 Years, 3hr from Colborn
00714> | Ptotal= 47.76 mm |
00715> -----
00716> | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
00717> | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr |
00718> | .08 4.368 | .83 12.544 | 1.58 15.478 | 2.33 6.229 |
00719> | .17 4.675 | .92 16.574 | 1.67 13.127 | 2.42 5.873 |
00720> | .25 5.035 | 1.00 24.913 | 1.75 11.431 | 2.50 5.560 |
00721> | .33 5.466 | 1.08 51.922 | 1.83 10.148 | 2.58 5.282 |
00722> | .42 5.990 | 1.17 133.409 | 1.92 9.144 | 2.67 5.034 |
00723> | .50 6.643 | 1.25 61.515 | 2.00 8.335 | 2.75 4.810 |
00724> | .58 7.481 | 1.33 35.164 | 2.08 7.670 | 2.83 4.608 |
00725> | .67 8.598 | 1.42 24.576 | 2.17 7.113 | 2.92 4.424 |
00726> | .75 10.168 | 1.50 18.949 | 2.25 6.638 | 3.00 4.256 |
00727> -----
00728> -----
00729> 010:0003-----
00730> * Site Alt Conditions
00731> * North to Sediment Basin 4 (N)
00732> *
00733> *
00734> *
00735> *
00736> -----
00737> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00 |
00738> | 01:N DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00739> | U.H. Tp(hrs)= .220 |
00740> -----
00741> | Unit Hyd Qpeak (cms)= .898 |
00742> | PEAK FLOW (cms)= .518 (i) |
00743> | TIME TO PEAK (hrs)= 1.417 |
00744> | RUNOFF VOLUME (mm)= 29.982 |
00745> | TOTAL RAINFALL (mm)= 47.763 |
00746> | RUNOFF COEFFICIENT = .628 |
00747> -----
00748> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
00749> -----
00750> -----
00751> -----
00752> 010:0004-----
00753> -----
00754> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
00755> | IN>01:(N ) |
00756> | OUT<02:(Basin ) |
00757> -----
00758> | OUTFLOW STORAGE | OUTFLOW STORAGE |
00759> | (cms) (ha.m.) | (cms) (ha.m.) |
00760> | .000 .0000E+00 | .069 .1838E+00 |
00761> | .005 .3240E-01 | .084 .2261E+00 |
00762> | .008 .6740E-01 | .256 .2703E+00 |
00763> | .010 .1043E+00 | .576 .3162E+00 |
00764> | .048 .1431E+00 | .799 .3398E+00 |
00765> -----
00766> | ROUTING RESULTS | AREA QPEAK TPEAK R.V. |
00767> | (ha) (cms) (hrs) (mm) |
00768> | INFLOW >01: (N ) | 5.17 .518 1.417 29.982 |
00769> | OUTFLOW<02: (Basin ) | 5.17 .041 3.200 29.982 |
00770> | OVERFLOW<03: (Overfl) | .00 .000 .000 .000 |
00771> -----
00772> | TOTAL NUMBER OF SIMULATED OVERFLOWS = 0 |
00773> | CUMULATIVE TIME OF OVERFLOWS (hours)= .00 |
00774> | PERCENTAGE OF TIME OVERFLOWING (%)= .00 |
00775> -----
00776> | PEAK FLOW REDUCTION [Qout/Qin](%)= 7.824 |
00777> | TIME SHIFT OF PEAK FLOW (min)= 107.00 |
00778> | MAXIMUM STORAGE USED (ha.m.)=.1355E+00 |
00779> -----
00780> -----
00781> 010:0005-----
00782> * Site Alt Conditions
00783> * Center and East to Sediment Basin 2 (C) & (E)
00784> *
00785> *
00786> *
00787> *
00788> -----
00789> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00 |
00790> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00791> | U.H. Tp(hrs)= .110 |
00792> -----
00793> | Unit Hyd Qpeak (cms)= .538 |
00794> | PEAK FLOW (cms)= .225 (i) |
00795> | TIME TO PEAK (hrs)= 1.267 |
00796> | RUNOFF VOLUME (mm)= 29.982 |
00797> | TOTAL RAINFALL (mm)= 47.763 |
00798> | RUNOFF COEFFICIENT = .628 |
00799> -----
00800> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
00801> -----
00802> -----
00803> -----
00804> 010:0006-----
00805> -----
00806> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00 |
00807> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00 |
00808> | U.H. Tp(hrs)= .070 |
00809> -----
00810> | Unit Hyd Qpeak (cms)= .289 |
```



```

00811>
00812> PEAK FLOW (cms)= .093 (i)
00813> TIME TO PEAK (hrs)= 1.217
00814> RUNOFF VOLUME (mm)= 29.982
00815> TOTAL RAINFALL (mm)= 47.763
00816> RUNOFF COEFFICIENT = .628
00817>
00818> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00819>
00820> -----
00821> 010:0007-----
00822> -----
00823> | ADD HYD (ToBasin2 ) | ID: NHYD | AREA (ha) | QPEAK (cms) | TPEAK (hrs) | R.V. (mm) | DWF (cms)
00824> -----
00825> | ID1 04:C | | | 1.55 | .225 | 1.27 | 29.98 | .000
00826> | +ID2 05:E | | | .53 | .093 | 1.22 | 29.98 | .000
00827> -----
00828> SUM 06:ToBasin2 | 2.08 | .310 | 1.25 | 29.98 | .000
00829>
00830> NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
00831>
00832> -----
00833> 010:0003-----
00834> *# Site Alt Conditions
00835> *# West to Welland Canal (W)
00836> *#
00837> *#
00838> *#
00839> *#
00840> -----
00841> | DESIGN NASHYD | Area (ha)= .52 | Curve Number (CN)=91.00
00842> | 07:W DT= 1.00 | Ia (mm)= 1.500 | # of Linear Res. (N)= 3.00
00843> | U.H. Tp(hrs)= .010
00844>
00845> Unit Hyd Qpeak (cms)= 1.986
00846>
00847> PEAK FLOW (cms)= .138 (i)
00848> TIME TO PEAK (hrs)= 1.183
00849> RUNOFF VOLUME (mm)= 29.982
00850> TOTAL RAINFALL (mm)= 47.763
00851> RUNOFF COEFFICIENT = .628
00852>
00853> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00854>
00855> *** WARNING: Time step is too large for value of TP.
00856> R.V. may be ok. Peak flow could be off.
00857> -----
00858> 010:0008-----
00859> *# Site Alt Conditions
00860> *# South to Lyons Creek (S)
00861> *#
00862> *#
00863> *#
00864> *#
00865> -----
00866> | DESIGN NASHYD | Area (ha)= .39 | Curve Number (CN)=91.00
00867> | 08:S DT= 1.00 | Ia (mm)= 1.500 | # of Linear Res. (N)= 3.00
00868> | U.H. Tp(hrs)= .050
00869>
00870> Unit Hyd Qpeak (cms)= .298
00871>
00872> PEAK FLOW (cms)= .079 (i)
00873> TIME TO PEAK (hrs)= 1.183
00874> RUNOFF VOLUME (mm)= 29.982
00875> TOTAL RAINFALL (mm)= 47.763
00876> RUNOFF COEFFICIENT = .628
00877>
00878> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00879>
00880> -----
00881> 010:0010-----
00882> -----
00883> 010:0002-----
00884> -----
00885> 010:0002-----
00886> -----
00887> 010:0002-----
00888> ** END OF RUN : 24
00889>
00890> -----
00891>
00892>
00893>
00894>
00895>
00896> -----
00897> | START | Project dir.: C:\SWMOD-1\SWMHYMO\PROJEC-1\sitealt\
00898> | Rainfall dir.: C:\SWMOD-1\SWMHYMO\PROJEC-1\sitealt\
00899> TZERO = .00 hrs on
00900> METOUT= 2 (output= METRIC)
00901> NRUN = 025
00902> NSTORM= 1
00903> # 1=25YR HYD
00904>
00905> 025:0002-----
00906> *# Project Name: [Project Eagle] Project Number: [161500301]
00907> *# Date: 2015-02-24
00908> *# Modeller : [AA]
00909> *# Company : Stantec Consulting Ltd. (London)
00910> *# License # : 4730904
00911> *#
00912> *#
00913> *#
00914> *#
00915> *# This model represents the hydrologic characteristics of the Site Alteration
00916> *# conditions.
00917> *# Storm events modeled are:
00918> *# 2YR, 5YR, 10YR, 25YR, 50YR,
00919> *# and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
00920> *# 25 mm 4hr Chicago Storm
00921> *# Regional Storm Event: 48hr Hurricane Hazel
00922> *#
00923> *#
00924> -----
00925> 025:0002-----
00926> -----
00927> | READ STORM | Filename: CHICAGO STORM 25 Years, 3hr from Colborn
00928> | Ptotal= 55.20 mm | Comments: CHICAGO STORM 25 Years, 3hr from Colborn
00929> -----
00930>
00931> TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
00932> hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
00933> .08 5.275 | .83 14.397 | 1.58 17.590 | 2.33 7.402
00934> .17 5.629 | .92 18.778 | 1.67 15.034 | 2.42 6.998
00935> .25 6.043 | 1.00 27.803 | 1.75 13.180 | 2.50 6.642
00936> .33 6.535 | 1.08 57.841 | 1.83 11.770 | 2.58 6.325
00937> .42 7.131 | 1.17 159.527 | 1.92 10.661 | 2.67 6.041
00938> .50 7.869 | 1.25 68.696 | 2.00 9.764 | 2.75 5.785
00939> .58 8.810 | 1.33 38.966 | 2.08 9.022 | 2.83 5.552
00940> .67 10.056 | 1.42 27.436 | 2.17 8.397 | 2.92 5.340
00941> .75 11.792 | 1.50 21.350 | 2.25 7.863 | 3.00 5.146
00942>
00943> 025:0003-----
00944> *#
00945> *#

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00946> *# Site Alt Conditions
00947> *# North to Sediment Basin 4 (N)
00948> *#
00949> *#
00950> *#
00951> | DESIGN NASHYD | Area (ha)= 5.17 | Curve Number (CN)=91.00
00952> | 01:N DT= 1.00 | Ia (mm)= 1.500 | # of Linear Res. (N)= 3.00
00953> | U.H. Tp(hrs)= .220
00954>
00955> Unit Hyd Qpeak (cms)= .898
00956>
00957> PEAK FLOW (cms)= .635 (i)
00958> TIME TO PEAK (hrs)= 1.400
00959> RUNOFF VOLUME (mm)= 36.589
00960> TOTAL RAINFALL (mm)= 55.204
00961> RUNOFF COEFFICIENT = .663
00962>
00963> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
00964>
00965> -----
00966> 025:0004-----
00967> -----
00968> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
00969> | IN>01:(N) |
00970> | OUT<02:(Basin ) |
00971> -----
00972> | OUTFLOW STORAGE | OUTFLOW STORAGE
00973> (cms) (ha.m.) | (cms) (ha.m.)
00974> .000 .0000E+00 | .069 .1838E+00
00975> .005 .3240E-01 | .084 .2261E+00
00976> .008 .6740E-01 | .256 .2703E+00
00977> .010 .1043E+00 | .576 .3162E+00
00978> .048 .1431E+00 | .799 .3398E+00
00979>
00980> ROUTING RESULTS AREA QPEAK TPEAK R.V.
00981> (ha) (cms) (hrs) (mm)
00982> INFLOW >01: (N) 5.17 .635 1.400 36.589
00983> OUTFLOW<02: (Basin ) 5.17 .056 3.167 36.587
00984> OVERFLOW<03: (Overfl) .00 .000 .000 .000
00985>
00986> TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
00987> CUMULATIVE TIME OF OVERFLOWS (hours)= .00
00988> PERCENTAGE OF TIME OVERFLOWING (%)= .00
00989>
00990> PEAK FLOW REDUCTION [Qout/Qin] (%)= 8.834
00991> TIME SHIFT OF PEAK FLOW (min)= 106.00
00992> MAXIMUM STORAGE USED (ha.m.)= 1.587E+00
00993>
00994> -----
00995> 025:0005-----
00996> *#
00997> *#
00998> *# Site Alt Conditions
00999> *# Center and East to Sediment Basin 2 (C) & (E)
01000> *#
01001> *#
01002> -----
01003> | DESIGN NASHYD | Area (ha)= 1.55 | Curve Number (CN)=91.00
01004> | 04:C DT= 1.00 | Ia (mm)= 1.500 | # of Linear Res. (N)= 3.00
01005> | U.H. Tp(hrs)= .110
01006>
01007> Unit Hyd Qpeak (cms)= .538
01008>
01009> PEAK FLOW (cms)= .279 (i)
01010> TIME TO PEAK (hrs)= 1.267
01011> RUNOFF VOLUME (mm)= 36.589
01012> TOTAL RAINFALL (mm)= 55.204
01013> RUNOFF COEFFICIENT = .663
01014>
01015> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01016>
01017> -----
01018> 025:0006-----
01019> -----
01020> | DESIGN NASHYD | Area (ha)= .53 | Curve Number (CN)=91.00
01021> | 05:E DT= 1.00 | Ia (mm)= 1.500 | # of Linear Res. (N)= 3.00
01022> | U.H. Tp(hrs)= .070
01023>
01024> Unit Hyd Qpeak (cms)= .289
01025>
01026> PEAK FLOW (cms)= .117 (i)
01027> TIME TO PEAK (hrs)= 1.217
01028> RUNOFF VOLUME (mm)= 36.589
01029> TOTAL RAINFALL (mm)= 55.204
01030> RUNOFF COEFFICIENT = .663
01031>
01032> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01033>
01034> -----
01035> 025:0007-----
01036> -----
01037> | ADD HYD (ToBasin2 ) | ID: NHYD | AREA (ha) | QPEAK (cms) | TPEAK (hrs) | R.V. (mm) | DWF (cms)
01038> -----
01039> | ID1 04:C | | | 1.55 | .279 | 1.27 | 36.59 | .000
01040> | +ID2 05:E | | | .53 | .117 | 1.22 | 36.59 | .000
01041> -----
01042> SUM 06:ToBasin2 | 2.08 | .385 | 1.25 | 36.59 | .000
01043>
01044> NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01045>
01046> -----
01047> 025:0008-----
01048> *#
01049> *#
01050> *# Site Alt Conditions
01051> *# West to Welland Canal (W)
01052> *#
01053> *#
01054> *#
01055> | DESIGN NASHYD | Area (ha)= .52 | Curve Number (CN)=91.00
01056> | 07:W DT= 1.00 | Ia (mm)= 1.500 | # of Linear Res. (N)= 3.00
01057> | U.H. Tp(hrs)= .010
01058>
01059> Unit Hyd Qpeak (cms)= 1.986
01060>
01061> PEAK FLOW (cms)= .174 (i)
01062> TIME TO PEAK (hrs)= 1.167
01063> RUNOFF VOLUME (mm)= 36.589
01064> TOTAL RAINFALL (mm)= 55.204
01065> RUNOFF COEFFICIENT = .663
01066>
01067> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01068>
01069> *** WARNING: Time step is too large for value of TP.
01070> R.V. may be ok. Peak flow could be off.
01071> -----
01072> 025:0009-----
01073> *#
01074> *#
01075> *# Site Alt Conditions
01076> *# South to Lyons Creek (S)
01077> *#
01078> *#
01079> *#
01080> | DESIGN NASHYD | Area (ha)= .39 | Curve Number (CN)=91.00

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01081> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01082> ----- U.H. Tp(hrs)= .050
01083>
01084> Unit Hyd Qpeak (cms)= .298
01085>
01086> PEAK FLOW (cms)= .100 (i)
01087> TIME TO PEAK (hrs)= 1.183
01088> RUNOFF VOLUME (mm)= 36.588
01089> TOTAL RAINFALL (mm)= 55.204
01090> RUNOFF COEFFICIENT = .663
01091>
01092> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01093> -----
01094>
01095> 025:0010-----
01096> -----
01097> 025:0002-----
01098> -----
01099> 025:0002-----
01100> -----
01101> 025:0002-----
01102> -----
01103> 025:0002-----
01104> ** END OF RUN : 49
01105> -----
01106> *****
01107>
01108> | START | Project dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
01109> | Rainfall dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
01110>
01111> TZERO = .00 hrs on 0
01112> METOUT= 2 (output= METRIC)
01113> NRUN = 050
01114> NSTORM= 1
01115> # 1=50YR.HYD
01116> -----
01117> 050:0002-----
01118> *****
01119> Project Name: [Project Eagle] Project Number: [161500301]
01120>
01121> # Date : 2025-02-24
01122>
01123> # Modeller : [AA]
01124>
01125> # Company : Stantec Consulting Ltd. (London)
01126>
01127> # License # : 4730904
01128> *****
01129> *****
01130> #
01131> # This model represents the hydrologic characteristics of the Site Alteration
01132> # conditions.
01133> # Storm events modeled are:
01134> # 2YR, 5YR, 10YR, 25YR, 50YR,
01135> # and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
01136> # 25 mm 4hr Chicago Storm
01137> # Regional Storm Event: 48hr Hurricane Hazel
01138> #
01139> *****
01140> -----
01141> 050:0002-----
01142> -----
01143> | READ STORM | Filename: CHICAGO STORM 50 Years, 3hr from Colborn
01144> | Ptotal= 61.74 mm | Comments: CHICAGO STORM 50 Years, 3hr from Colborn
01145> -----
01146> TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
01147> hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
01148> .08 6.075 | .83 16.290 | 1.58 19.828 | 2.33 8.476
01149> .17 6.475 | .92 21.140 | 1.67 16.997 | 2.42 8.022
01150> .25 6.944 | 1.00 31.074 | 1.75 14.937 | 2.50 7.620
01151> .33 7.499 | 1.08 63.899 | 1.83 13.368 | 2.58 7.262
01152> .42 8.171 | 1.17 175.021 | 1.92 12.130 | 2.67 6.941
01153> .50 9.001 | 1.25 75.740 | 2.00 11.127 | 2.75 6.652
01154> .58 10.058 | 1.33 43.302 | 2.08 10.296 | 2.83 6.389
01155> .67 11.453 | 1.42 30.673 | 2.17 9.595 | 2.92 6.149
01156> .75 13.392 | 1.50 23.979 | 2.25 8.996 | 3.00 5.929
01157> -----
01158> -----
01159> 050:0003-----
01160> *****
01161> #
01162> # Site Alt Conditions
01163> # North to Sediment Basin 4 (N)
01164> #
01165> *****
01166> -----
01167> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00
01168> | 01:N DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01169> | U.H. Tp(hrs)= .220
01170> -----
01171> Unit Hyd Qpeak (cms)= .898
01172>
01173> PEAK FLOW (cms)= .731 (i)
01174> TIME TO PEAK (hrs)= 1.400
01175> RUNOFF VOLUME (mm)= 42.514
01176> TOTAL RAINFALL (mm)= 61.742
01177> RUNOFF COEFFICIENT = .689
01178>
01179> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01180> -----
01181> -----
01182> 050:0004-----
01183> -----
01184> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
01185> | IN>01:(N ) |
01186> | OUT<02:(Basin ) |
01187> -----
01188> OUTFLOW STORAGE | OUTFLOW STORAGE
01189> (cms) (ha.m.) | (cms) (ha.m.)
01190> .000 .0000E+00 | .069 .1838E+00
01191> .005 .3240E-01 | .084 .2261E+00
01192> .008 .6740E-01 | .256 .2703E+00
01193> .010 .1043E+00 | .576 .3162E+00
01194> .048 .1431E+00 | .799 .3398E+00
01195> -----
01196> ROUTING RESULTS AREA QPEAK TPEAK R.V.
01197> (ha) (cms) (hrs) (mm)
01198> INFLOW>01: (N ) 5.17 .731 1.400 42.514
01199> OUTFLOW<02: (Basin ) 5.17 .068 3.167 42.512
01200> OVERFLOW<03: (Overfl) .00 .000 .000 .000
01201>
01202> TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
01203> CUMULATIVE TIME OF OVERFLOWS (hours)= .00
01204> PERCENTAGE OF TIME OVERFLOWING (%) = .00
01205>
01206> PEAK FLOW REDUCTION [Qout/Qin] (%) = 9.265
01207> TIME SHIFT OF PEAK FLOW (min)= 106.00
01208> MAXIMUM STORAGE USED (ha.m.)=.1814E+00
01209> -----
01210> -----
01211> 050:0005-----
01212> *****
01213> #
01214> # Site Alt Conditions
01215> # Center and East to Sediment Basin 2 (C) & (E)
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```
01216> #*
01217> *****
01218> -----
01219> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00
01220> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01221> | U.H. Tp(hrs)= .110
01222> -----
01223> Unit Hyd Qpeak (cms)= .538
01224>
01225> PEAK FLOW (cms)= .320 (i)
01226> TIME TO PEAK (hrs)= 1.267
01227> RUNOFF VOLUME (mm)= 42.514
01228> TOTAL RAINFALL (mm)= 61.742
01229> RUNOFF COEFFICIENT = .689
01230>
01231> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01232> -----
01233> -----
01234> 050:0006-----
01235> -----
01236> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00
01237> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01238> | U.H. Tp(hrs)= .070
01239> -----
01240> Unit Hyd Qpeak (cms)= .289
01241>
01242> PEAK FLOW (cms)= .134 (i)
01243> TIME TO PEAK (hrs)= 1.217
01244> RUNOFF VOLUME (mm)= 42.513
01245> TOTAL RAINFALL (mm)= 61.742
01246> RUNOFF COEFFICIENT = .689
01247>
01248> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01249> -----
01250> -----
01251> 050:0007-----
01252> -----
01253> | ADD HYD (ToBasin2 ) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
01254> (ha) (cms) (hrs) (mm) (cms)
01255> ID1 04:C 1.55 .320 1.27 42.51 .000
01256> +ID2 05:E .53 .134 1.22 42.51 .000
01257> -----
01258> SUM 06:ToBasin2 2.08 .442 1.25 42.51 .000
01259> -----
01260> NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01261> -----
01262> -----
01263> -----
01264> #*
01265> #*
01266> #* Site Alt Conditions
01267> #* West to Welland Canal (W)
01268> #*
01269> *****
01270> -----
01271> | DESIGN NASHYD | Area (ha)= .52 Curve Number (CN)=91.00
01272> | 07:W DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01273> | U.H. Tp(hrs)= .010
01274> -----
01275> Unit Hyd Qpeak (cms)= 1.986
01276>
01277> PEAK FLOW (cms)= .198 (i)
01278> TIME TO PEAK (hrs)= 1.167
01279> RUNOFF VOLUME (mm)= 42.513
01280> TOTAL RAINFALL (mm)= 61.742
01281> RUNOFF COEFFICIENT = .689
01282>
01283> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01284> -----
01285> *** WARNING: Time step is too large for value of TP.
01286> R.V. may be ok. Peak flow could be off.
01287> -----
01288> *****
01289> #*
01290> #*
01291> #* Site Alt Conditions
01292> #* South to Lyons Creek (S)
01293> #*
01294> *****
01295> -----
01296> | DESIGN NASHYD | Area (ha)= .39 Curve Number (CN)=91.00
01297> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01298> | U.H. Tp(hrs)= .050
01299> -----
01300> Unit Hyd Qpeak (cms)= .298
01301>
01302> PEAK FLOW (cms)= .114 (i)
01303> TIME TO PEAK (hrs)= 1.183
01304> RUNOFF VOLUME (mm)= 42.513
01305> TOTAL RAINFALL (mm)= 61.742
01306> RUNOFF COEFFICIENT = .689
01307>
01308> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01309> -----
01310> -----
01311> 050:0010-----
01312> -----
01313> 050:0002-----
01314> -----
01315> 050:0002-----
01316> -----
01317> 050:0002-----
01318> -----
01319> 050:0002-----
01320> -----
01321> 050:0002-----
01322> ** END OF RUN : 99
01323> -----
01324> *****
01325> -----
01326> -----
01327> -----
01328> -----
01329> -----
01330> -----
01331> | START | Project dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
01332> | Rainfall dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitealt\
01333>
01334> TZERO = .00 hrs on
01335> METOUT= 2 (output= METRIC)
01336> NRUN = 100
01337> NSTORM= 1
01338> # 1=100YR.HYD
01339> -----
01340> 100:0002-----
01341> *****
01342> Project Name: [Project Eagle] Project Number: [161500301]
01343> # Date : 2025-02-24
01344> # Modeller : [AA]
01345> # Company : Stantec Consulting Ltd. (London)
01346> # License # : 4730904
01347> *****
01348> #*
01349> #* This model represents the hydrologic characteristics of the Site Alteration
01350> #* conditions.
```

```
01351> *# Storm events modeled are:
01352> *# 2YR, 5YR, 10YR, 25YR, 50YR,
01353> *# and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
01354> *# 25 mm 4hr Chicago Storm
01355> *# Regional Storm Event: 48hr Hurricane Hazel
01356> *#
01357> *****
01358> -----
01359> 100:0002-----
01360> -----
01361> | READ STORM | Filename: CHICAGO STORM 100 Years, 3hr from Colbor
01362> | Ptotal= 67.44 mm | Comments: CHICAGO STORM 100 Years, 3hr from Colbor
01363> -----
01364> | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
01365> | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr |
01366> | .08 6.710 | .83 17.742 | 1.58 21.533 | 2.33 9.322 |
01367> | .17 7.147 | .92 22.937 | 1.67 18.501 | 2.42 8.828 |
01368> | .25 7.657 | 1.00 33.556 | 1.75 16.290 | 2.50 8.392 |
01369> | .33 8.261 | 1.08 68.925 | 1.83 14.603 | 2.58 8.003 |
01370> | .42 8.890 | 1.17 193.763 | 1.92 13.270 | 2.67 7.654 |
01371> | .50 9.891 | 1.25 81.753 | 2.00 12.188 | 2.75 7.339 |
01372> | .58 11.034 | 1.33 46.644 | 2.08 11.291 | 2.83 7.052 |
01373> | .67 12.541 | 1.42 33.126 | 2.17 10.533 | 2.92 6.791 |
01374> | .75 14.629 | 1.50 25.972 | 2.25 9.884 | 3.00 6.551 |
01375> -----
01376> -----
01377> 100:0003-----
01378> *****
01379> *#
01380> *# Site Alt Conditions
01381> *# North to Sediment Basin 4 (N)
01382> *#
01383> *****
01384> -----
01385> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00
01386> | 01:N DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01387> | U.H. Tp(hrs)= .220 |
01388> -----
01389> | Unit Hyd Qpeak (cms)= .898 |
01390> -----
01391> | PEAK FLOW (cms)= .825 (i) |
01392> | TIME TO PEAK (hrs)= 1.400 |
01393> | RUNOFF VOLUME (mm)= 47.751 |
01394> | TOTAL RAINFALL (mm)= 67.442 |
01395> | RUNOFF COEFFICIENT = .708 |
01396> -----
01397> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
01398> -----
01399> -----
01400> 100:0004-----
01401> -----
01402> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
01403> | INF:01 (N ) |
01404> | OUT:02 (Basin ) |
01405> -----
01406> | OUTFLOW STORAGE | OUTFLOW STORAGE |
01407> | (cms) (ha.m.) | (cms) (ha.m.) |
01408> | .000 .0000E+00 | .069 .1838E+00 |
01409> | .005 .3240E-01 | .084 .2261E+00 |
01410> | .008 .6740E-01 | .256 .2703E+00 |
01411> | .010 .1043E+00 | .576 .3162E+00 |
01412> | .048 .1431E+00 | .799 .3398E+00 |
01413> -----
01414> | ROUTING RESULTS | AREA QPEAK TPEAK R.V. |
01415> | (ha) (cms) (hrs) (mm) |
01416> | INFLOW >01: (N ) | 5.17 .825 1.400 47.751 |
01417> | OUTFLOW<02: (Basin ) | 5.17 .076 3.167 47.750 |
01418> | OVERFLOW<03: (Overflow) | .00 .000 .000 .000 |
01419> -----
01420> | TOTAL NUMBER OF SIMULATED OVERFLOWS = 0 |
01421> | CUMULATIVE TIME OF OVERFLOWS (hours)= .00 |
01422> | PERCENTAGE OF TIME OVERFLOWING (%)= .00 |
01423> -----
01424> | PEAK FLOW REDUCTION [Qout/Qin](%)= 9.157 |
01425> | TIME SHIFT OF PEAK FLOW (min)= 106.00 |
01426> | MAXIMUM STORAGE USED (ha.m.)=.2022E+00 |
01427> -----
01428> -----
01429> 100:0005-----
01430> *****
01431> *#
01432> *# Site Alt Conditions
01433> *# Center and East to Sediment Basin 2 (C) & (E)
01434> *#
01435> *****
01436> -----
01437> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00
01438> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01439> | U.H. Tp(hrs)= .110 |
01440> -----
01441> | Unit Hyd Qpeak (cms)= .538 |
01442> -----
01443> | PEAK FLOW (cms)= .363 (i) |
01444> | TIME TO PEAK (hrs)= 1.267 |
01445> | RUNOFF VOLUME (mm)= 47.751 |
01446> | TOTAL RAINFALL (mm)= 67.442 |
01447> | RUNOFF COEFFICIENT = .708 |
01448> -----
01449> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
01450> -----
01451> -----
01452> 100:0006-----
01453> -----
01454> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00
01455> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01456> | U.H. Tp(hrs)= .070 |
01457> -----
01458> | Unit Hyd Qpeak (cms)= .289 |
01459> -----
01460> | PEAK FLOW (cms)= .152 (i) |
01461> | TIME TO PEAK (hrs)= 1.200 |
01462> | RUNOFF VOLUME (mm)= 47.751 |
01463> | TOTAL RAINFALL (mm)= 67.442 |
01464> | RUNOFF COEFFICIENT = .708 |
01465> -----
01466> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
01467> -----
01468> -----
01469> 100:0007-----
01470> -----
01471> | ADD HYD (ToBasin2 ) | ID: NHYD AREA QPEAK TPEAK R.V. DWF |
01472> | (ha) (cms) (hrs) (mm) (cms) |
01473> | ID: 04:C 1.55 .363 1.27 47.75 .000 |
01474> | +ID: 05:E .53 .152 1.20 47.75 .000 |
01475> | ===== |
01476> | SUM 06:ToBasin2 2.08 .501 1.25 47.75 .000 |
01477> -----
01478> | NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY. |
01479> -----
01480> -----
01481> 100:0008-----
01482> *****
01483> *#
01484> *# Site Alt Conditions
01485> *# West to Welland Canal (W)
```

```
01486> *#
01487> *****
01488> -----
01489> | DESIGN NASHYD | Area (ha)= .52 Curve Number (CN)=91.00
01490> | 07:W DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01491> | U.H. Tp(hrs)= .010 |
01492> -----
01493> | Unit Hyd Qpeak (cms)= 1.986 |
01494> -----
01495> | PEAK FLOW (cms)= .225 (i) |
01496> | TIME TO PEAK (hrs)= 1.167 |
01497> | RUNOFF VOLUME (mm)= 47.751 |
01498> | TOTAL RAINFALL (mm)= 67.442 |
01499> | RUNOFF COEFFICIENT = .708 |
01500> -----
01501> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
01502> -----
01503> | *** WARNING: Time step is too large for value of TP. |
01504> | R.V. may be ok. Peak flow could be off. |
01505> -----
01506> 100:0009-----
01507> *****
01508> *#
01509> *# Site Alt Conditions
01510> *# South to Lyons Creek (S)
01511> *#
01512> *****
01513> -----
01514> | DESIGN NASHYD | Area (ha)= .39 Curve Number (CN)=91.00
01515> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01516> | U.H. Tp(hrs)= .050 |
01517> -----
01518> | Unit Hyd Qpeak (cms)= .298 |
01519> -----
01520> | PEAK FLOW (cms)= .130 (i) |
01521> | TIME TO PEAK (hrs)= 1.183 |
01522> | RUNOFF VOLUME (mm)= 47.751 |
01523> | TOTAL RAINFALL (mm)= 67.442 |
01524> | RUNOFF COEFFICIENT = .708 |
01525> -----
01526> | (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY. |
01527> -----
01528> -----
01529> 100:0010-----
01530> -----
01531> 100:0002-----
01532> -----
01533> 100:0002-----
01534> -----
01535> 100:0002-----
01536> -----
01537> 100:0002-----
01538> -----
01539> 100:0002-----
01540> -----
01541> 100:0002-----
01542> ** END OF RUN : 250
01543> -----
01544> *****
01545> -----
01546> -----
01547> -----
01548> -----
01549> -----
01550> -----
01551> | START | Project dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitelat\
01552> | TZERO = .00 hrs on | Rainfall dir.: C:\SWMMOD-1\SWMHYMO\PROJEC-1\sitelat\
01553> -----
01554> | METOUT= 2 (output = METRIC) |
01555> | NRUN = 251 |
01556> | NSTORM= 1 |
01557> | # l=hurhaz48.stm |
01558> -----
01559> 251:0002-----
01560> *****
01561> *# Project Name: [Project Eagle] Project Number: [161500301]
01562> *# Date : 2025-02-24
01563> *# Modeller : [AI]
01564> *# Company : Stantec Consulting Ltd. (London)
01565> *# License # : 4730904
01566> *****
01567> *****
01568> *#
01569> *# This model represents the hydrologic characteristics of the Site Alteration
01570> *# conditions.
01571> *# Storm events modeled are:
01572> *# 2YR, 5YR, 10YR, 25YR, 50YR,
01573> *# and 100YR 3hr Chicago Storm (Using City of Port Colborne IDF Parameters)
01574> *# 25 mm 4hr Chicago Storm
01575> *# Regional Storm Event: 48hr Hurricane Hazel
01576> *#
01577> *****
01578> -----
01579> 251:0002-----
01580> -----
01581> | READ STORM | Filename: REGIONAL STORM
01582> | Ptotal= 285.00 mm | Comments: REGIONAL STORM
01583> -----
01584> | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN |
01585> | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr |
01586> | .25 2.000 | 12.25 2.000 | 24.25 2.000 | 36.25 6.000 |
01587> | .50 2.000 | 12.50 2.000 | 24.50 2.000 | 36.50 6.000 |
01588> | .75 2.000 | 12.75 2.000 | 24.75 2.000 | 36.75 6.000 |
01589> | 1.00 2.000 | 13.00 2.000 | 25.00 2.000 | 37.00 6.000 |
01590> | 1.25 2.000 | 13.25 2.000 | 25.25 2.000 | 37.25 4.000 |
01591> | 1.50 2.000 | 13.50 2.000 | 25.50 2.000 | 37.50 4.000 |
01592> | 1.75 2.000 | 13.75 2.000 | 25.75 2.000 | 37.75 4.000 |
01593> | 2.00 2.000 | 14.00 2.000 | 26.00 2.000 | 38.00 4.000 |
01594> | 2.25 2.000 | 14.25 2.000 | 26.25 2.000 | 38.25 6.000 |
01595> | 2.50 2.000 | 14.50 2.000 | 26.50 2.000 | 38.50 6.000 |
01596> | 2.75 2.000 | 14.75 2.000 | 26.75 2.000 | 38.75 6.000 |
01597> | 3.00 2.000 | 15.00 2.000 | 27.00 2.000 | 39.00 6.000 |
01598> | 3.25 2.000 | 15.25 2.000 | 27.25 2.000 | 39.25 13.000 |
01599> | 3.50 2.000 | 15.50 2.000 | 27.50 2.000 | 39.50 13.000 |
01600> | 3.75 2.000 | 15.75 2.000 | 27.75 2.000 | 39.75 13.000 |
01601> | 4.00 2.000 | 16.00 2.000 | 28.00 2.000 | 40.00 13.000 |
01602> | 4.25 2.000 | 16.25 2.000 | 28.25 2.000 | 40.25 17.000 |
01603> | 4.50 2.000 | 16.50 2.000 | 28.50 2.000 | 40.50 17.000 |
01604> | 4.75 2.000 | 16.75 2.000 | 28.75 2.000 | 40.75 17.000 |
01605> | 5.00 2.000 | 17.00 2.000 | 29.00 2.000 | 41.00 17.000 |
01606> | 5.25 2.000 | 17.25 2.000 | 29.25 2.000 | 41.25 13.000 |
01607> | 5.50 2.000 | 17.50 2.000 | 29.50 2.000 | 41.50 13.000 |
01608> | 5.75 2.000 | 17.75 2.000 | 29.75 2.000 | 41.75 13.000 |
01609> | 6.00 2.000 | 18.00 2.000 | 30.00 2.000 | 42.00 13.000 |
01610> | 6.25 2.000 | 18.25 2.000 | 30.25 2.000 | 42.25 23.000 |
01611> | 6.50 2.000 | 18.50 2.000 | 30.50 2.000 | 42.50 23.000 |
01612> | 6.75 2.000 | 18.75 2.000 | 30.75 2.000 | 42.75 23.000 |
01613> | 7.00 2.000 | 19.00 2.000 | 31.00 2.000 | 43.00 23.000 |
01614> | 7.25 2.000 | 19.25 2.000 | 31.25 2.000 | 43.25 13.000 |
01615> | 7.50 2.000 | 19.50 2.000 | 31.50 2.000 | 43.50 13.000 |
01616> | 7.75 2.000 | 19.75 2.000 | 31.75 2.000 | 43.75 13.000 |
01617> | 8.00 2.000 | 20.00 2.000 | 32.00 2.000 | 44.00 13.000 |
01618> | 8.25 2.000 | 20.25 2.000 | 32.25 2.000 | 44.25 13.000 |
01619> | 8.50 2.000 | 20.50 2.000 | 32.50 2.000 | 44.50 13.000 |
01620> | 8.75 2.000 | 20.75 2.000 | 32.75 2.000 | 44.75 13.000 |
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01621> 9.00 2.000 | 21.00 2.000 | 33.00 2.000 | 45.00 13.000
01622> 9.25 2.000 | 21.25 2.000 | 33.25 2.000 | 45.25 53.000
01623> 9.50 2.000 | 21.50 2.000 | 33.50 2.000 | 45.50 53.000
01624> 9.75 2.000 | 21.75 2.000 | 33.75 2.000 | 45.75 53.000
01625> 10.00 2.000 | 22.00 2.000 | 34.00 2.000 | 46.00 53.000
01626> 10.25 2.000 | 22.25 2.000 | 34.25 2.000 | 46.25 38.000
01627> 10.50 2.000 | 22.50 2.000 | 34.50 2.000 | 46.50 38.000
01628> 10.75 2.000 | 22.75 2.000 | 34.75 2.000 | 46.75 38.000
01629> 11.00 2.000 | 23.00 2.000 | 35.00 2.000 | 47.00 38.000
01630> 11.25 2.000 | 23.25 2.000 | 35.25 3.000 | 47.25 13.000
01631> 11.50 2.000 | 23.50 2.000 | 35.50 3.000 | 47.50 13.000
01632> 11.75 2.000 | 23.75 2.000 | 35.75 3.000 | 47.75 13.000
01633> 12.00 2.000 | 24.00 2.000 | 36.00 3.000 | 48.00 13.000
01634>
01635> -----
01636> 251:0003-----
01637> *#-----
01638> *#
01639> *# Site Alt Conditions
01640> *# North to Sediment Basin 4 (N)
01641> *#
01642> *#-----
01643> -----
01644> | DESIGN NASHYD | Area (ha)= 5.17 Curve Number (CN)=91.00
01645> | 01:N DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01646> | U.H. Tp(hrs)= .220
01647>
01648> Unit Hyd Qpeak (cms)= .898
01649>
01650> PEAK FLOW (cms)= .750 (i)
01651> TIME TO PEAK (hrs)= 46.017
01652> RUNOFF VOLUME (mm)= 260.424
01653> TOTAL RAINFALL (mm)= 285.000
01654> RUNOFF COEFFICIENT = .914
01655>
01656> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01657>
01658> -----
01659> 251:0004-----
01660>
01661> | ROUTE RESERVOIR | Requested routing time step = 1.0 min.
01662> | IN>01: (N ) |
01663> | OUT<02: (Basin ) |
01664> -----
01665> | OUTFLOW STORAGE | OUTFLOW STORAGE
01666> | (cms) (ha.m.) | (cms) (ha.m.)
01667> | .000 .0000E+00 | .069 .1838E+00
01668> | .005 .3240E-01 | .084 .2261E+00
01669> | .008 .6740E-01 | .256 .2703E+00
01670> | .010 .1043E+00 | .576 .3162E+00
01671> | .048 .1431E+00 | .799 .3398E+00
01672>
01673> ROUTING RESULTS AREA QPEAK TPEAK R.V.
01674> | (ha) (cms) (hrs) (mm)
01675> | INFLOW >01: (N ) 5.17 .750 46.017 260.424
01676> | OUTFLOW<02: (Basin ) 5.17 .684 46.217 260.418
01677> | OVERFLOW<03: (Overflow) .00 .000 .000 .000
01678>
01679> TOTAL NUMBER OF SIMULATED OVERFLOWS = 0
01680> CUMULATIVE TIME OF OVERFLOWS (hours)= .00
01681> PERCENTAGE OF TIME OVERFLOWING (%)= .00
01682>
01683> PEAK FLOW REDUCTION [Qout/Qin] (%)= 91.143
01684> TIME SHIFT OF PEAK FLOW (min)= 12.00
01685> MAXIMUM STORAGE USED (ha.m.)=.3276E+00
01686>
01687> -----
01688> 251:0005-----
01689> *#-----
01690> *#
01691> *# Site Alt Conditions
01692> *# Center and East to Sediment Basin 2 (C) & (E)
01693> *#
01694> *#-----
01695> -----
01696> | DESIGN NASHYD | Area (ha)= 1.55 Curve Number (CN)=91.00
01697> | 04:C DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01698> | U.H. Tp(hrs)= .110
01699>
01700> Unit Hyd Qpeak (cms)= .538
01701>
01702> PEAK FLOW (cms)= .226 (i)
01703> TIME TO PEAK (hrs)= 46.000
01704> RUNOFF VOLUME (mm)= 260.424
01705> TOTAL RAINFALL (mm)= 285.000
01706> RUNOFF COEFFICIENT = .914
01707>
01708> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01709>
01710> -----
01711> 251:0006-----
01712> -----
01713> | DESIGN NASHYD | Area (ha)= .53 Curve Number (CN)=91.00
01714> | 05:E DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01715> | U.H. Tp(hrs)= .070
01716>
01717> Unit Hyd Qpeak (cms)= .289
01718>
01719> PEAK FLOW (cms)= .077 (i)
01720> TIME TO PEAK (hrs)= 46.000
01721> RUNOFF VOLUME (mm)= 260.424
01722> TOTAL RAINFALL (mm)= 285.000
01723> RUNOFF COEFFICIENT = .914
01724>
01725> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01726>
01727> -----
01728> 251:0007-----
01729>
01730> | ADD HYD (ToBasin2 ) | ID: NHYD AREA QPEAK TPEAK R.V. DWF
01731> | (ha) (cms) (hrs) (mm) (cms)
01732> | ID1 04:C 1.55 .226 46.00 260.42 .000
01733> | +ID2 05:E .53 .077 46.00 260.42 .000
01734> -----
01735> | SUM 06:ToBasin2 2.08 .303 46.00 260.42 .000
01736>
01737> NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
01738>
01739> -----
01740> 251:0008-----
01741> *#-----
01742> *#
01743> *# Site Alt Conditions
01744> *# West to Welland Canal (W)
01745> *#
01746> *#-----
01747> -----
01748> | DESIGN NASHYD | Area (ha)= .52 Curve Number (CN)=91.00
01749> | 07:W DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01750> | U.H. Tp(hrs)= .010
01751>
01752> Unit Hyd Qpeak (cms)= 1.986
01753>
01754> PEAK FLOW (cms)= .076 (i)
01755> TIME TO PEAK (hrs)= 46.000
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01756> RUNOFF VOLUME (mm)= 260.425
01757> TOTAL RAINFALL (mm)= 285.000
01758> RUNOFF COEFFICIENT = .914
01759>
01760> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01761>
01762> *** WARNING: Time step is too large for value of TP.
01763> R.V. may be ok. Peak flow could be off.
01764> -----
01765> 251:0009-----
01766> *#-----
01767> *# Site Alt Conditions
01768> *# South to Lyons Creek (S)
01769> *#
01770> *#-----
01771> *#-----
01772> -----
01773> | DESIGN NASHYD | Area (ha)= .39 Curve Number (CN)=91.00
01774> | 08:S DT= 1.00 | Ia (mm)= 1.500 # of Linear Res. (N)= 3.00
01775> | U.H. Tp(hrs)= .050
01776>
01777> Unit Hyd Qpeak (cms)= .298
01778>
01779> PEAK FLOW (cms)= .057 (i)
01780> TIME TO PEAK (hrs)= 46.000
01781> RUNOFF VOLUME (mm)= 260.424
01782> TOTAL RAINFALL (mm)= 285.000
01783> RUNOFF COEFFICIENT = .914
01784>
01785> (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
01786>
01787> -----
01788> 251:0010-----
01789> -----
01790> 251:0002-----
01791> -----
01792> 251:0002-----
01793> -----
01794> 251:0002-----
01795> -----
01796> 251:0002-----
01797> -----
01798> 251:0002-----
01799> -----
01800> 251:0002-----
01801> -----
01802> 251:0002-----
01803> FINISH
01804> -----
01805> *#-----
01806> WARNINGS / ERRORS / NOTES
01807> -----
01808> 001:0008 DESIGN NASHYD
01809> *** WARNING: Time step is too large for value of TP.
01810> R.V. may be ok. Peak flow could be off.
01811> *** WARNING: Time step is too large for value of TP.
01812> R.V. may be ok. Peak flow could be off.
01813> *** WARNING: Time step is too large for value of TP.
01814> R.V. may be ok. Peak flow could be off.
01815> *** WARNING: Time step is too large for value of TP.
01816> R.V. may be ok. Peak flow could be off.
01817> *** WARNING: Time step is too large for value of TP.
01818> R.V. may be ok. Peak flow could be off.
01819> *** WARNING: Time step is too large for value of TP.
01820> R.V. may be ok. Peak flow could be off.
01821> *** WARNING: Time step is too large for value of TP.
01822> R.V. may be ok. Peak flow could be off.
01823> *** WARNING: Time step is too large for value of TP.
01824> R.V. may be ok. Peak flow could be off.
01825> Simulation ended on 2025-03-03 at 09:54:32
01826> -----
01827>
01828>
```