EDP Renewables Canada Ltd.

Edgeware BESS

St. Thomas, Ontario

Technical Report

Storm Water Management Plan Report

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FOR PERMITTING

Do not use for construction

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1. Introduction

The proposed development involves the construction of a Battery Energy Storage System (BESS) facility located in the City of St. Thomas, Ontario, at the intersection of Edgeware Line and Highbury Avenue. The facility will include housed battery units, a substation, a control building, access roads, and associated infrastructure. The primary function of a BESS is to store electricity during periods of surplus generation and supply it back to the grid during peak demand.

The site is currently an open agricultural field with minimal existing infrastructure. It is bounded by:

1. North: Messenger Freight Systems warehouse.
2. East: Agricultural lands.
3. South: Union Gas Utilities service station and industrial area.
4. West: Canadian Pacific Railway line.

The total project area is approximately 1.8 hectares, and the development will increase impervious surfaces due to the installation of battery units, access roads, and other structures.

2. Abbreviations and acronyms

The table below lists all abbreviations and acronyms used in this document, along with their definition.

Table 1: Abbreviations and acronyms

Abbreviation or acronym	Definition
Dstorm	Design Storm Wizard
EPA SWMM	Environmental Protection Agency Storm Water Management Model
IDF	Intensity Duration Frequency
KCCA	Kettle Creek Conservation Authority
MECP	Ministry of the Environment, Conservation and Parks
MOECC	Ministry of the Environment and Climate Change
MTO	Ministry of Transportation
OHSA	Occupational Health and Safety Act
OPS	Ontario Provincial Standards
PEO	Professional Engineers Ontario
PSW	Provincially Significant Wetland

Abbreviation or acronym	Definition
SCS CN	Soil Conservation Service Curve Number
SWMP	Stormwater Management Plan
TSS	Total Suspended Solids
US EPA	United States Environmental Protection Agency
USDA	United States Department of Agriculture

3. Units and symbols

All units of measurement must be in accordance with the International System of Units (SI). If exceptions need to be taken, SI shall be used as the primary dimensions, with the corresponding conversion to the other system of units in brackets.

All units used in this document are listed in the following table:

Table 2: Units and symbols

Unit / Symbol	Description
m	Metre
cm	Centimetre
mm	Millimetre
m3	Cubic metres
s	Seconds
ha	Hectares
min	Minutes
hr	Hour
yr	Year
mbgs	Metres below ground surface

4. Codes, standards, and regulations

Unless otherwise specified, the design will be based on applicable sections of the following codes, standards, regulations, and other reference documents.

Table 3: Codes, standards and regulations

Document code/Author	Document title
Ontario MECP	Stormwater Management Planning and Design Manual (March 2003)
Kettle Creek Conservation Authority	No Guidelines for Stormwater Management available
City of St. Thomas	St. Thomas Design Guideline Manual
Ontario MTO	MTO Drainage Management Manual
	MTO Highway Drainage Design Standards (January 2008)
	MTO Stormwater Management Requirements for Land Development Proposals
IEEE 980	Guide for Containment and Control of Oil Spills in Substations
US EPA (Lewis A. Rossman)	Storm Water Management Model User's Manual Version 5.1 (September 2015)
	Storm Water Management Model Reference Manual Volume I – Hydrology (January 2016)
	Storm Water Management Model Reference Manual Volume II – Hydraulics (May 2017)
USDA	Urban Hydrology for Small Watersheds TR-55
Ontario Technical Guide to Renewable Energy Approval (REA) under O. Reg. 359/09 of the Environmental Protection Act	

5. Reference documents

Table 4: Reference documents

Document code/Author	Document title
American Concrete Pipe Association	Concrete Pipe Design Manual, last edition
BBA	30% Stormwater Management Draft Report (88960002-200000-41-ERA-0001-R00)
USDA	Urban Hydrology for Small Watersheds TR-55
WSP	EDPR Edgeware BESS Draft SWM Report
Drawings	
Survey provided by GeoVerra	GeoVerra - Edgeware BESS - Existing Conditions ALTA 2026-03-23
Standards *(client)*	
EDPR	Battery Energy Storage System Design Guideline
Geotechnical reports	
WSP	78090005-GTR (US-WSP-31300307.7757 - Edgeware BESS - Final Geotech Report 26Feb2026)-0-R0
Softwares and/or models	
PCSWMM	Software, 2024 Computation Hydraulics Int., Version: 7.7.3920
Global Mapper	Software, *Version 18.2.0 (b052417)*

6. Background

6.1. Site history

The project site is currently an undeveloped agricultural property located in the northeastern section of the City of St. Thomas, Ontario. Historically, the land has been used for crop cultivation and remains largely covered with grassy vegetation and crop residue. The site is bounded by a railway line to the west, open fields to the east, and industrial infrastructure to the south, including a Union Gas Utilities Service Station.

There are no known previous developments or significant alterations to the site, and it has remained largely untouched aside from agricultural use. The topography is relatively flat, and the subsurface conditions consist primarily of lean clay deposits, as confirmed by recent geotechnical investigations. The site lies partially within a regulated area due to proximity to a natural watercourse, but no floodplain boundaries have been identified.

6.2. Existing/pre-development conditions

Prior to development, the site was primarily used for agricultural purposes. It consisted of crop fields, brush, and sparse tree cover. The terrain was relatively flat, with natural drainage patterns directing surface runoff toward the adjacent Canadian Pacific Railway corridor. The site was divided into six main drainage catchments:

- Catchment 101 (Northwest): Drained toward the northwest, primarily toward the railway, which ultimately drains southwest of the site through an existing ditch along the railway
- Catchment 103 (Southeast): Drained toward an existing creek South of the site, which flows toward the southwest part of the site.
- Catchments 102 and 105 (West and Southwest): Drained toward the southwest, also toward the railway.
- An external area, Catchment 104 and 106, includes surrounding lands such as the Union Gas Utilities Station and adjacent agricultural fields.

The pre-development study area within the proposed stormwater plan is 3.38 hectares. The catchment areas and parameters are presented in the table below:

Table 5: Pre-dev catchment areas and parameters

	Pre-development				
	Cover description	Area (ha)	% Area	% Impervious	Curve number
Catchment 101	Cultivated land	0.2206	0.450	2	88
	Wood or forest	0	0.000	4	77
	Gravel	0	0	76	89
	Road/Rail	0.2694	0.550	100	98
	Sub-total	**0.49**	**1**	**55.88**	**93**
Catchment 102	Cultivated land	1.0022	0.937	2	88
	Wood or forest	0	0	4	77
	Gravel	0	0	76	89
	Road/Rail	0.0678	0.063	100	98
	Sub-total	**1.07**	**1**	**8.21**	**89**
Catchment 103	Cultivated land	0.4254	0.967	2	88
	Wood or forest	0	0	4	77
	Gravel	0	0	76	89
	Road/Rail	0.0146	0.033	100	98
	Sub-total	**0.44**	**1**	**5.25**	**88**
Catchment 104	Cultivated land	0.2116	0	2	88
	Wood or forest	0.1089	0.253	4	77
	Gravel	0.0323	0.075	76	89
	Road/Rail	0.0772	0.180	100	98
	Sub-total	**0.43**	**1**	**25.66**	**87**
Catchment 105	Cultivated land	0.348	0.644	2	88
	Wood or forest	0.192	0.356	4	77
	Gravel	0	0	76	89
	Road/Rail	0	0	100	98
	Sub-total	**0.54**	**1**	**2.71**	**84**
Catchment 106	Cultivated land	0.1796	0.333	2	88
	Wood or forest	0	0.000	4	77
	Gravel	0.21	0	76	89
	Road/Rail	0.0204	0	100	98
	Sub-total	**0.41**	**1**	**34.00**	**68**

The figure below presents a plan view of pre-development catchments. For more details, refer to drawing "EWS01-C-0800-1-A".

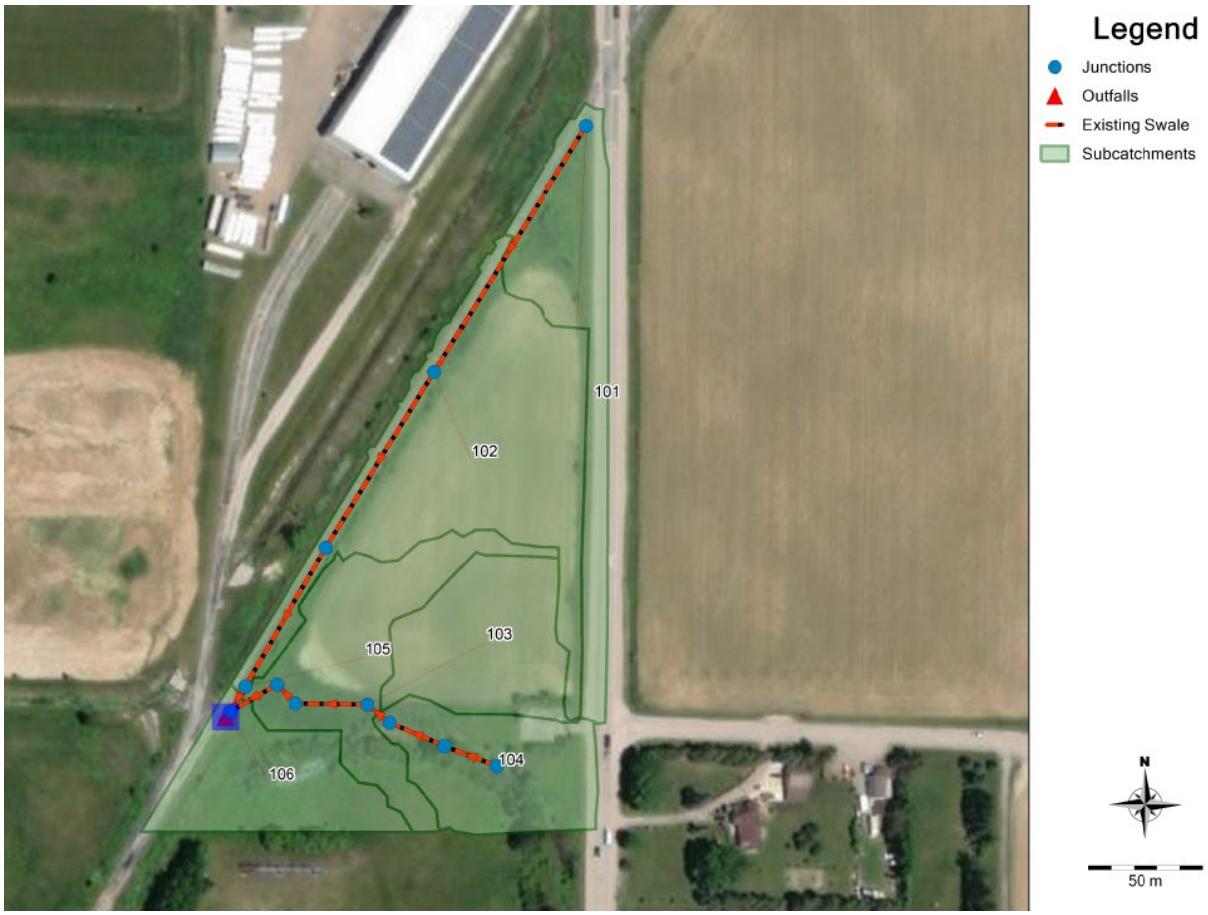


Figure 1: Pre-development subcatchments

6.3. Subsurface and groundwater conditions

The subsurface conditions at the Ontario BESS site are characterized by a surface layer of topsoil ranging from 80 to 460 mm, underlain by lean clay extending to depths of approximately 8.2 meters. This clay is moderately stiff to stiff, offering suitable support for shallow foundations. The site sits atop Devonian bedrock formations—primarily limestone, dolostone, and shale—though bedrock was not encountered within the investigated depth.

Based on the AgMaps from the OMAFA (Appendix C). The site is classified as Hydrological Soil Group C, which is characterized by soils with slow infiltration rates when thoroughly wetted.

Groundwater is expected to be relatively shallow due to the low permeability of the glacial silt and clay soils, which also contribute to poor infiltration and surface water accumulation. No signs of contamination, underground or aboveground storage tanks, or hazardous releases were

observed during site reconnaissance. Overall, the site presents stable geotechnical conditions with minimal environmental concerns as per WSP Geotechnical report.

6.4. Proposed development

The proposed development at the Ontario BESS site involves the construction of a BESS facility, which will introduce impervious surfaces such as gravel pads, access roads, equipment foundations, and utility infrastructure. These changes will alter the site's natural hydrology by reducing infiltration and increasing surface runoff, particularly during storm events.

To address this, the development includes a stormwater management strategy designed to mitigate the impact on natural drainage. This typically involves grading adjustments, swales, and a detention dry pond to control runoff volumes and peak flows. Due to the limited available area for a dry pond, we have partially used grassed swale capacity to maintain the required detention volume. The goal is to maintain pre-development hydrologic conditions, ensuring compliance with municipal and conservation authority standards while protecting downstream systems. For quality purpose we are proposing and stormceptor with a Jellyfish filter at the outlet of the pond.

7. Stormwater management plan – design criteria

The site lies within the jurisdiction of the City of St. Thomas and partially within the regulated area of the Kettle Creek Conservation Authority (KCCA). While no floodplain boundary has been identified for the site, the southern portion may be affected by Ontario Regulation 41/24 due to proximity to an unconfined valley system with a watercourse.

Stormwater management for the site must comply with:

- City of St. Thomas Design Guidelines (2021 Edition).
- Ministry of Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual (2003).
- KCCA regulations, if applicable

The post-development peak flows (discharge rates) are not to exceed the pre-development peak flows, which discharge from the development site, as per regulations listed in Table 3 (Ontario MTO and Ontario MECP).

7.1. Suspended solid removal

The dry pond is designed to meet the requirement of a basic 60% long-term average removal of suspended solids. Refer to Table 6 for the pond design criteria utilized to satisfy the water treatment requirements prior to release from the project site. An impervious level of 76% is calculated for the entire site of 1.8 hectares. Additionally, we have proposed a stormceptor with Jellyfish filters designed for 80% TSS removal of the ETV PSD and 77% TP removal. It has a sediment capacity of 455 kg with a treatment flow rate of 40.4 L/s. Overall, the system proposed meets the requirement of enhanced TSS removal of 80%.

7.2. Dry pond design

Since the buildable area of the site is very limited due to various constraints, and the project area is less than 2 ha, a dry pond is considered for this project rather than a wet pond. The primary goal of the proposed dry pond is to maintain water quantity over a specific period of time and gradually discharge it in a way to ensure that the maximum peak flow rates do not exceed the pre-development values for the 2-year through to the 100-year return period storms. Table 6 presents a summary of design guidance for the dry pond, based on Table 4.6 in the Stormwater Management Planning and Design Manual by the MECP.

Table 6: Design criteria dry pond

Parameters	Design criteria	Reference
Design rainfall event	2 years to 100 years	Stormwater Management Planning and Design Manual
Peak flow output	Pre-development flow (See Appendix D to Appendix H	
Design rainfall event	Precise design of the rainfall event according to the regulations of the conservation authorities	
Freeboard	0.3m	
Treatment volume	Basic 60% long-term suspended solids removal (see Section 3.3.1.1 of MECP Design manual)	Stormwater Management Planning and Design Manual
Detention period	Min. 24 hrs	Stormwater Management Planning and Design Manual
Length to width ratio	minimum 3:1	Stormwater Management Planning and Design Manual

Parameters	Design criteria	Reference
Active storage depth	Maximum Depth: 3 m, Min Depth: 1 - 2 m	Stormwater Management Planning and Design Manual
Side slopes	Recommended grading of the side slopes terraced with an average slope of 4:1 or flatter Maximum 3:1 elsewhere	Stormwater Management Planning and Design Manual
Inlet	Minimum: 450 mm Preferred pipe slope: > 1%	Stormwater Management Planning and Design Manual
Outlet	Minimum: 450 mm outlet pipe. If orifice control is used, 75 mm minimum (unless protected by a riser)	Stormwater Management Planning and Design Manual
Maintenance access path	Allow access for maintenance	Stormwater Management Planning and Design Manual
	Provided to approval of the Municipality	Stormwater Management Planning and Design Manual

7.3. Ditches, culverts, storm sewer and earthworks design criteria

The design of ditches, culverts, storm sewers, and earthworks was developed according to the MTO Hydrotechnical Design Charts.

Table 7: Ditches and culverts design criteria

Parameters	Design criteria	Reference
Ditches		
Longitudinal slope	0.3 % min.	Drainage Design Standard MTO (art. 3.2 – SD-9)
Side slope	2.5H:1V max.	MECP Design Manual (Section 4.5.9)
Depth	0.5 m min.	MECP Design Manual (Section 4.5.9)
Freeboard	0.3 m min	Drainage Design Standard MTO (art. 3.2 – SD-9)
Flat bottom	0.75 m	MECP Design Manual (Section 4.5.9)
Velocity	2.3 m/s max	Drainage Design Standard MTO (art. 3.2 – WC-3)

Parameters	Design criteria	Reference
Culverts		
Flow velocities	10 m/s max.	MTO Hydrotechnical Design Charts (4.03)
Freeboard	0.3 m min	Drainage Design Standard MTO (art. 3.2 – WC-7)
Diameter	400 mm	Drainage Design Standard MTO (WC-8)
Storm sewer		
Max. distance between manholes	100-150 m	MTO Hydrotechnical Design Charts (4.03)
Minimum pipe diameters	450 mm	Higher than MTO Hydrotechnical Design Charts (4.03)
Minimum pipe slopes	0.26%	St. Thomas Design Guideline (7.2.4)
Minimum permissible velocity	0.9 m/s	St. Thomas Design Guideline (7.2.2)
Maximum permissible velocity	6.0 m/s	St. Thomas Design Guideline (7.2.2)
Earthworks (Site grading for drainage)		
Minimum earthworks slope	0.5%	

7.4. Design rainfall event

All drainage systems are designed based on a specific rainfall event, which is determined by a combination of return period and rainfall distribution curves computed from rainfall data for the project-specific location. The rainfall Intensity-Duration-Frequency (IDF) was obtained from the City of St. Thomas Design Guidelines manual. This manual is based on the rainfall data provided by IDF Curve Lookup, a web-based application provided by the Ontario Ministry of Transportation (Appendix A). Precipitation data used in this project are from the St. Thomas weather station (location 42° 47' 45" N, 81° 09' 15" W).

The Chicago storm distributions were simulated. Hyetographs were developed for different return periods based on the IDF curve with a 3-hour duration according to St. Thomas' design manual section 8.0.3. A 25 mm storm event utilizing a 4-hr Chicago storm was also simulated in post-development conditions for sizing water quality control infrastructure. 24-h 100 years is considered for quantity control. Additionally, the regional Hazel storm is also considered to check for flooding incidents.

Drainage systems must also be designed according to the risk impact on plant operations and workers' safety. The drainage system was designed to 1:100 years return period, including ditches, storm sewer and storm dry pond.

Table 8: Design rainfall events

Storm event	Duration (hours)
25 mm	4
2 years	3
5 years	3
100 years	24
Regional storm (Hazel)	11

7.5. Permanent erosion control

The development site grading has been designed to minimize erosion and direct runoff into the on-site stormwater system. The drainage system consists of grassed swales, trench storm sewers, pipes, a dry pond with an orifice and a Jellyfish stormceptor at the discharge end of the system. These installations ensure that the water discharged from the site is free of deleterious materials, minimizes erosion and meets the requirements of the MECP.

8. Parameters for PCSWMM modelling

SWMM (Storm Water Management Model) was developed by the United States Environmental Protection Agency (USEPA). It is a rain runoff modelling software that can be used to model the quantity and quality of runoff during single-event or continuous modelling. This allows scenarios of different recurrence periods to be modelled and simulated efficiently and accurately. It is a reliable modelling technique for estimating hydraulic and hydrologic responses.

8.1. Parameters and assumptions

8.1.1. Topography

For the pre-development site, sub-catchment areas were delineated based on the existing topographic surface drawing "Edgeware_Contours_08062024" provided by Barton Malow, combined with a public source from Ontario Geo Hub.

For post-development conditions, sub-catchment areas were delineated based on the layout of the proposed drainage system.

8.1.2. General parameters

The following general parameters were applied in the PCSWMM model:

Table 9: General parameters in the PCSWMM model

Parameters	Data
Routing method	Dynamic waves
Infiltration model	Curve number
Time step - Reporting	1 minute
Rain interval	5 minutes
Time step – Runoff: Wet weather	1 minute
Routing	1 second

8.1.3. Hydrology and hydraulics parameters

Table 10 shows the parameters applied to modelled watersheds, ditches, and storm sewers. The infiltration parameters were determined for the Curve number infiltration method.

Table 10: General parameters

Parameter	Value	Units
Roughness coefficient (N_{imperm}) – impervious	0.013	$s/m^{1/3}$
Roughness coefficient (N_{perm}) – pervious surfaces	0.17	$s/m^{1/3}$
Percent of imperviousness of subcatchment – industrial pad	76	%
Depth of depression storage - impervious surfaces	1.57	mm
Depth of depression storage - pervious surfaces	4.67	mm
Percent of impervious area with no depression	25	%
Subarea routing	Outlet	-
Percent routed	100	%
Slope – Industrial pad	Variable 0.5 to 5	%
Runoff curve numbers		
Hydrological soil group	C	-
Curve number – For cultivated cover	88	-
Curve number – For wood or forest cover	77	-
Curve number – For gravel cover	89	-

Parameter	Value	Units
Curve number – For road/railway cover	93	-
Drying time	7	days
Hydraulics		
Manning's "n"– Ditches	0.035	$s/m^{1/3}$
Manning's "n" – Pipe, closed conduits (concrete pipe)	0.013	$s/m^{1/3}$
Manning's "n" – Trenches (concrete trench)	0.013	$s/m^{1/3}$
Manning's "n" – Pipe, closed conduits (PVC)	0.010	$s/m^{1/3}$

8.1.4. Dry pond parameters

The required detention volume was calculated in the PCSWMM model for a return period of 100 years. Pond dimensions were determined by the site constraints, minimum and preferred criteria of the Stormwater Management Planning and Design Manual for the water quality sizing criteria, following a basic 60% long-term suspended solids removal according to MECP guidelines.

The tabular type of storage curve was used; the water area was calculated as a function of the water height in the dry pond based on the geometry. The PCSWMM storage curve is presented in the table below:

Table 11: Stage-storage curve

From depth (m)	To depth (m)	From elevation (m)	To elevation (m)	Section	Surface (m^2)	Volume (m^3)
0	0	239.6	239.6	Active storage	118.5	0
0	0.5	239.6	240.1		243.9	88.734
0.5	1	240.1	240.6		536.9	279.179
1	1.5	240.6	241.1		536.9	547.629
1.5	1.6	241.1	241.2		569.6	602.946
1.6	1.9	241.2	241.5	Freeboard	670.4	N/A

8.1.5. Orifice and overflow parameter

A 75mm orifice in a 450mm pipe is proposed to control peak outflow from the pond and for water quality purposes. A second outlet pipe is also considered at a higher level to manage water quantity. In accordance with the guideline in the City of St-Thomas Design Manual, an active storage duration of 24 hours within the dry pond is required for water quality. A weir was

also added at 1.7 m from the bottom of the pond, for emergency overflow in case of outlet clogging. The following parameters were applied to model the orifices in the PCSWMM software:

Table 12: Outlet structure parameters

Parameter	Value
Orifice	
Type	Circular
Dimensions (Diameter)	75 mm
Invert elevation	239.60 m
Discharge coefficient	0.65
Second outlet pipe	
Type	Circular
Dimensions (Diameter)	450 mm
Invert elevation	240.63 m
Weir	
Type	Transverse
Height	0.2 m
Length	2 m
Invert elevation	241.3

9. Pre-development results

Using hydrologic modelling (PCSWMM), the following characteristics were established:

- Imperviousness: Very low (mostly pervious surfaces), refer to the Table 5.
- Curve number: Refer to the Table 5 and Table 10.
- Peak Flow Rates: For the 24-hr duration, 3-hour duration according to St. Thomas design guideline manual, with a return period of 2-year to 100-year storm events, peak flows ranged from approximately 0.065 m^3/s to 0.386 m^3/s at the outlet located upstream of the existing culvert, southwest of the site.

These values serve as the baseline for post-development stormwater management targets.

Table 13: Pre-dev peak flows

Storm event	Duration (hours)	Pre-dev peak flow (m3/s)
25 mm	4	0.072
2 years	3	0.065
5 years	3	0.094
100 years	24	0.386

10. Post-development results

A permanent stormwater management system was designed to provide quantity, quality, and erosion runoff control. The stormwater management concept is shown in Appendix B.

10.1. Flow paths and catchment areas

As mentioned in Section 7, the proposed stormwater management facility is composed of grassed swales, culverts, trench drain, storm sewer, dry pond and a stormceptor with a Jellyfish filter.

The sub-catchment areas are delineated based on the layout of the proposed drainage system. The table below presents the sub-catchment areas.

Table 14: Post-development imperviousness

Sub-catchment	Area	% Impervious	Curve number	Slope
	(ha)	(%)	-	(%)
201	0.39	55.88	93	0.8
202	0.17	8.21	89	1.7
203	0.1	5.25	88	3
204	0.43	25.66	85	4.37
205	0.25	2.71	84	4.2
206	0.41	34	68	3.94
207	0.32	8.21	89	0.5
208	0.49	76	89	0.57
209	0.29	76	89	1.08
210	0.48	76	89	1.7

The figure below presents the post-development catchment. For more details, refer to drawing "EWS01-C-0801-1-A".

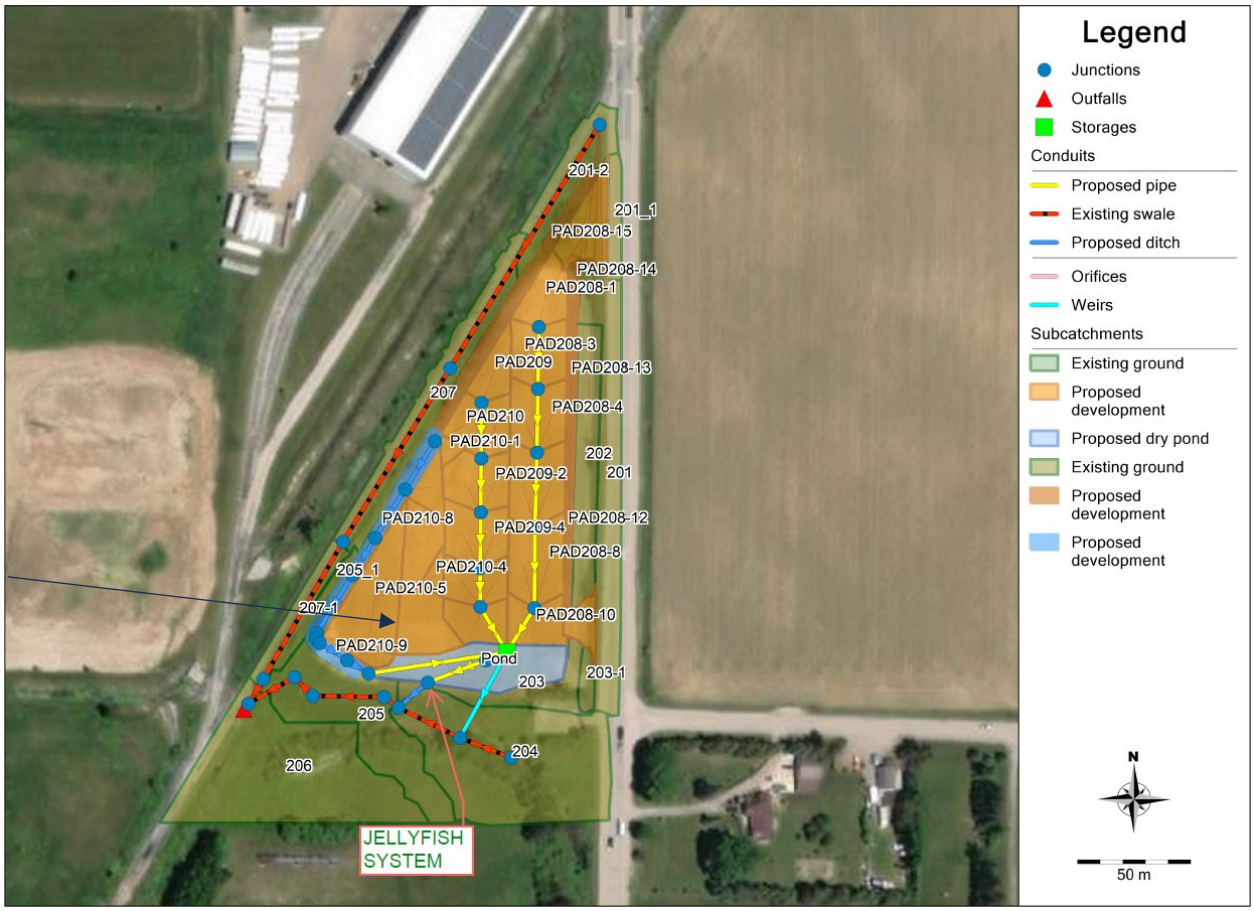


Figure 2: Post-development subcatchment

10.2. Post-development for peak flows

Table 15 presents the comparison between the pre-development and post-development flow rates leaving the site. The post-development flow rates are less than the pre-development flow rates.

There will be an orifice and an overflow control at the exit of the dry pond. The orifice makes it possible to get as close as reasonably practicable to the pre-development flows and protect the downstream creek from increased flow, erosion, and flooding.

The PCSWMM software reports are shown in Appendix E to Appendix J.

Table 15: Pre-development flows vs post-development flows Chicago storm

Return period	25 mm-4 hrs (Pre/Post)	1:2 Years-3 hrs (Pre/Post)	1:5 Years-3 hrs (Pre/Post)	100 Years – 24 hrs (Pre/Post)
Outlet	m^3/s	m^3/s	m^3/s	m^3/s
Located upstream of the existing culvert	0.072 / 0.063	0.065 / 0.061	0.094 / 0.084	0.386 / 0.386

10.3. Dry pond results

The dry pond consists of a main pond separated by an earthen fill berm. The size of the pond will be governed by the following four components: available land, active storage (quality/erosion control storage), and quantity control storage. A 25 mm 4-hr quality control storm was simulated, and a total storage volume of 157 m^3 was calculated. As per the MECP table 3.2, the water quality storage requirement for a dry pond is approximately 220 m^3/ha for 76% impervious level. Since the proposed development has an area of 1.8 ha, the required storage volume shall be 395 m^3.

Table 16 shows the results of the total quantity and quality control volume to be provided by the dry pond.

Table 16: Dry pond storages requirements

Outlet	Site area (ha)	% Imp.	Require volume for quality control
Located upstream of the existing culvert	1.8	76	395 m^3

The table below summarizes the wet pond water ponding elevation and associated detention storage volume:

Table 17: Design event for dry pond

Storm event	Duration (hours)	Inflow (m^3/s)	Controlled outflow (m^3/s)	Detention storage volume (m^3)	Ponding elevation (m)
25 mm	4	0.161	0.01	157	240.34
2 years	3	0.165	0.011	162	240.36
5 years	3	0.239	0.012	215	240.51
100 years	24	0.409	0.07	311	240.76
Regional storm (Hazel)	11	0.198	0.197	363	240.87

Table 18 - Stage storage summary

Elevation	Surface area at elevation (m^2)	Incremental depth (m)	Incremental volume (m^3)	Total depth (m)	Total volume (m^3)	Orifice (m^3/s)	Second outlet pipe (m^3/s)	Overflow (m^3/s)
239.6	118.5	0.00	0.00	0.00	0.00	0.00	N/A	N/A
240.1	243.9	0.50	88.73	0.50	88.73	0.008	N/A	N/A
240.6	536.9	0.50	190.45	1.00	279.18	0.012	N/A	N/A
241.1	536.9	0.50	268.45	1.50	547.63	0.015	0.02	N/A
241.2	569.6	0.10	55.32	1.60	602.95	0.016	0.048	N/A
241.5	670.4	0.30	185.79	1.90	788.74	N/A	N/A	N/A

11. Temporary erosion and sediment control[1]

Erosion and sediment control for this project will be primarily achieved through the early construction of the permanent dry pond, which will function as both a temporary sediment control facility during construction and a permanent stormwater management feature upon project completion, as shown on Drawing EWS01-ESC-001 and detailed on Drawing EWS01-C-0002. The dry pond will be constructed at the outset of site works to capture, detain, and treat runoff from disturbed areas, thereby minimizing sediment-laden discharges off-site throughout the construction period.

During construction, the permanent dry pond will operate in a temporary capacity to provide sediment storage and flow attenuation, supplemented by localized measures such as temporary rock check dams and sediment controls as shown on the ESC drawings. Upon completion of construction and site stabilization, the dry pond will transition to its permanent operational condition without requiring removal or replacement, ensuring continuity of erosion and sediment control measures and long-term compliance with municipal and MECP requirements.

An erosion and sediment control (ESC) plan for the construction phase shall ensure that sediment-laden runoff does not damage downstream receiving waters. Erosion and sediment controls shall be installed prior to any construction activity. These will consist of sediment control fences, stockpile erosion controls, re-seeding, temporary sediment control pond, etc., to trap sediments on site and stabilize disturbed areas. These measures must be put in place before any earthwork.

12. Maintenance and monitoring

To ensure the proposed stormwater management system functions as per design, a maintenance plan should be implemented on-site. Inspection is recommended annually to identify maintenance needs, as well as after significant storm events, to ensure the proper functioning of the system.

The following items should be considered in the maintenance plan for the drainage system upstream and downstream of the pond and should be conducted quarterly to annually, or as-needed basis:

- Finished grading: low points and potential ponding areas;
- Flow control structure and storm pipes: blockages and sediment build-up;

[1] Additional details will be provided for the erosion and sediment control plan closer to the start of construction.

- Grassed swales: blockages, state of vegetation, and signs of erosion;
- Culverts: blockages and sediment build-up;

The following items should be considered in the maintenance plan for the dry pond:

- Check the dry pond elevation 48 hours after a storm event. If the water level should be empty. Check for leakages or blockages at the outlet and inlet if the water level is higher
- Check pond structures such as orifices and inlet/outlet pipes. Conducted monthly to quarterly, or as needed;
- Monitor sediment build-up within the pond annually based on the predicted sediment loading of the pond per MOE guidelines
- It is recommended to conduct sediment removal during dry periods to remove the need for a by-pass pipe. Existing vegetation to be protected and replaced if damaged during this process. Sediments are to be dried in a designated drying area surrounded by silt fences and disposed of per MOE Sediment Disposal Guidelines;
- Effluent samples should be collected at the Jellyfish discharge point (Ditch area) and be tested to ensure Provincial Water Quality Objectives are met, as per the existing certificate of approval for industrial sewage works

The following items should be considered in the maintenance plan for the wet pond:

- Proposed effluent monitoring program:
- Sampling frequency = quarterly during the ice-free period, during periods of active discharge, within 24 hours of a significant rainfall event (>15 mm);
  - Sampling locations:
    - inlet of the wet pond, outlet of the wet pond, terminus of the grassed discharge swale;
  - Sample type: grab;
  - Sample parameters:
    - oil and grease (O/G);
    - TSS, field pH;
    - field temperature;
    - total and dissolved metals, hardness, dissolved organic carbon;
- Effluent quality objectives:

- Total suspended solids (TSS): maximum 25 mg/L;
- Turbidity: 8 NTU above baseline average
- Oil and Grease: maximum 15 mg/L; and
- pH between 6.5 to 8.5.

13. Conclusion

The proposed development of the Edgeware BESS in St. Thomas, Ontario, covers a total project area of approximately 1.8 hectares. The transformation from a predominantly agricultural field to an industrial facility introduces a significant increase in impervious surfaces, with post-development imperviousness reaching 76%, compared to the pre-development condition of very low imperviousness across the five original catchments.

To mitigate the hydrological impacts of this change, a comprehensive stormwater management strategy was developed. This includes grassed swales, culverts, trench drains, storm sewers, a dry pond and a Jellyfish stormceptor designed to manage water quantity, quality, and erosion control. The dry pond was selected due to site constraints and is engineered to meet the basic 60% long-term suspended solids removal requirement, as well as the Jellyfish stormceptor, which is capable of 80% TSS removal, which is required by the City as an enhanced protection.

Hydrologic modelling using PCSWMM confirmed that post-development peak flow rates are consistently lower than pre-development rates across all simulated storm events, including the 2-year, 5-year, 100-year, and regional (Hazel) storms.

The dry pond provides a minimum detention time of 24 hours, with a calculated detention storage volume of 311 m^3 for the 100-year storm and 363 m^3 for the regional Hazel storm. The ponding elevation during these events remains within the design limits, ensuring safe and effective water detention and gradual release through a system of an orifice and an emergency overflow weir. Regional hazel storm was checked for any flooding in the system, and no incident occurred.

This stormwater management plan complies with all applicable municipal and provincial guidelines, including those from the City of St. Thomas, MECP, and MTO. It ensures that the development maintains pre-development hydrologic conditions as closely as possible, protects downstream infrastructure and ecosystems, and supports the long-term sustainability of the Edgeware BESS facility.

Appendix A: IDF Curves

Ontario IDF CURVE LOOKUP

Active coordinate

42° 47' 45" N, 81° 9' 15" W (42.795833,-81.154167)

Retrieved: Thu, 30 Apr 2026 14:43:00 GMT

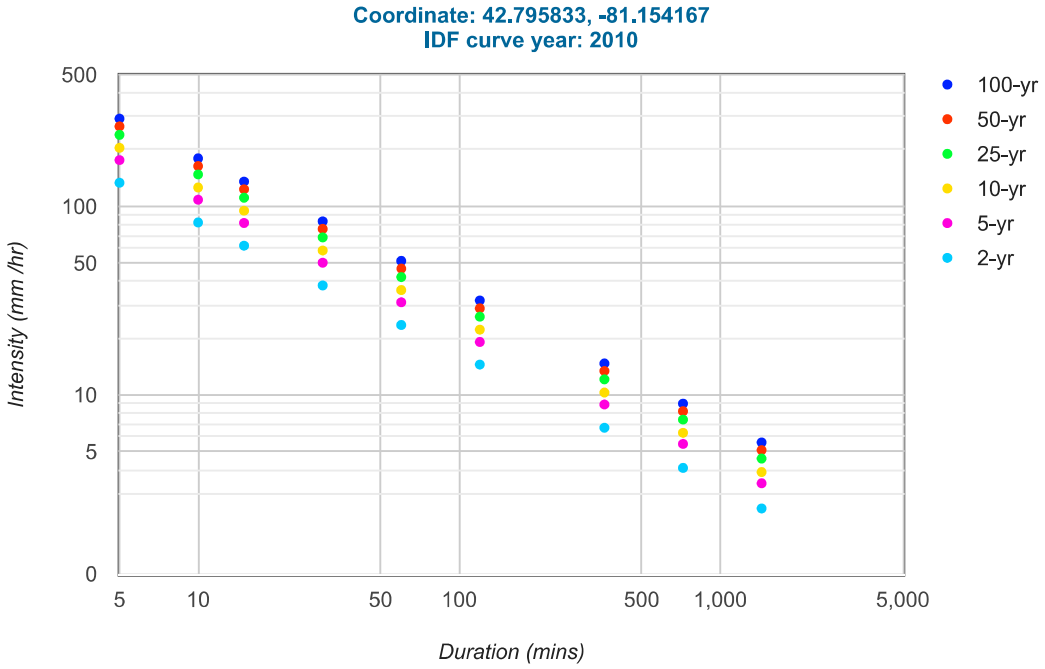
Location summary

These are the locations in the selection.

IDF Curve: 42° 47' 45" N, 81° 9' 15" W (42.795833,-81.154167)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 42° 47' 45" N, 81° 9' 15" W (42.795833,-81.154167)

Retrieved: Thu, 30 Apr 2026 14:43:00 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	23.5	31.0	36.0	42.2	46.8	51.4
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

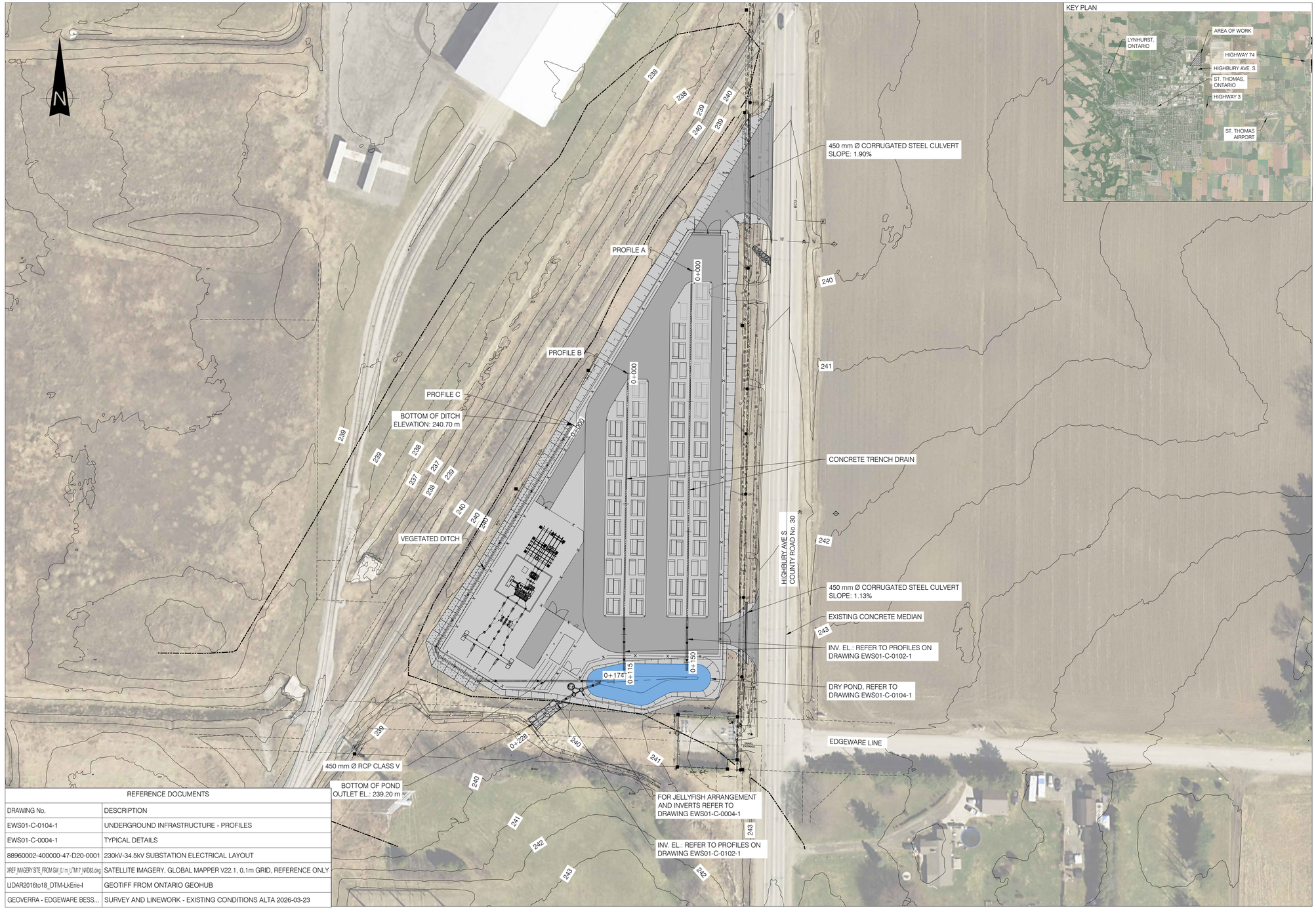
Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	133.5	82.2	61.9	38.1	23.5	14.5	6.7	4.1	2.5
5-yr	176.1	108.5	81.7	50.3	31.0	19.1	8.9	5.5	3.4
10-yr	204.5	126.0	94.9	58.4	36.0	22.2	10.3	6.3	3.9
25-yr	239.7	147.7	111.2	68.5	42.2	26.0	12.1	7.4	4.6
50-yr	265.8	163.7	123.3	76.0	46.8	28.8	13.4	8.2	5.1
100-yr	292.0	179.8	135.5	83.4	51.4	31.7	14.7	9.0	5.6

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	11.1	13.7	15.5	19.1	23.5	29.0	40.3	49.6	61.2
5-yr	14.7	18.1	20.4	25.2	31.0	38.2	53.2	65.5	80.7
10-yr	17.0	21.0	23.7	29.2	36.0	44.4	61.7	76.1	93.7
25-yr	20.0	24.6	27.8	34.3	42.2	52.0	72.4	89.2	109.8
50-yr	22.2	27.3	30.8	38.0	46.8	57.7	80.3	98.9	121.8
100-yr	24.3	30.0	33.9	41.7	51.4	63.3	88.1	108.6	133.8

Terms of Use

Appendix B: Stormwater Management Concept



REFERENCE DOCUMENTS	
DRAWING No.	DESCRIPTION
EWS01-C-0104-1	UNDERGROUND INFRASTRUCTURE - PROFILES
EWS01-C-0004-1	TYPICAL DETAILS
88960002-400000-47-D20-0001	230kV-34.5kV SUBSTATION ELECTRICAL LAYOUT
XREF IMAGERY SITE_FROM GM 0.1m UTM17 NAD83.dwg	SATELLITE IMAGERY, GLOBAL MAPPER V22.1, 0.1m GRID, REFERENCE ONLY
LIDAR2016to18_DTM-LkErie-I	GEOTIFF FROM ONTARIO GEOHUB
GEOVERRA - EDGEWARE BESS...	SURVEY AND LINEWORK - EXISTING CONDITIONS ALTA 2026-03-23

1:750 12.5 0 25 50 75 m

NOTES:

1. DRAWING IS IN METERS, UNLESS NOTED OTHERWISE, CONTOURS ARE SHOWN EVERY 1 m & 5 m.
2. COORDINATE SYSTEM IS UTM ZONE 17, NAD83 (CSRS), ELEVATIONS ARE REFERENCED TO CGVD2013 VERTICAL DATUM.
3. IMAGERY IS OUT OF DATE, SHOWN FOR REFERENCE ONLY.

LEGEND:

- EXISTING UTILITY POLE & ANCHOR
- EXISTING FIRE HYDRANT & WATER VALVE
- EXISTING FENCE LINE
- EXISTING OVERHEAD POWER LINE
- EXISTING U/G GAS PIPE
- EXISTING U/G WATER PIPE
- EXISTING U/G BELL SERVICE
- PROPERTY LINE
- EXISTING DITCH
- EXISTING TOP OF SLOPE
- REGULATION LIMIT (O.REG.181/06) (GEOVERRA)
- BATTERY GROUP (4 BATTERIES, 1 TRANSFORMER)
- FUTURE BATTERY GROUP (4 BATTERIES, 1 TRANSFORMER)
- FENCE
- BOLLARD (EXAGGERATED FOR CLARITY)
- HYDRANT AND POST INDICATOR VALVE
- GRANULAR PAD
- TRAVELWAY
- VEGETATED DITCH
- POND OUTFLOW
- PIPE CENTRELINE
- CONCRETE TRENCH DRAIN WITH GRATE
- LAYDOWN AREA

FOR PERMITTING
NOT TO BE USED FOR CONSTRUCTION

VER.	DATE	DRAWN	CHECKED	APPROVED	MODIFICATION
A	04/30/2026	A.C.	V.B.	M.A.	FOR PERMITTING

DATE	SCALE 1:750	
04/26	DRAWN	A.C.
04/26	CHECKED	V.B.
04/26	APPROVED	M.A.
Format ANSI D		

EDGEWARE ENERGY STORAGE PROJECT

EDGEWARE BESS
ST. THOMAS, ON

UNDERGROUND INFRASTRUCTURE PLAN VIEW

Proj. №: 4540640258 | Doc. №: EWS01-C-0101-1

78090005

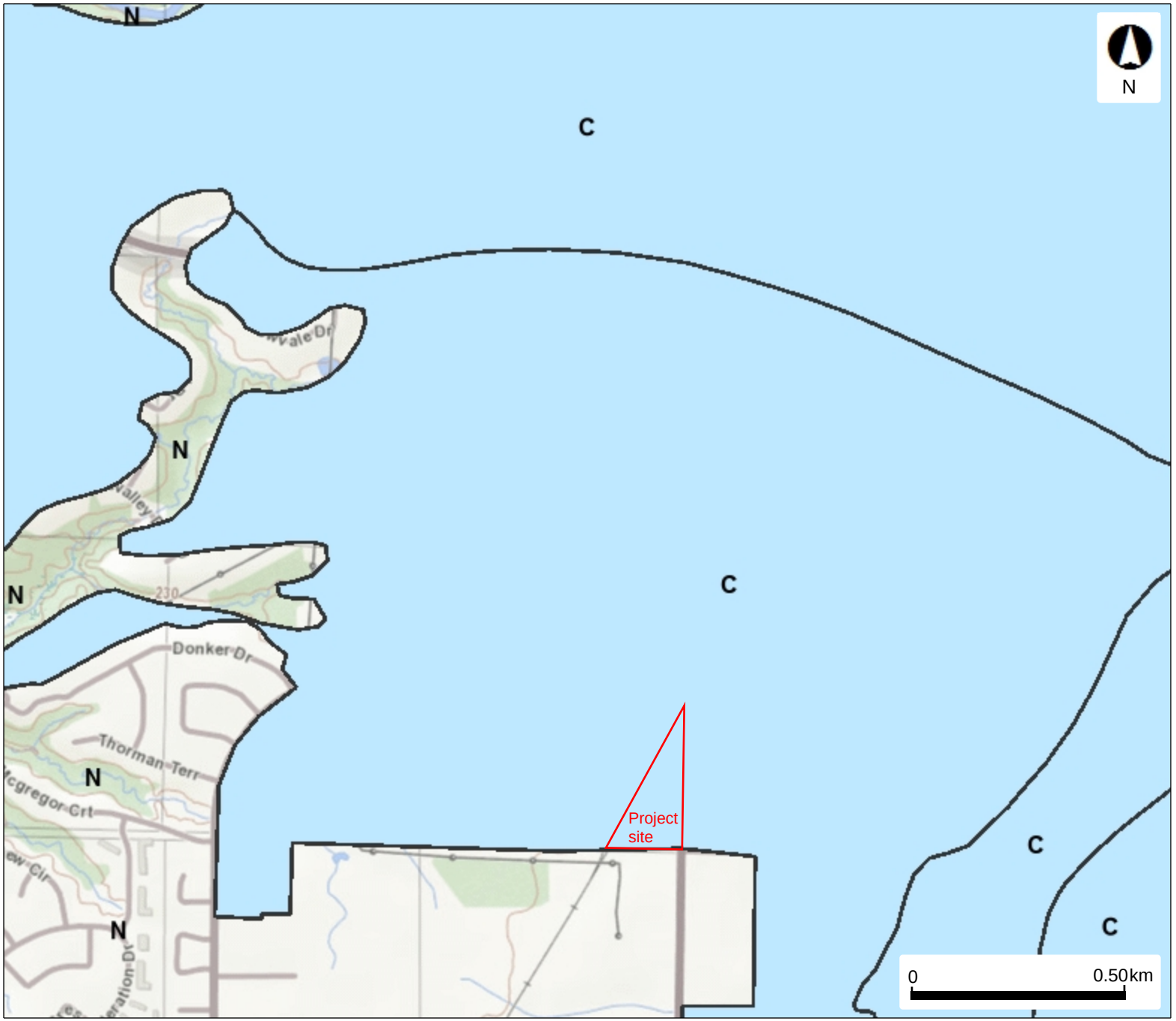
Rev. A | Page: 1 of 1

Drawing №: C-0101

G:\78090\0005\A0_Ing_Eng\A1_Civil\Dess_Dwgs\EN_COURS_IN PROGRESS\78090005-002000-41-DA0-0001@0002 [EDW01-C-0101]_UNDERGROUND INFRA AND PROFILES.dwg - Apr 30, 2026 - 11:01am

Appendix C: Hydrologic Soil Group

-Map Title-



Legend

Hydrologic Soil Group

- A - High
- B - Moderate
- C - Slow
- D - Very Slow

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Agriculture, Food and Agribusiness (OMAFA) shall not be liable in any way for the use or any information on this map. of, or reliance upon, this map.

Map Created: 8/15/2025
Map Center: 42.80598 N, -81.15297 W

Appendix D: PCSWMM Software Report Pre-Development Chicago 4-hr 25 Mm Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 6
Number of nodes 12
Number of links 11
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.50	19.15	55.88	1.1500	Chicago_3h_5yr	Pre-J1
102	1.07	172.48	8.21	1.6000	Chicago_3h_5yr	Pre-J2
103	0.45	52.44	5.25	2.3000	Chicago_3h_5yr	Pre-J8
104	0.42	42.67	25.66	5.0000	Chicago_3h_5yr	Pre-J7
105	0.54	34.20	2.71	1.2700	Chicago_3h_5yr	Pre-J4

106		0.41	66.27	34.00	1.6000	Chicago_3h_5yr	Pre-J11

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Pre-J1	JUNCTION	240.00	0.50	0.0	
Pre-J10	JUNCTION	238.50	1.00	0.0	
Pre-J11	JUNCTION	238.50	1.50	0.0	
Pre-J2	JUNCTION	239.50	0.50	0.0	
Pre-J3	JUNCTION	239.00	1.00	0.0	
Pre-J4	JUNCTION	238.70	1.30	0.0	
Pre-J5	JUNCTION	240.00	0.50	0.0	
Pre-J6	JUNCTION	239.50	0.50	0.0	
Pre-J7	JUNCTION	239.00	0.50	0.0	
Pre-J8	JUNCTION	238.86	0.50	0.0	
Pre-J9	JUNCTION	238.60	0.87	0.0	
OF1	OUTFALL	238.45	1.00	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	12.6	1.1432	0.0350
Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	25.8	1.9419	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76
Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.40
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.82
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196

0.6816 0.7436 0.8129 0.8884 0.9625
1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606

```
            0.7987     0.8365     0.8552     0.8620     0.8749
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/25/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
```

Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.107	31.506
Evaporation Loss	0.000	0.000
Infiltration Loss	0.061	18.060
Surface Runoff	0.041	12.211
Final Storage	0.004	1.246
Continuity Error (%)	-0.037	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.041	0.413
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.041	0.413
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
101	31.51	0.00	0.00	7.63	16.96	5.71	22.67	0.11	0.07	0.719

102	31.51	0.00	0.00	18.86	2.50	8.91	11.41	0.12	0.03	0.362
103	31.51	0.00	0.00	20.38	1.60	8.27	9.87	0.04	0.01	0.313
104	31.51	0.00	0.00	16.22	7.80	6.25	14.06	0.06	0.03	0.446
105	31.51	0.00	0.00	24.66	0.82	4.76	5.59	0.03	0.00	0.177
106	31.51	0.00	0.00	19.36	10.33	0.61	10.94	0.04	0.04	0.347

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Pre-J1	JUNCTION	0.01	0.12	240.12	0 01:00	0.12
Pre-J10	JUNCTION	0.01	0.14	238.64	0 01:00	0.14
Pre-J11	JUNCTION	0.01	0.11	238.61	0 01:00	0.11
Pre-J2	JUNCTION	0.01	0.14	239.64	0 01:00	0.14
Pre-J3	JUNCTION	0.01	0.16	239.16	0 01:04	0.16
Pre-J4	JUNCTION	0.01	0.09	238.79	0 01:06	0.09
Pre-J5	JUNCTION	0.00	0.00	240.00	0 00:00	0.00
Pre-J6	JUNCTION	0.00	0.00	239.50	0 00:00	0.00
Pre-J7	JUNCTION	0.00	0.06	239.06	0 01:00	0.06
Pre-J8	JUNCTION	0.00	0.08	238.94	0 00:53	0.08
Pre-J9	JUNCTION	0.00	0.07	238.68	0 01:00	0.07
OF1	OUTFALL	0.01	0.09	238.54	0 01:00	0.09

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent

Pre-J1	JUNCTION	0.066	0.066	0	01:00	0.113	0.113	-0.090	
Pre-J10	JUNCTION	0.000	0.037	0	01:00	0	0.103	0.007	
Pre-J11	JUNCTION	0.037	0.095	0	01:00	0.0449	0.413	-0.002	
Pre-J2	JUNCTION	0.031	0.087	0	01:00	0.122	0.235	-0.106	
Pre-J3	JUNCTION	0.000	0.083	0	01:01	0	0.235	0.147	
Pre-J4	JUNCTION	0.004	0.069	0	01:05	0.03	0.265	0.026	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J7	JUNCTION	0.031	0.031	0	01:00	0.0594	0.0594	-0.010	
Pre-J8	JUNCTION	0.008	0.038	0	01:00	0.044	0.103	-0.019	
Pre-J9	JUNCTION	0.000	0.037	0	01:00	0	0.103	0.015	
OF1	OUTFALL	0.000	0.094	0	01:00	0	0.413	0.000	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	42.64	0.011	0.094	0.413

System	42.64	0.011	0.094	0.413

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
Pre-Swale01	CONDUIT	0.058	0	01:00	0.36	0.07	0.26
Pre-Swale02	CONDUIT	0.083	0	01:01	0.48	0.08	0.28
Pre-Swale03	CONDUIT	0.068	0	01:05	0.44	0.02	0.12
Pre-Swale04	CONDUIT	0.068	0	01:06	0.59	0.01	0.10
Pre-Swale05	CONDUIT	0.037	0	01:01	0.24	0.10	0.12
Pre-Swale06	CONDUIT	0.037	0	01:00	0.29	0.01	0.14
Pre-Swale07	CONDUIT	0.030	0	01:00	0.38	0.02	0.14
Pre-Swale08	CONDUIT	0.037	0	01:00	0.42	0.03	0.15
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pre-Swale10	CONDUIT	0.000	0	00:00	0.00	0.00	0.06
Pre-Swale11	CONDUIT	0.094	0	01:00	0.79	0.01	0.10

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
Pre-Swale01	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
Pre-Swale03	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.02	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00

Pre-Swale05	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.58	0.00
Pre-Swale06	1.00	0.00	0.19	0.00	0.80	0.00	0.00	0.00	0.98	0.00
Pre-Swale07	1.00	0.37	0.17	0.00	0.47	0.00	0.00	0.00	0.47	0.00
Pre-Swale08	1.00	0.19	0.19	0.00	0.61	0.01	0.00	0.00	0.56	0.00
Pre-Swale09	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.53	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Apr 29 17:05:05 2026
Analysis ended on: Wed Apr 29 17:05:05 2026
Total elapsed time: < 1 sec

Appendix E: PCSWMM Software Report Pre-Development Chicago 3-hr 2-year Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 6
Number of nodes 12
Number of links 11
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.50	19.15	55.88	1.1500	Chicago_24h_100yr	Pre-J1
102	1.07	172.48	8.21	1.6000	Chicago_24h_100yr	Pre-J2
103	0.45	52.44	5.25	2.3000	Chicago_24h_100yr	Pre-J8
104	0.42	42.67	25.66	5.0000	Chicago_24h_100yr	Pre-J7
105	0.54	34.20	2.71	1.2700	Chicago_24h_100yr	Pre-J4

106 0.41 66.27 34.00 1.6000 Chicago_24h_100yr Pre-J11

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Pre-J1	JUNCTION	240.00	0.50	0.0	
Pre-J10	JUNCTION	238.50	1.00	0.0	
Pre-J11	JUNCTION	238.50	1.50	0.0	
Pre-J2	JUNCTION	239.50	0.50	0.0	
Pre-J3	JUNCTION	239.00	1.00	0.0	
Pre-J4	JUNCTION	238.70	1.30	0.0	
Pre-J5	JUNCTION	240.00	0.50	0.0	
Pre-J6	JUNCTION	239.50	0.50	0.0	
Pre-J7	JUNCTION	239.00	0.50	0.0	
Pre-J8	JUNCTION	238.86	0.50	0.0	
Pre-J9	JUNCTION	238.60	0.87	0.0	
OF1	OUTFALL	238.45	1.00	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	12.6	1.1432	0.0350
Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	25.8	1.9419	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76
Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.40
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.82
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196

0.6816 0.7436 0.8129 0.8884 0.9625
1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606

```
            0.7987     0.8365     0.8552     0.8620     0.8749
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/25/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
```

Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.263	77.792
Evaporation Loss	0.000	0.000
Infiltration Loss	0.072	21.229
Surface Runoff	0.174	51.316
Final Storage	0.018	5.277
Continuity Error (%)	-0.038	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.174	1.736
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.173	1.728
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.008
Continuity Error (%)	-0.002	

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.52 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
101	77.79	0.00	0.00	6.77	42.53	24.51	67.04	0.33	0.13	0.862

102	77.79	0.00	0.00	20.53	6.30	45.44	51.74	0.55	0.17	0.665
103	77.79	0.00	0.00	22.71	4.03	45.27	49.30	0.22	0.06	0.634
104	77.79	0.00	0.00	18.96	19.66	34.65	54.31	0.23	0.09	0.698
105	77.79	0.00	0.00	29.02	2.08	39.76	41.84	0.22	0.03	0.538
106	77.79	0.00	0.00	31.10	26.04	16.62	42.66	0.18	0.07	0.548

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Pre-J1	JUNCTION	0.02	0.18	240.18	0 08:00	0.18
Pre-J10	JUNCTION	0.05	0.27	238.77	0 08:01	0.27
Pre-J11	JUNCTION	0.04	0.23	238.73	0 08:01	0.23
Pre-J2	JUNCTION	0.03	0.25	239.75	0 08:01	0.25
Pre-J3	JUNCTION	0.04	0.30	239.30	0 08:03	0.30
Pre-J4	JUNCTION	0.03	0.19	238.89	0 08:04	0.19
Pre-J5	JUNCTION	0.00	0.00	240.00	0 00:00	0.00
Pre-J6	JUNCTION	0.00	0.00	239.50	0 00:00	0.00
Pre-J7	JUNCTION	0.01	0.12	239.12	0 08:00	0.12
Pre-J8	JUNCTION	0.02	0.17	239.02	0 08:00	0.17
Pre-J9	JUNCTION	0.02	0.18	238.79	0 08:00	0.18
OF1	OUTFALL	0.03	0.21	238.67	0 08:01	0.21

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent

Pre-J1	JUNCTION	0.132	0.132	0	08:00	0.334	0.334	0.076	
Pre-J10	JUNCTION	0.000	0.137	0	08:00	0	0.448	0.140	
Pre-J11	JUNCTION	0.069	0.386	0	08:01	0.175	1.73	0.030	
Pre-J2	JUNCTION	0.170	0.289	0	08:00	0.553	0.887	0.230	
Pre-J3	JUNCTION	0.000	0.257	0	08:01	0	0.885	0.300	
Pre-J4	JUNCTION	0.025	0.261	0	08:03	0.225	1.11	0.086	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J7	JUNCTION	0.092	0.092	0	08:00	0.229	0.229	0.053	
Pre-J8	JUNCTION	0.057	0.147	0	08:00	0.22	0.449	0.051	
Pre-J9	JUNCTION	0.000	0.143	0	08:00	0	0.449	0.070	
OF1	OUTFALL	0.000	0.386	0	08:01	0	1.73	0.000	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	98.62	0.020	0.386	1.728

System	98.62	0.020	0.386	1.728

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
Pre-Swale01	CONDUIT	0.121	0	08:00	0.39	0.15	0.44
Pre-Swale02	CONDUIT	0.257	0	08:01	0.66	0.26	0.55
Pre-Swale03	CONDUIT	0.240	0	08:03	0.66	0.06	0.24
Pre-Swale04	CONDUIT	0.260	0	08:04	0.88	0.04	0.21
Pre-Swale05	CONDUIT	0.135	0	08:01	0.36	0.36	0.25
Pre-Swale06	CONDUIT	0.137	0	08:00	0.43	0.04	0.28
Pre-Swale07	CONDUIT	0.090	0	08:00	0.50	0.06	0.28
Pre-Swale08	CONDUIT	0.143	0	08:00	0.62	0.12	0.35
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pre-Swale10	CONDUIT	0.000	0	00:00	0.00	0.00	0.12
Pre-Swale11	CONDUIT	0.386	0	08:01	1.21	0.06	0.22

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
Pre-Swale01	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.96	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
Pre-Swale03	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.03	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00

Pre-Swale05	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
Pre-Swale09	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Apr 29 09:41:48 2026
Analysis ended on: Wed Apr 29 09:41:48 2026
Total elapsed time: < 1 sec

Appendix F: PCSWMM Software Report Pre-Development Chicago 3-hr 5-year Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 6
Number of nodes 12
Number of links 11
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.50	19.15	55.88	1.1500	Chicago_3h_5yr	Pre-J1
102	1.07	172.48	8.21	1.6000	Chicago_3h_5yr	Pre-J2
103	0.45	52.44	5.25	2.3000	Chicago_3h_5yr	Pre-J8
104	0.42	42.67	25.66	5.0000	Chicago_3h_5yr	Pre-J7
105	0.54	34.20	2.71	1.2700	Chicago_3h_5yr	Pre-J4

106		0.41	66.27	34.00	1.6000	Chicago_3h_5yr	Pre-J11

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Pre-J1	JUNCTION	240.00	0.50	0.0	
Pre-J10	JUNCTION	238.50	1.00	0.0	
Pre-J11	JUNCTION	238.50	1.50	0.0	
Pre-J2	JUNCTION	239.50	0.50	0.0	
Pre-J3	JUNCTION	239.00	1.00	0.0	
Pre-J4	JUNCTION	238.70	1.30	0.0	
Pre-J5	JUNCTION	240.00	0.50	0.0	
Pre-J6	JUNCTION	239.50	0.50	0.0	
Pre-J7	JUNCTION	239.00	0.50	0.0	
Pre-J8	JUNCTION	238.86	0.50	0.0	
Pre-J9	JUNCTION	238.60	0.87	0.0	
OF1	OUTFALL	238.45	1.00	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	12.6	1.1432	0.0350
Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	25.8	1.9419	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76
Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.40
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.82
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196

0.6816 0.7436 0.8129 0.8884 0.9625
1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606

```
            0.7987     0.8365     0.8552     0.8620     0.8749
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/25/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
```

Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.107	31.506
Evaporation Loss	0.000	0.000
Infiltration Loss	0.061	18.060
Surface Runoff	0.041	12.211
Final Storage	0.004	1.246
Continuity Error (%)	-0.037	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.041	0.413
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.041	0.413
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
101	31.51	0.00	0.00	7.63	16.96	5.71	22.67	0.11	0.07	0.719

102	31.51	0.00	0.00	18.86	2.50	8.91	11.41	0.12	0.03	0.362
103	31.51	0.00	0.00	20.38	1.60	8.27	9.87	0.04	0.01	0.313
104	31.51	0.00	0.00	16.22	7.80	6.25	14.06	0.06	0.03	0.446
105	31.51	0.00	0.00	24.66	0.82	4.76	5.59	0.03	0.00	0.177
106	31.51	0.00	0.00	19.36	10.33	0.61	10.94	0.04	0.04	0.347

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Pre-J1	JUNCTION	0.01	0.12	240.12	0 01:00	0.12
Pre-J10	JUNCTION	0.01	0.14	238.64	0 01:00	0.14
Pre-J11	JUNCTION	0.01	0.11	238.61	0 01:00	0.11
Pre-J2	JUNCTION	0.01	0.14	239.64	0 01:00	0.14
Pre-J3	JUNCTION	0.01	0.16	239.16	0 01:04	0.16
Pre-J4	JUNCTION	0.01	0.09	238.79	0 01:06	0.09
Pre-J5	JUNCTION	0.00	0.00	240.00	0 00:00	0.00
Pre-J6	JUNCTION	0.00	0.00	239.50	0 00:00	0.00
Pre-J7	JUNCTION	0.00	0.06	239.06	0 01:00	0.06
Pre-J8	JUNCTION	0.00	0.08	238.94	0 00:53	0.08
Pre-J9	JUNCTION	0.00	0.07	238.68	0 01:00	0.07
OF1	OUTFALL	0.01	0.09	238.54	0 01:00	0.09

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent

Pre-J1	JUNCTION	0.066	0.066	0	01:00	0.113	0.113	-0.090	
Pre-J10	JUNCTION	0.000	0.037	0	01:00	0	0.103	0.007	
Pre-J11	JUNCTION	0.037	0.095	0	01:00	0.0449	0.413	-0.002	
Pre-J2	JUNCTION	0.031	0.087	0	01:00	0.122	0.235	-0.106	
Pre-J3	JUNCTION	0.000	0.083	0	01:01	0	0.235	0.147	
Pre-J4	JUNCTION	0.004	0.069	0	01:05	0.03	0.265	0.026	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J7	JUNCTION	0.031	0.031	0	01:00	0.0594	0.0594	-0.010	
Pre-J8	JUNCTION	0.008	0.038	0	01:00	0.044	0.103	-0.019	
Pre-J9	JUNCTION	0.000	0.037	0	01:00	0	0.103	0.015	
OF1	OUTFALL	0.000	0.094	0	01:00	0	0.413	0.000	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	42.64	0.011	0.094	0.413

System	42.64	0.011	0.094	0.413

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
Pre-Swale01	CONDUIT	0.058	0	01:00	0.36	0.07	0.26
Pre-Swale02	CONDUIT	0.083	0	01:01	0.48	0.08	0.28
Pre-Swale03	CONDUIT	0.068	0	01:05	0.44	0.02	0.12
Pre-Swale04	CONDUIT	0.068	0	01:06	0.59	0.01	0.10
Pre-Swale05	CONDUIT	0.037	0	01:01	0.24	0.10	0.12
Pre-Swale06	CONDUIT	0.037	0	01:00	0.29	0.01	0.14
Pre-Swale07	CONDUIT	0.030	0	01:00	0.38	0.02	0.14
Pre-Swale08	CONDUIT	0.037	0	01:00	0.42	0.03	0.15
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pre-Swale10	CONDUIT	0.000	0	00:00	0.00	0.00	0.06
Pre-Swale11	CONDUIT	0.094	0	01:00	0.79	0.01	0.10

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
Pre-Swale01	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
Pre-Swale03	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.02	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00

Pre-Swale05	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.58	0.00
Pre-Swale06	1.00	0.00	0.19	0.00	0.80	0.00	0.00	0.00	0.98	0.00
Pre-Swale07	1.00	0.37	0.17	0.00	0.47	0.00	0.00	0.00	0.47	0.00
Pre-Swale08	1.00	0.19	0.19	0.00	0.61	0.01	0.00	0.00	0.56	0.00
Pre-Swale09	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.53	0.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Apr 29 17:05:05 2026
Analysis ended on: Wed Apr 29 17:05:05 2026
Total elapsed time: < 1 sec

Appendix G: PCSWMM Software Report Pre-Development Chicago 24-hr 100-year Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 6
Number of nodes 12
Number of links 11
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.50	19.15	55.88	1.1500	Chicago_24h_100yr	Pre-J1
102	1.07	172.48	8.21	1.6000	Chicago_24h_100yr	Pre-J2
103	0.45	52.44	5.25	2.3000	Chicago_24h_100yr	Pre-J8
104	0.42	42.67	25.66	5.0000	Chicago_24h_100yr	Pre-J7
105	0.54	34.20	2.71	1.2700	Chicago_24h_100yr	Pre-J4
106	0.41	66.27	34.00	1.6000	Chicago_24h_100yr	Pre-J11

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Pre-J1	JUNCTION	240.00	0.50	0.0	

Pre-J10	JUNCTION	238.50	1.00	0.0
Pre-J11	JUNCTION	238.50	1.50	0.0
Pre-J2	JUNCTION	239.50	0.50	0.0
Pre-J3	JUNCTION	239.00	1.00	0.0
Pre-J4	JUNCTION	238.70	1.30	0.0
Pre-J5	JUNCTION	240.00	0.50	0.0
Pre-J6	JUNCTION	239.50	0.50	0.0
Pre-J7	JUNCTION	239.00	0.50	0.0
Pre-J8	JUNCTION	238.86	0.50	0.0
Pre-J9	JUNCTION	238.60	0.87	0.0
OF1	OUTFALL	238.45	1.00	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	12.6	1.1432	0.0350
Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	25.8	1.9419	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76
Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.40
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.82
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85

****
Transect Summary
****

Transect 2
Area:

0.0005	0.0020	0.0044	0.0079	0.0123
0.0177	0.0241	0.0315	0.0399	0.0492
0.0596	0.0709	0.0832	0.0962	0.1100
0.1245	0.1398	0.1558	0.1725	0.1900
0.2082	0.2272	0.2469	0.2673	0.2885
0.3101	0.3320	0.3542	0.3766	0.3992
0.4221	0.4453	0.4686	0.4923	0.5162
0.5403	0.5646	0.5924	0.6236	0.6554
0.6876	0.7204	0.7536	0.7873	0.8215
0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

0.0620	0.1239	0.1859	0.2479	0.3098
0.3718	0.4337	0.4957	0.5577	0.6196
0.6816	0.7436	0.8129	0.8884	0.9625
1.0353	1.1071	1.1780	1.2480	1.3174
1.3861	1.4543	1.5221	1.5894	1.6563
1.7563	1.8551	1.9525	2.0488	2.1439
2.2378	2.3307	2.4225	2.5134	2.6032
2.6922	2.7802	2.3149	2.3962	2.4766
2.5563	2.6352	2.7134	2.7909	2.8678
2.9441	3.0197	3.0949	3.1694	1.0000

Width:

0.0080	0.0160	0.0240	0.0320	0.0400
0.0480	0.0560	0.0640	0.0720	0.0800
0.0880	0.0960	0.1030	0.1090	0.1150
0.1210	0.1270	0.1330	0.1390	0.1450
0.1510	0.1570	0.1630	0.1690	0.1750
0.1770	0.1790	0.1810	0.1830	0.1850
0.1870	0.1890	0.1910	0.1930	0.1950
0.1970	0.1990	0.2520	0.2560	0.2600
0.2640	0.2680	0.2720	0.2760	0.2800
0.2840	0.2880	0.2920	0.2960	1.0000

Transect 3
Area:

0.0046	0.0094	0.0145	0.0199	0.0256
0.0315	0.0376	0.0441	0.0508	0.0578
0.0650	0.0725	0.0803	0.0882	0.0961
0.1041	0.1123	0.1205	0.1288	0.1372
0.1457	0.1543	0.1629	0.1717	0.1805
0.2029	0.2253	0.2480	0.2709	0.2939
0.3171	0.3404	0.3640	0.3877	0.4116
0.4357	0.4600	0.4922	0.5326	0.5733
0.6144	0.6558	0.6976	0.7397	0.7822

```
            0.8251     0.8683     0.9118     0.9557     1.0000
Hrad:
            0.0439     0.0855     0.1251     0.1630     0.1995
            0.2347     0.2688     0.3020     0.3343     0.3659
            0.3968     0.4271     0.4614     0.4997     0.5375
            0.5748     0.6116     0.6479     0.6838     0.7192
            0.7542     0.7888     0.8231     0.8569     0.3627
            0.4040     0.4450     0.4856     0.5258     0.5657
            0.6053     0.6446     0.6836     0.7222     0.7606
            0.7987     0.8365     0.8552     0.8620     0.8749
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/25/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
```

Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.263	77.792
Evaporation Loss	0.000	0.000
Infiltration Loss	0.072	21.229
Surface Runoff	0.174	51.316
Final Storage	0.018	5.277
Continuity Error (%)	-0.038	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.174	1.736
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.173	1.728
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.001	0.008
Continuity Error (%)	-0.002	

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****

Routing Time Step Summary
****

Minimum Time Step	:	0.52 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
101	77.79	0.00	0.00	6.77	42.53	24.51	67.04	0.33	0.13	0.862
102	77.79	0.00	0.00	20.53	6.30	45.44	51.74	0.55	0.17	0.665
103	77.79	0.00	0.00	22.71	4.03	45.27	49.30	0.22	0.06	0.634
104	77.79	0.00	0.00	18.96	19.66	34.65	54.31	0.23	0.09	0.698
105	77.79	0.00	0.00	29.02	2.08	39.76	41.84	0.22	0.03	0.538
106	77.79	0.00	0.00	31.10	26.04	16.62	42.66	0.18	0.07	0.548

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Pre-J1	JUNCTION	0.02	0.18	240.18	0 08:00	0.18
Pre-J10	JUNCTION	0.05	0.27	238.77	0 08:01	0.27
Pre-J11	JUNCTION	0.04	0.23	238.73	0 08:01	0.23
Pre-J2	JUNCTION	0.03	0.25	239.75	0 08:01	0.25
Pre-J3	JUNCTION	0.04	0.30	239.30	0 08:03	0.30
Pre-J4	JUNCTION	0.03	0.19	238.89	0 08:04	0.19
Pre-J5	JUNCTION	0.00	0.00	240.00	0 00:00	0.00
Pre-J6	JUNCTION	0.00	0.00	239.50	0 00:00	0.00

Pre-J7	JUNCTION	0.01	0.12	239.12	0	08:00	0.12
Pre-J8	JUNCTION	0.02	0.17	239.02	0	08:00	0.17
Pre-J9	JUNCTION	0.02	0.18	238.79	0	08:00	0.18
OF1	OUTFALL	0.03	0.21	238.67	0	08:01	0.21

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
Pre-J1	JUNCTION	0.132	0.132	0	08:00	0.334	0.334	0.076	
Pre-J10	JUNCTION	0.000	0.137	0	08:00	0	0.448	0.140	
Pre-J11	JUNCTION	0.069	0.386	0	08:01	0.175	1.73	0.030	
Pre-J2	JUNCTION	0.170	0.289	0	08:00	0.553	0.887	0.230	
Pre-J3	JUNCTION	0.000	0.257	0	08:01	0	0.885	0.300	
Pre-J4	JUNCTION	0.025	0.261	0	08:03	0.225	1.11	0.086	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J7	JUNCTION	0.092	0.092	0	08:00	0.229	0.229	0.053	
Pre-J8	JUNCTION	0.057	0.147	0	08:00	0.22	0.449	0.051	
Pre-J9	JUNCTION	0.000	0.143	0	08:00	0	0.449	0.070	
OF1	OUTFALL	0.000	0.386	0	08:01	0	1.73	0.000	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

	Flow	Avg	Max	Total

Outfall Node	Freq Pcnt	Flow CMS	Flow CMS	Volume 10^6 ltr
OF1	98.62	0.020	0.386	1.728
System	98.62	0.020	0.386	1.728

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
Pre-Swale01	CONDUIT	0.121	0	08:00	0.39	0.15	0.44
Pre-Swale02	CONDUIT	0.257	0	08:01	0.66	0.26	0.55
Pre-Swale03	CONDUIT	0.240	0	08:03	0.66	0.06	0.24
Pre-Swale04	CONDUIT	0.260	0	08:04	0.88	0.04	0.21
Pre-Swale05	CONDUIT	0.135	0	08:01	0.36	0.36	0.25
Pre-Swale06	CONDUIT	0.137	0	08:00	0.43	0.04	0.28
Pre-Swale07	CONDUIT	0.090	0	08:00	0.50	0.06	0.28
Pre-Swale08	CONDUIT	0.143	0	08:00	0.62	0.12	0.35
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pre-Swale10	CONDUIT	0.000	0	00:00	0.00	0.00	0.12
Pre-Swale11	CONDUIT	0.386	0	08:01	1.21	0.06	0.22

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
Pre-Swale01	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.96	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
Pre-Swale03	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.03	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale05	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
Pre-Swale09	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00

```
************************
Conduit Surcharge Summary
************************

No conduits were surcharged.


Analysis begun on:  Wed Apr 29 09:41:48 2026
Analysis ended on:  Wed Apr 29 09:41:48 2026
Total elapsed time: < 1 sec
```

Appendix H: PCSWMM Software Report Pre-Development Regional Storm (Hazel)

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 6
Number of nodes 12
Number of links 11
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
101	0.50	19.15	55.88	1.1500	Chicago_4h_25mm	Pre-J1
102	1.07	172.48	8.21	1.6000	Chicago_4h_25mm	Pre-J2
103	0.45	52.44	5.25	2.3000	Chicago_4h_25mm	Pre-J8
104	0.42	42.67	25.66	5.0000	Chicago_4h_25mm	Pre-J7
105	0.54	34.20	2.71	1.2700	Chicago_4h_25mm	Pre-J4

106 0.41 66.27 34.00 1.6000 Chicago_4h_25mm Pre-J11

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
Pre-J1	JUNCTION	240.00	0.50	0.0	
Pre-J10	JUNCTION	238.50	1.00	0.0	
Pre-J11	JUNCTION	238.50	1.50	0.0	
Pre-J2	JUNCTION	239.50	0.50	0.0	
Pre-J3	JUNCTION	239.00	1.00	0.0	
Pre-J4	JUNCTION	238.70	1.30	0.0	
Pre-J5	JUNCTION	240.00	0.50	0.0	
Pre-J6	JUNCTION	239.50	0.50	0.0	
Pre-J7	JUNCTION	239.00	0.50	0.0	
Pre-J8	JUNCTION	238.86	0.50	0.0	
Pre-J9	JUNCTION	238.60	0.87	0.0	
OF1	OUTFALL	238.45	1.00	0.0	

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	12.6	1.1432	0.0350
Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	25.8	1.9419	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76
Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.40
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.82
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196

0.6816 0.7436 0.8129 0.8884 0.9625
1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606

```
            0.7987     0.8365     0.8552     0.8620     0.8749
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/25/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
```

Maximum Trials 8
Number of Threads 1
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.085	25.001
Evaporation Loss	0.000	0.000
Infiltration Loss	0.053	15.810
Surface Runoff	0.027	7.947
Final Storage	0.004	1.250
Continuity Error (%)	-0.026	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.027	0.269
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.027	0.269
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
101	25.00	0.00	0.00	6.98	13.31	3.49	16.81	0.08	0.05	0.672

102	25.00	0.00	0.00	16.87	1.96	4.91	6.87	0.07	0.02	0.275
103	25.00	0.00	0.00	18.11	1.25	4.38	5.63	0.03	0.00	0.225
104	25.00	0.00	0.00	14.40	6.12	3.25	9.37	0.04	0.02	0.375
105	25.00	0.00	0.00	21.19	0.65	1.90	2.55	0.01	0.00	0.102
106	25.00	0.00	0.00	15.66	8.11	0.00	8.11	0.03	0.03	0.324

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
Pre-J1	JUNCTION	0.01	0.10	240.10	0 01:40	0.10
Pre-J10	JUNCTION	0.01	0.12	238.62	0 01:40	0.12
Pre-J11	JUNCTION	0.01	0.09	238.59	0 01:40	0.09
Pre-J2	JUNCTION	0.01	0.10	239.60	0 01:40	0.10
Pre-J3	JUNCTION	0.01	0.12	239.12	0 01:45	0.12
Pre-J4	JUNCTION	0.01	0.07	238.77	0 01:46	0.07
Pre-J5	JUNCTION	0.00	0.00	240.00	0 00:00	0.00
Pre-J6	JUNCTION	0.00	0.00	239.50	0 00:00	0.00
Pre-J7	JUNCTION	0.00	0.05	239.05	0 01:40	0.05
Pre-J8	JUNCTION	0.00	0.07	238.92	0 01:34	0.07
Pre-J9	JUNCTION	0.00	0.06	238.66	0 01:36	0.06
OF1	OUTFALL	0.01	0.08	238.53	0 01:40	0.08

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent

Pre-J1	JUNCTION	0.046	0.046	0	01:40	0.0837	0.0837	-0.067
Pre-J10	JUNCTION	0.000	0.026	0	01:36	0	0.0647	0.006
Pre-J11	JUNCTION	0.027	0.073	0	01:40	0.0333	0.269	-0.000
Pre-J2	JUNCTION	0.018	0.058	0	01:40	0.0735	0.157	-0.047
Pre-J3	JUNCTION	0.000	0.050	0	01:41	0	0.157	0.097
Pre-J4	JUNCTION	0.003	0.043	0	01:45	0.0137	0.171	0.019
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000 ltr
Pre-J6	JUNCTION	0.000	0.000	0	00:00	0	0	0.000 ltr
Pre-J7	JUNCTION	0.021	0.021	0	01:40	0.0396	0.0396	-0.009
Pre-J8	JUNCTION	0.005	0.026	0	01:40	0.0251	0.0647	-0.019
Pre-J9	JUNCTION	0.000	0.026	0	01:35	0	0.0647	0.012
OF1	OUTFALL	0.000	0.072	0	01:40	0	0.269	0.000

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	46.94	0.007	0.072	0.269

System	46.94	0.007	0.072	0.269

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
Pre-Swale01	CONDUIT	0.041	0	01:40	0.34	0.05	0.20
Pre-Swale02	CONDUIT	0.050	0	01:41	0.41	0.05	0.22
Pre-Swale03	CONDUIT	0.042	0	01:45	0.37	0.01	0.10
Pre-Swale04	CONDUIT	0.042	0	01:46	0.50	0.01	0.07
Pre-Swale05	CONDUIT	0.025	0	01:41	0.20	0.07	0.11
Pre-Swale06	CONDUIT	0.026	0	01:36	0.25	0.01	0.11
Pre-Swale07	CONDUIT	0.021	0	01:40	0.33	0.01	0.11
Pre-Swale08	CONDUIT	0.026	0	01:35	0.37	0.02	0.12
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
Pre-Swale10	CONDUIT	0.000	0	00:00	0.00	0.00	0.05
Pre-Swale11	CONDUIT	0.072	0	01:40	0.72	0.01	0.08

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
Pre-Swale01	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.97	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.93	0.00
Pre-Swale03	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.03	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00

Pre-Swale05	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.53	0.00
Pre-Swale06	1.00	0.01	0.17	0.00	0.82	0.00	0.00	0.00	0.98	0.00
Pre-Swale07	1.00	0.33	0.16	0.00	0.51	0.00	0.00	0.00	0.52	0.00
Pre-Swale08	1.00	0.16	0.17	0.00	0.65	0.01	0.00	0.00	0.55	0.00
Pre-Swale09	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.49	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

Analysis begun on: Wed Apr 29 17:06:51 2026
Analysis ended on: Wed Apr 29 17:06:52 2026
Total elapsed time: 00:00:01

Appendix I: PCSWMM Software Report Post-Development Chicago 4-hr 25 mm Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

WARNING 03: negative offset ignored for Link Pre-Swale07
WARNING 03: negative offset ignored for Link Pre-Swale10
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J14
WARNING 02: maximum depth increased for Node J6

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 49
Number of nodes 34
Number of links 35
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

201	0.22	8.51	55.88	1.1500	Chicago_3h_5yr	Pre-J1
201_1	0.03	1.29	55.88	1.1500	Chicago_3h_5yr	PAD-208
201-2	0.11	4.08	55.88	1.1500	Chicago_3h_5yr	Pre-J1
202	0.13	20.61	8.21	1.6000	Chicago_3h_5yr	Pre-J1
203	0.07	8.82	5.25	2.3000	Chicago_3h_5yr	Pre-J6
203-1	0.02	2.90	8.21	1.6000	Chicago_3h_5yr	203
204	0.42	42.67	25.66	5.0000	Chicago_3h_5yr	Pre-J6
205	0.23	14.61	2.71	1.2700	Chicago_3h_5yr	Pre-J8
205_1	0.01	0.78	25.00	1.2700	Chicago_3h_5yr	Pre-J3
206	0.41	66.27	34.00	1.6000	Chicago_3h_5yr	Pre-J11
207	0.18	29.76	8.21	1.6000	Chicago_3h_5yr	Pre-J2
207-1	0.07	11.68	8.21	1.6000	Chicago_3h_5yr	Pre-J4
PAD-208	0.06	20.13	76.00	3.2200	Chicago_3h_5yr	PAD208-1
PAD208-1	0.05	18.67	76.00	0.1000	Chicago_3h_5yr	J1
PAD208-10	0.05	26.11	76.00	0.5300	Chicago_3h_5yr	J7
PAD208-11	0.03	18.07	76.00	5.0000	Chicago_3h_5yr	J7
PAD208-12	0.02	7.93	24.00	0.5300	Chicago_3h_5yr	PAD208-13
PAD208-13	0.03	8.02	25.00	0.7200	Chicago_3h_5yr	Pre-J1
PAD208-14	0.01	21.47	25.00	0.5000	Chicago_3h_5yr	Pre-J1
PAD208-15	0.03	76.91	25.00	0.5000	Chicago_3h_5yr	Pre-J1
PAD208-2	0.03	11.47	76.00	0.8850	Chicago_3h_5yr	J18
PAD208-3	0.03	10.99	76.00	0.8850	Chicago_3h_5yr	J18
PAD208-4	0.03	11.81	76.00	0.8850	Chicago_3h_5yr	J5
PAD208-5	0.03	11.40	76.00	0.8850	Chicago_3h_5yr	J5
PAD208-6	0.04	15.94	76.00	0.6100	Chicago_3h_5yr	J17
PAD208-7	0.04	15.48	76.00	0.6100	Chicago_3h_5yr	J17
PAD208-8	0.05	18.14	76.00	3.0000	Chicago_3h_5yr	J7
PAD208-9	0.04	15.29	76.00	3.0000	Chicago_3h_5yr	J7
PAD209	0.04	14.81	76.00	0.9700	Chicago_3h_5yr	J8
PAD209-1	0.03	10.53	76.00	0.8000	Chicago_3h_5yr	J20
PAD209-2	0.03	9.83	76.00	2.4200	Chicago_3h_5yr	J11
PAD209-20	0.04	88.00	25.00	5.8350	Chicago_3h_5yr	Pre-J2
PAD209-3	0.04	12.20	76.00	2.4200	Chicago_3h_5yr	J11
PAD209-4	0.03	7.97	76.00	3.0000	Chicago_3h_5yr	J19
PAD209-5	0.04	10.97	76.00	3.0000	Chicago_3h_5yr	J19
PAD209-6	0.02	7.75	76.00	3.0000	Chicago_3h_5yr	J16
PAD209-7	0.03	10.57	76.00	3.0000	Chicago_3h_5yr	J16
PAD209-8	0.05	25.72	76.00	1.7900	Chicago_3h_5yr	J16
PAD210	0.03	10.37	76.00	0.8000	Chicago_3h_5yr	J9

PAD210-1	0.01	3.07	76.00	2.4200	Chicago_3h_5yr	J9
PAD210-2	0.03	17.47	76.00	1.0000	Chicago_3h_5yr	J2
PAD210-3	0.12	58.25	76.00	2.0000	Chicago_3h_5yr	PAD210-5
PAD210-4	0.01	2.16	76.00	2.0000	Chicago_3h_5yr	PAD210-3
PAD210-5	0.11	15.15	76.00	1.2000	Chicago_3h_5yr	PAD210-6
PAD210-6	0.01	19.51	76.00	2.7500	Chicago_3h_5yr	J14
PAD210-7	0.02	30.00	25.00	0.5000	Chicago_3h_5yr	J9
PAD210-8	0.02	33.33	25.00	0.5000	Chicago_3h_5yr	J10
PAD210-9	0.04	64.14	25.00	0.5000	Chicago_3h_5yr	J12
Pond	0.13	89.17	100.00	0.5000	Chicago_3h_5yr	SU1

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	241.58	0.40	0.0	
J10	JUNCTION	240.47	0.56	0.0	
J11	JUNCTION	241.09	0.49	0.0	
J12	JUNCTION	240.25	0.72	0.0	
J13	JUNCTION	240.25	0.72	0.0	
J14	JUNCTION	240.24	0.70	0.0	
J15	JUNCTION	240.10	0.83	0.0	
J16	JUNCTION	240.87	0.58	0.0	
J17	JUNCTION	241.10	0.59	0.0	
J18	JUNCTION	241.42	0.46	0.0	
J19	JUNCTION	240.98	0.53	0.0	
J2	JUNCTION	240.63	0.50	0.0	
J20	JUNCTION	241.20	0.44	0.0	
J21	JUNCTION	240.38	0.59	0.0	
J3	JUNCTION	240.17	0.78	0.0	
J4	JUNCTION	239.58	1.49	0.0	
J5	JUNCTION	241.26	0.53	0.0	
J6	JUNCTION	239.27	1.69	0.0	
J7	JUNCTION	240.94	0.66	0.0	
J8	JUNCTION	241.32	0.40	0.0	
J9	JUNCTION	240.75	0.50	0.0	

Pre-J1	JUNCTION	240.00	0.50	0.0
Pre-J10	JUNCTION	238.50	1.00	0.0
Pre-J11	JUNCTION	238.50	1.50	0.0
Pre-J2	JUNCTION	239.50	0.50	0.0
Pre-J3	JUNCTION	239.00	1.00	0.0
Pre-J4	JUNCTION	238.70	1.30	0.0
Pre-J5	JUNCTION	240.00	0.50	0.0
Pre-J6	JUNCTION	239.50	0.50	0.0
Pre-J7	JUNCTION	239.20	0.50	0.0
Pre-J8	JUNCTION	238.86	0.50	0.0
Pre-J9	JUNCTION	238.60	0.87	0.0
OF1	OUTFALL	238.45	1.00	0.0
SU1	STORAGE	239.60	1.90	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
DITCH-201	J14	J3	CONDUIT	14.4	0.4875	0.2500
DITCH-202	J3	J15	CONDUIT	11.2	0.6267	0.2500
DITCH-203	J9	J2	CONDUIT	24.9	0.4412	0.2500
DITCH-204	J2	J10	CONDUIT	25.1	0.6578	0.2500
DITCH-205_1	J10	J21	CONDUIT	19.2	0.4477	0.2500
DITCH-205_2	J21	J12	CONDUIT	29.8	0.4495	0.2500
DITCH-206	J12	J13	CONDUIT	2.5	0.1968	0.2500
DITCH-207	J13	J14	CONDUIT	2.6	0.1904	0.2500
POND-INLET	J15	SU1	CONDUIT	47.0	1.0001	0.0130
POND-OUTLET_1	J4	J6	CONDUIT	15.5	0.4516	0.0100
POND-OUTLET_2	SU1	J6	CONDUIT	15.5	0.7742	0.0100
POND-OUTLET_3	J6	Pre-J7	CONDUIT	13.0	0.5385	0.0350
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	7.9	4.3780	0.0350

Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	30.3	0.9902	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350
RCP-203	J7	SU1	CONDUIT	17.0	2.0004	0.0130
RCP-204	J16	SU1	CONDUIT	17.0	2.0004	0.0130
Trench_1	J11	J19	CONDUIT	24.5	0.4481	0.0130
Trench_2	J8	J20	CONDUIT	24.6	0.4874	0.0130
Trench_3	J19	J16	CONDUIT	17.1	0.6417	0.0130
Trench_4	J20	J11	CONDUIT	23.7	0.4638	0.0130
Trench_5	J1	J18	CONDUIT	27.3	0.5862	0.0130
Trench_6	J18	J5	CONDUIT	28.0	0.5705	0.0130
Trench_7	J5	J17	CONDUIT	33.0	0.4852	0.0130
Trench_8	J17	J7	CONDUIT	35.6	0.4496	0.0130
OF1	SU1	J4	ORIFICE			
W1	SU1	Pre-J6	WEIR			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
DITCH-201	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.27
DITCH-202	TRAPEZOIDAL	0.77	2.10	0.42	4.66	1	0.38
DITCH-203	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.12
DITCH-204	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.15
DITCH-205_1	TRAPEZOIDAL	0.56	1.24	0.32	3.61	1	0.16
DITCH-205_2	TRAPEZOIDAL	0.59	1.35	0.34	3.76	1	0.18
DITCH-206	TRAPEZOIDAL	0.72	1.85	0.40	4.38	1	0.18
DITCH-207	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.17
POND-INLET	CIRCULAR	0.60	0.28	0.15	0.60	1	0.61
POND-OUTLET_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.25
POND-OUTLET_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.33
POND-OUTLET_3	TRAPEZOIDAL	0.50	1.25	0.30	4.00	1	1.18
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76

Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	2.73
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.30
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85
RCP-203	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
RCP-204	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
Trench_1	RECT_OPEN	0.49	0.24	0.49	0.50	1	0.78
Trench_2	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.31
Trench_3	RECT_OPEN	0.50	0.25	0.50	0.50	1	0.97
Trench_4	RECT_OPEN	0.44	0.22	0.16	0.50	1	0.34
Trench_5	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.34
Trench_6	RECT_OPEN	0.46	0.23	0.16	0.50	1	0.40
Trench_7	RECT_OPEN	0.53	0.27	0.17	0.50	1	0.44
Trench_8	RECT_OPEN	0.59	0.29	0.18	0.50	1	0.48

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196
	0.6816	0.7436	0.8129	0.8884	0.9625

1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606
0.7987 0.8365 0.8552 0.8620 0.8749

```
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/26/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
```

Number of Threads 6
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.106	31.506
Evaporation Loss	0.000	0.000
Infiltration Loss	0.040	11.954
Surface Runoff	0.062	18.425
Final Storage	0.004	1.159
Continuity Error (%)	-0.100	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.062	0.622
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.062	0.622
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Highest Continuity Errors
****
Node J21 (1.09%)

****

Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
201	31.51	0.00	0.00	7.08	16.96	6.27	23.23	0.05	0.03	0.737
201_1	31.51	0.00	0.00	7.08	16.96	6.27	23.23	0.01	0.00	0.737
201-2	31.51	0.00	0.00	7.08	16.96	6.27	23.23	0.02	0.02	0.737
202	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.02	0.01	0.388
203	31.51	2.94	0.00	19.49	1.75	11.96	13.71	0.01	0.00	0.398
203-1	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.00	0.00	0.388
204	31.51	0.00	0.00	16.62	7.80	5.86	13.66	0.06	0.03	0.434
205	31.51	0.00	0.00	22.98	0.82	6.45	7.28	0.02	0.00	0.231
205_1	31.51	0.00	0.00	15.01	7.59	7.68	15.27	0.00	0.00	0.485
206	31.51	0.00	0.00	19.36	10.33	0.61	10.94	0.04	0.04	0.347
207	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.02	0.01	0.388
207-1	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.01	0.00	0.388
PAD-208	31.51	12.47	0.00	3.77	33.44	6.77	40.21	0.03	0.02	0.914
PAD208-1	31.51	49.79	0.00	4.91	60.87	14.30	75.17	0.04	0.03	0.925
PAD208-10	31.51	0.00	0.00	4.69	23.09	2.57	25.67	0.01	0.01	0.815
PAD208-11	31.51	0.00	0.00	4.61	23.18	2.66	25.84	0.01	0.01	0.820
PAD208-12	31.51	0.00	0.00	15.32	7.30	7.67	14.97	0.00	0.00	0.475
PAD208-13	31.51	11.46	0.00	15.38	10.47	15.91	26.38	0.01	0.00	0.614
PAD208-14	31.51	0.00	0.00	18.64	7.60	4.05	11.65	0.00	0.00	0.370
PAD208-15	31.51	0.00	0.00	18.63	7.60	4.06	11.66	0.00	0.00	0.370
PAD208-2	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-3	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-4	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-5	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-6	31.51	0.00	0.00	4.70	23.09	2.56	25.64	0.01	0.01	0.814
PAD208-7	31.51	0.00	0.00	4.70	23.09	2.56	25.64	0.01	0.01	0.814
PAD208-8	31.51	0.00	0.00	4.66	23.11	2.60	25.71	0.01	0.01	0.816
PAD208-9	31.51	0.00	0.00	4.66	23.11	2.60	25.71	0.01	0.01	0.816
PAD209	31.51	0.00	0.00	4.69	23.09	2.57	25.66	0.01	0.01	0.815
PAD209-1	31.51	0.00	0.00	4.70	23.09	2.55	25.64	0.01	0.01	0.814
PAD209-2	31.51	0.00	0.00	4.67	23.10	2.59	25.69	0.01	0.01	0.815
PAD209-20	31.51	0.00	0.00	15.59	7.59	7.12	14.71	0.01	0.00	0.467
PAD209-3	31.51	0.00	0.00	4.67	23.10	2.59	25.69	0.01	0.01	0.815
PAD209-4	31.51	0.00	0.00	4.68	23.10	2.59	25.68	0.01	0.01	0.815
PAD209-5	31.51	0.00	0.00	4.68	23.10	2.59	25.68	0.01	0.01	0.815

PAD209-6	31.51	0.00	0.00	4.66	23.11	2.60	25.70	0.01	0.00	0.816
PAD209-7	31.51	0.00	0.00	4.66	23.11	2.60	25.70	0.01	0.01	0.816
PAD209-8	31.51	0.00	0.00	4.66	23.11	2.61	25.72	0.01	0.01	0.816
PAD210	31.51	0.00	0.00	4.70	23.09	2.55	25.64	0.01	0.01	0.814
PAD210-1	31.51	0.00	0.00	4.67	23.10	2.59	25.69	0.00	0.00	0.815
PAD210-2	31.51	0.00	0.00	4.66	23.11	2.60	25.71	0.01	0.01	0.816
PAD210-3	31.51	2.64	0.00	4.67	25.11	3.23	28.35	0.03	0.03	0.830
PAD210-4	31.51	0.00	0.00	4.72	23.09	2.54	25.63	0.00	0.00	0.813
PAD210-5	31.51	28.89	0.00	4.82	45.05	9.38	54.42	0.06	0.05	0.901
PAD210-6	31.51	414.72	0.00	4.94	338.30	101.90	440.20	0.07	0.05	0.987
PAD210-7	31.51	0.00	0.00	15.82	7.61	6.87	14.47	0.00	0.00	0.459
PAD210-8	31.51	0.00	0.00	15.79	7.61	6.90	14.51	0.00	0.00	0.460
PAD210-9	31.51	0.00	0.00	15.82	7.61	6.87	14.47	0.01	0.00	0.459
Pond	31.51	0.00	0.00	0.00	31.56	0.00	31.56	0.04	0.04	1.002

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.00	0.06	241.64	0 01:00	0.06
J10	JUNCTION	0.00	0.15	240.62	0 01:05	0.15
J11	JUNCTION	0.00	0.07	241.16	0 01:00	0.07
J12	JUNCTION	0.02	0.27	240.52	0 01:03	0.27
J13	JUNCTION	0.02	0.27	240.52	0 01:03	0.27
J14	JUNCTION	0.02	0.28	240.52	0 01:01	0.28
J15	JUNCTION	0.04	0.41	240.51	0 02:33	0.41
J16	JUNCTION	0.00	0.12	240.99	0 01:00	0.12
J17	JUNCTION	0.00	0.14	241.24	0 01:00	0.14
J18	JUNCTION	0.00	0.09	241.51	0 01:00	0.09
J19	JUNCTION	0.00	0.08	241.06	0 01:00	0.08
J2	JUNCTION	0.00	0.15	240.78	0 01:01	0.15
J20	JUNCTION	0.00	0.05	241.25	0 01:00	0.05
J21	JUNCTION	0.01	0.15	240.54	0 01:07	0.15

J3	JUNCTION	0.03	0.34	240.51	0	02:33	0.34
J4	JUNCTION	0.03	0.09	239.67	0	02:33	0.09
J5	JUNCTION	0.00	0.11	241.37	0	01:00	0.11
J6	JUNCTION	0.01	0.05	239.32	0	03:27	0.05
J7	JUNCTION	0.00	0.16	241.10	0	01:00	0.16
J8	JUNCTION	0.00	0.03	241.35	0	01:00	0.03
J9	JUNCTION	0.00	0.14	240.89	0	01:00	0.14
Pre-J1	JUNCTION	0.00	0.13	240.13	0	01:00	0.13
Pre-J10	JUNCTION	0.02	0.15	238.65	0	01:01	0.15
Pre-J11	JUNCTION	0.01	0.10	238.60	0	01:09	0.10
Pre-J2	JUNCTION	0.00	0.12	239.62	0	01:02	0.12
Pre-J3	JUNCTION	0.00	0.14	239.14	0	01:07	0.14
Pre-J4	JUNCTION	0.00	0.08	238.78	0	01:08	0.08
Pre-J5	JUNCTION	0.00	0.00	240.00	0	00:00	0.00
Pre-J6	JUNCTION	0.00	0.08	239.58	0	01:00	0.08
Pre-J7	JUNCTION	0.01	0.05	239.25	0	01:00	0.05
Pre-J8	JUNCTION	0.01	0.09	238.94	0	01:00	0.09
Pre-J9	JUNCTION	0.01	0.08	238.68	0	01:01	0.08
OF1	OUTFALL	0.01	0.08	238.54	0	01:09	0.08
SU1	STORAGE	0.13	0.91	240.51	0	02:33	0.91

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J1	JUNCTION	0.027	0.027	0	01:00	0.0379	0.0379	-0.003
J10	JUNCTION	0.002	0.013	0	01:01	0.0029	0.0231	-0.019
J11	JUNCTION	0.014	0.029	0	01:00	0.017	0.035	0.001
J12	JUNCTION	0.004	0.015	0	00:56	0.0065	0.0375	-0.385
J13	JUNCTION	0.000	0.014	0	01:08	0	0.0422	0.003
J14	JUNCTION	0.051	0.051	0	01:00	0.066	0.102	-0.227
J15	JUNCTION	0.000	0.038	0	01:05	0	0.0958	0.111

J16	JUNCTION	0.021	0.065	0	01:00	0.0251	0.0776	-0.002	
J17	JUNCTION	0.017	0.071	0	01:00	0.0209	0.0934	-0.000	
J18	JUNCTION	0.014	0.040	0	01:00	0.017	0.0549	-0.002	
J19	JUNCTION	0.015	0.043	0	01:00	0.0175	0.0525	-0.002	
J2	JUNCTION	0.006	0.015	0	01:00	0.00674	0.0202	-0.178	
J20	JUNCTION	0.007	0.015	0	01:00	0.0081	0.018	-0.004	
J21	JUNCTION	0.000	0.014	0	01:01	0	0.0255	1.099	
J3	JUNCTION	0.000	0.039	0	01:01	0	0.0958	-0.006	
J4	JUNCTION	0.000	0.012	0	02:33	0	0.35	0.007	
J5	JUNCTION	0.014	0.054	0	01:00	0.0176	0.0725	0.000	
J6	JUNCTION	0.000	0.012	0	02:33	0	0.35	0.003	
J7	JUNCTION	0.036	0.106	0	01:00	0.042	0.135	-0.001	
J8	JUNCTION	0.008	0.008	0	01:00	0.00988	0.00988	-0.003	
J9	JUNCTION	0.010	0.010	0	01:00	0.0134	0.0134	-0.593	
Pre-J1	JUNCTION	0.060	0.060	0	01:00	0.104	0.104	-0.271	
Pre-J10	JUNCTION	0.000	0.042	0	01:01	0	0.435	0.012	
Pre-J11	JUNCTION	0.037	0.084	0	01:08	0.0449	0.622	-0.005	
Pre-J2	JUNCTION	0.014	0.066	0	01:00	0.0277	0.132	-0.016	
Pre-J3	JUNCTION	0.001	0.065	0	01:04	0.00188	0.134	0.204	
Pre-J4	JUNCTION	0.004	0.054	0	01:07	0.00885	0.142	0.034	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.036	0.036	0	01:00	0.068	0.068	-0.028	
Pre-J7	JUNCTION	0.000	0.042	0	01:00	0	0.418	0.003	
Pre-J8	JUNCTION	0.003	0.043	0	01:00	0.0167	0.435	-0.003	
Pre-J9	JUNCTION	0.000	0.043	0	01:00	0	0.435	0.003	
OF1	OUTFALL	0.000	0.084	0	01:09	0	0.622	0.000	
SU1	STORAGE	0.035	0.239	0	01:00	0.0416	0.35	0.037	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	0.027	3.8	0.0	0.0	0.215	30.0	0 02:33	0.012

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	43.72	0.008	0.084	0.622
System	43.72	0.008	0.084	0.622

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth

DITCH-201	CONDUIT	0.039	0	01:01	0.10	0.15	0.44
DITCH-202	CONDUIT	0.038	0	01:05	0.14	0.10	0.49
DITCH-203	CONDUIT	0.010	0	01:00	0.06	0.08	0.29
DITCH-204	CONDUIT	0.012	0	01:01	0.08	0.08	0.28
DITCH-205_1	CONDUIT	0.010	0	01:05	0.06	0.07	0.27
DITCH-205_2	CONDUIT	0.010	0	01:09	0.04	0.06	0.35
DITCH-206	CONDUIT	0.014	0	01:08	0.06	0.08	0.38
DITCH-207	CONDUIT	0.014	0	01:08	0.06	0.09	0.39
POND-INLET	CONDUIT	0.044	0	01:03	0.25	0.07	0.85
POND-OUTLET_1	CONDUIT	0.012	0	02:33	0.80	0.05	0.15
POND-OUTLET_2	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
POND-OUTLET_3	CONDUIT	0.012	0	02:30	0.26	0.01	0.09
Pre-Swale01	CONDUIT	0.056	0	01:01	0.38	0.07	0.24
Pre-Swale02	CONDUIT	0.064	0	01:04	0.44	0.07	0.24
Pre-Swale03	CONDUIT	0.051	0	01:07	0.40	0.01	0.11
Pre-Swale04	CONDUIT	0.053	0	01:08	0.50	0.01	0.09
Pre-Swale05	CONDUIT	0.042	0	01:01	0.28	0.11	0.12
Pre-Swale06	CONDUIT	0.042	0	01:01	0.30	0.01	0.14
Pre-Swale07	CONDUIT	0.042	0	01:00	0.54	0.02	0.14
Pre-Swale08	CONDUIT	0.043	0	01:00	0.44	0.04	0.17
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.08
Pre-Swale10	CONDUIT	0.034	0	01:00	0.46	0.03	0.13
Pre-Swale11	CONDUIT	0.084	0	01:09	0.76	0.01	0.09
RCP-203	CONDUIT	0.105	0	01:00	2.14	0.26	0.35
RCP-204	CONDUIT	0.064	0	01:00	1.86	0.16	0.27
Trench_1	CONDUIT	0.029	0	01:00	0.79	0.04	0.15
Trench_2	CONDUIT	0.008	0	01:00	0.41	0.03	0.10
Trench_3	CONDUIT	0.043	0	01:00	0.87	0.04	0.20
Trench_4	CONDUIT	0.015	0	01:00	0.51	0.04	0.13
Trench_5	CONDUIT	0.026	0	01:00	0.70	0.08	0.19
Trench_6	CONDUIT	0.040	0	01:00	0.81	0.10	0.21
Trench_7	CONDUIT	0.054	0	01:00	0.87	0.12	0.23
Trench_8	CONDUIT	0.070	0	01:00	0.96	0.15	0.25
OF1	ORIFICE	0.012	0	02:33			1.00
W1	WEIR	0.000	0	00:00			0.00

****
Flow Classification Summary

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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
DITCH-201	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87	0.00
DITCH-202	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.37	0.00
DITCH-203	1.00	0.06	0.23	0.00	0.72	0.00	0.00	0.00	0.89	0.00
DITCH-204	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.98	0.00
DITCH-205_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
DITCH-205_2	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.92	0.00
DITCH-206	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.86	0.00
DITCH-207	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
POND-INLET	1.00	0.01	0.00	0.00	0.26	0.00	0.00	0.73	0.00	0.13
POND-OUTLET_1	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
POND-OUTLET_2	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
POND-OUTLET_3	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale01	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.98	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
Pre-Swale03	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale05	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale09	1.00	0.67	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	0.67	0.00	0.33	0.00	0.00	0.00	0.97	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
RCP-203	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
RCP-204	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Trench_1	1.00	0.47	0.12	0.00	0.41	0.00	0.00	0.00	0.35	0.00
Trench_2	1.00	0.67	0.11	0.00	0.22	0.00	0.00	0.00	0.22	0.00
Trench_3	1.00	0.00	0.50	0.00	0.50	0.00	0.00	0.00	1.00	0.00
Trench_4	1.00	0.56	0.13	0.00	0.31	0.00	0.00	0.00	0.30	0.00
Trench_5	1.00	0.22	0.23	0.00	0.56	0.00	0.00	0.00	0.50	0.00
Trench_6	1.00	0.11	0.16	0.00	0.73	0.00	0.00	0.00	0.71	0.00
Trench_7	1.00	0.04	0.11	0.00	0.85	0.01	0.00	0.00	0.78	0.00

Trench_8	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	1.00	0.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
POND-INLET	0.01	0.01	5.26	0.01	0.01

Analysis begun on: Thu Apr 30 11:42:18 2026
Analysis ended on: Thu Apr 30 11:42:22 2026
Total elapsed time: 00:00:04

Appendix J: PCSWMM Software Report Post-Development 3-hr 2-year Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

WARNING 03: negative offset ignored for Link Pre-Swale07
WARNING 03: negative offset ignored for Link Pre-Swale10
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J14
WARNING 02: maximum depth increased for Node J6

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Element Count
****
Number of rain gages 6
Number of subcatchments ... 49
Number of nodes 34
Number of links 35
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
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Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

201	0.22	8.51	55.88	1.1500	Chicago_3h_2yr	Pre-J1
201_1	0.03	1.29	55.88	1.1500	Chicago_3h_2yr	PAD-208
201-2	0.11	4.08	55.88	1.1500	Chicago_3h_2yr	Pre-J1
202	0.13	20.61	8.21	1.6000	Chicago_3h_2yr	Pre-J1
203	0.07	8.82	5.25	2.3000	Chicago_3h_2yr	Pre-J6
203-1	0.02	2.90	8.21	1.6000	Chicago_3h_2yr	203
204	0.42	42.67	25.66	5.0000	Chicago_3h_2yr	Pre-J6
205	0.23	14.61	2.71	1.2700	Chicago_3h_2yr	Pre-J8
205_1	0.01	0.78	25.00	1.2700	Chicago_3h_2yr	Pre-J3
206	0.41	66.27	34.00	1.6000	Chicago_3h_2yr	Pre-J11
207	0.18	29.76	8.21	1.6000	Chicago_3h_2yr	Pre-J2
207-1	0.07	11.68	8.21	1.6000	Chicago_3h_2yr	Pre-J4
PAD-208	0.06	20.13	76.00	3.2200	Chicago_3h_2yr	PAD208-1
PAD208-1	0.05	18.67	76.00	0.1000	Chicago_3h_2yr	J1
PAD208-10	0.05	26.11	76.00	0.5300	Chicago_3h_2yr	J7
PAD208-11	0.03	18.07	76.00	5.0000	Chicago_3h_2yr	J7
PAD208-12	0.02	7.93	24.00	0.5300	Chicago_3h_2yr	PAD208-13
PAD208-13	0.03	8.02	25.00	0.7200	Chicago_3h_2yr	Pre-J1
PAD208-14	0.01	21.47	25.00	0.5000	Chicago_3h_2yr	Pre-J1
PAD208-15	0.03	76.91	25.00	0.5000	Chicago_3h_2yr	Pre-J1
PAD208-2	0.03	11.47	76.00	0.8850	Chicago_3h_2yr	J18
PAD208-3	0.03	10.99	76.00	0.8850	Chicago_3h_2yr	J18
PAD208-4	0.03	11.81	76.00	0.8850	Chicago_3h_2yr	J5
PAD208-5	0.03	11.40	76.00	0.8850	Chicago_3h_2yr	J5
PAD208-6	0.04	15.94	76.00	0.6100	Chicago_3h_2yr	J17
PAD208-7	0.04	15.48	76.00	0.6100	Chicago_3h_2yr	J17
PAD208-8	0.05	18.14	76.00	3.0000	Chicago_3h_2yr	J7
PAD208-9	0.04	15.29	76.00	3.0000	Chicago_3h_2yr	J7
PAD209	0.04	14.81	76.00	0.9700	Chicago_3h_2yr	J8
PAD209-1	0.03	10.53	76.00	0.8000	Chicago_3h_2yr	J20
PAD209-2	0.03	9.83	76.00	2.4200	Chicago_3h_2yr	J11
PAD209-20	0.04	88.00	25.00	5.8350	Chicago_3h_2yr	Pre-J2
PAD209-3	0.04	12.20	76.00	2.4200	Chicago_3h_2yr	J11
PAD209-4	0.03	7.97	76.00	3.0000	Chicago_3h_2yr	J19
PAD209-5	0.04	10.97	76.00	3.0000	Chicago_3h_2yr	J19
PAD209-6	0.02	7.75	76.00	3.0000	Chicago_3h_2yr	J16
PAD209-7	0.03	10.57	76.00	3.0000	Chicago_3h_2yr	J16
PAD209-8	0.05	25.72	76.00	1.7900	Chicago_3h_2yr	J16
PAD210	0.03	10.37	76.00	0.8000	Chicago_3h_2yr	J9

PAD210-1	0.01	3.07	76.00	2.4200	Chicago_3h_2yr	J9
PAD210-2	0.03	17.47	76.00	1.0000	Chicago_3h_2yr	J2
PAD210-3	0.12	58.25	76.00	2.0000	Chicago_3h_2yr	PAD210-5
PAD210-4	0.01	2.16	76.00	2.0000	Chicago_3h_2yr	PAD210-3
PAD210-5	0.11	15.15	76.00	1.2000	Chicago_3h_2yr	PAD210-6
PAD210-6	0.01	19.51	76.00	2.7500	Chicago_3h_2yr	J14
PAD210-7	0.02	30.00	25.00	0.5000	Chicago_3h_2yr	J9
PAD210-8	0.02	33.33	25.00	0.5000	Chicago_3h_2yr	J10
PAD210-9	0.04	64.14	25.00	0.5000	Chicago_3h_2yr	J12
Pond	0.13	89.17	100.00	0.5000	Chicago_3h_2yr	SU1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	241.58	0.40	0.0	
J10	JUNCTION	240.47	0.56	0.0	
J11	JUNCTION	241.09	0.49	0.0	
J12	JUNCTION	240.25	0.72	0.0	
J13	JUNCTION	240.25	0.72	0.0	
J14	JUNCTION	240.24	0.70	0.0	
J15	JUNCTION	240.10	0.83	0.0	
J16	JUNCTION	240.87	0.58	0.0	
J17	JUNCTION	241.10	0.59	0.0	
J18	JUNCTION	241.42	0.46	0.0	
J19	JUNCTION	240.98	0.53	0.0	
J2	JUNCTION	240.63	0.50	0.0	
J20	JUNCTION	241.20	0.44	0.0	
J21	JUNCTION	240.38	0.59	0.0	
J3	JUNCTION	240.17	0.78	0.0	
J4	JUNCTION	239.58	1.49	0.0	
J5	JUNCTION	241.26	0.53	0.0	
J6	JUNCTION	239.27	1.69	0.0	
J7	JUNCTION	240.94	0.66	0.0	
J8	JUNCTION	241.32	0.40	0.0	
J9	JUNCTION	240.75	0.50	0.0	

Pre-J1	JUNCTION	240.00	0.50	0.0
Pre-J10	JUNCTION	238.50	1.00	0.0
Pre-J11	JUNCTION	238.50	1.50	0.0
Pre-J2	JUNCTION	239.50	0.50	0.0
Pre-J3	JUNCTION	239.00	1.00	0.0
Pre-J4	JUNCTION	238.70	1.30	0.0
Pre-J5	JUNCTION	240.00	0.50	0.0
Pre-J6	JUNCTION	239.50	0.50	0.0
Pre-J7	JUNCTION	239.20	0.50	0.0
Pre-J8	JUNCTION	238.86	0.50	0.0
Pre-J9	JUNCTION	238.60	0.87	0.0
OF1	OUTFALL	238.45	1.00	0.0
SU1	STORAGE	239.60	1.90	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
DITCH-201	J14	J3	CONDUIT	14.4	0.4875	0.2500
DITCH-202	J3	J15	CONDUIT	11.2	0.6267	0.2500
DITCH-203	J9	J2	CONDUIT	24.9	0.4412	0.2500
DITCH-204	J2	J10	CONDUIT	25.1	0.6578	0.2500
DITCH-205_1	J10	J21	CONDUIT	19.2	0.4477	0.2500
DITCH-205_2	J21	J12	CONDUIT	29.8	0.4495	0.2500
DITCH-206	J12	J13	CONDUIT	2.5	0.1968	0.2500
DITCH-207	J13	J14	CONDUIT	2.6	0.1904	0.2500
POND-INLET	J15	SU1	CONDUIT	47.0	1.0001	0.0130
POND-OUTLET_1	J4	J6	CONDUIT	15.5	0.4516	0.0100
POND-OUTLET_2	SU1	J6	CONDUIT	15.5	0.7742	0.0100
POND-OUTLET_3	J6	Pre-J7	CONDUIT	13.0	0.5385	0.0350
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	7.9	4.3780	0.0350

Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	30.3	0.9902	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350
RCP-203	J7	SU1	CONDUIT	17.0	2.0004	0.0130
RCP-204	J16	SU1	CONDUIT	17.0	2.0004	0.0130
Trench_1	J11	J19	CONDUIT	24.5	0.4481	0.0130
Trench_2	J8	J20	CONDUIT	24.6	0.4874	0.0130
Trench_3	J19	J16	CONDUIT	17.1	0.6417	0.0130
Trench_4	J20	J11	CONDUIT	23.7	0.4638	0.0130
Trench_5	J1	J18	CONDUIT	27.3	0.5862	0.0130
Trench_6	J18	J5	CONDUIT	28.0	0.5705	0.0130
Trench_7	J5	J17	CONDUIT	33.0	0.4852	0.0130
Trench_8	J17	J7	CONDUIT	35.6	0.4496	0.0130
OF1	SU1	J4	ORIFICE			
W1	SU1	Pre-J6	WEIR			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
DITCH-201	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.27
DITCH-202	TRAPEZOIDAL	0.77	2.10	0.42	4.66	1	0.38
DITCH-203	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.12
DITCH-204	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.15
DITCH-205_1	TRAPEZOIDAL	0.56	1.24	0.32	3.61	1	0.16
DITCH-205_2	TRAPEZOIDAL	0.59	1.35	0.34	3.76	1	0.18
DITCH-206	TRAPEZOIDAL	0.72	1.85	0.40	4.38	1	0.18
DITCH-207	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.17
POND-INLET	CIRCULAR	0.60	0.28	0.15	0.60	1	0.61
POND-OUTLET_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.25
POND-OUTLET_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.33
POND-OUTLET_3	TRAPEZOIDAL	0.50	1.25	0.30	4.00	1	1.18
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76

Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	2.73
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.30
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85
RCP-203	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
RCP-204	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
Trench_1	RECT_OPEN	0.49	0.24	0.49	0.50	1	0.78
Trench_2	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.31
Trench_3	RECT_OPEN	0.50	0.25	0.50	0.50	1	0.97
Trench_4	RECT_OPEN	0.44	0.22	0.16	0.50	1	0.34
Trench_5	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.34
Trench_6	RECT_OPEN	0.46	0.23	0.16	0.50	1	0.40
Trench_7	RECT_OPEN	0.53	0.27	0.17	0.50	1	0.44
Trench_8	RECT_OPEN	0.59	0.29	0.18	0.50	1	0.48

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Transect Summary
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Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196
	0.6816	0.7436	0.8129	0.8884	0.9625

1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606
0.7987 0.8365 0.8552 0.8620 0.8749

```
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/26/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
```

Number of Threads 6
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.084	24.748
Evaporation Loss	0.000	0.000
Infiltration Loss	0.035	10.476
Surface Runoff	0.044	13.134
Final Storage	0.004	1.158
Continuity Error (%)	-0.083	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.044	0.443
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.044	0.443
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Highest Continuity Errors
****
Node J21 (1.43%)

****

Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
201	24.75	0.00	0.00	6.58	13.18	3.78	16.96	0.04	0.02	0.685
201_1	24.75	0.00	0.00	6.58	13.18	3.78	16.96	0.01	0.00	0.685
201-2	24.75	0.00	0.00	6.58	13.18	3.78	16.96	0.02	0.01	0.685
202	24.75	0.00	0.00	16.27	1.94	5.29	7.23	0.01	0.00	0.292
203	24.75	1.73	0.00	17.48	1.33	6.41	7.74	0.01	0.00	0.292
203-1	24.75	0.00	0.00	16.27	1.94	5.29	7.23	0.00	0.00	0.292
204	24.75	0.00	0.00	14.69	6.06	2.77	8.83	0.04	0.02	0.357
205	24.75	0.00	0.00	20.21	0.64	2.65	3.29	0.01	0.00	0.133
205_1	24.75	0.00	0.00	13.55	5.90	4.06	9.96	0.00	0.00	0.403
206	24.75	0.00	0.00	15.50	8.03	0.00	8.03	0.03	0.03	0.324
207	24.75	0.00	0.00	16.27	1.94	5.29	7.23	0.01	0.00	0.292
207-1	24.75	0.00	0.00	16.27	1.94	5.29	7.23	0.01	0.00	0.292
PAD-208	24.75	9.10	0.00	3.32	25.73	4.79	30.53	0.02	0.01	0.902
PAD208-1	24.75	37.80	0.00	4.45	46.61	10.26	56.87	0.03	0.02	0.909
PAD208-10	24.75	0.00	0.00	4.23	17.94	1.41	19.35	0.01	0.01	0.782
PAD208-11	24.75	0.00	0.00	4.15	18.03	1.49	19.51	0.01	0.00	0.788
PAD208-12	24.75	0.00	0.00	13.83	5.67	4.02	9.69	0.00	0.00	0.392
PAD208-13	24.75	7.42	0.00	13.90	7.76	9.28	17.04	0.00	0.00	0.530
PAD208-14	24.75	0.00	0.00	16.16	5.92	1.45	7.38	0.00	0.00	0.298
PAD208-15	24.75	0.00	0.00	16.14	5.91	1.47	7.38	0.00	0.00	0.298
PAD208-2	24.75	0.00	0.00	4.24	17.94	1.40	19.34	0.01	0.01	0.781
PAD208-3	24.75	0.00	0.00	4.24	17.94	1.40	19.34	0.01	0.01	0.781
PAD208-4	24.75	0.00	0.00	4.24	17.94	1.40	19.34	0.01	0.01	0.781
PAD208-5	24.75	0.00	0.00	4.24	17.94	1.40	19.34	0.01	0.01	0.781
PAD208-6	24.75	0.00	0.00	4.24	17.94	1.39	19.33	0.01	0.01	0.781
PAD208-7	24.75	0.00	0.00	4.24	17.94	1.39	19.33	0.01	0.01	0.781
PAD208-8	24.75	0.00	0.00	4.20	17.95	1.43	19.39	0.01	0.01	0.783
PAD208-9	24.75	0.00	0.00	4.20	17.95	1.43	19.39	0.01	0.01	0.783
PAD209	24.75	0.00	0.00	4.23	17.94	1.41	19.35	0.01	0.01	0.782
PAD209-1	24.75	0.00	0.00	4.24	17.94	1.39	19.33	0.01	0.00	0.781
PAD209-2	24.75	0.00	0.00	4.21	17.95	1.42	19.37	0.01	0.00	0.783
PAD209-20	24.75	0.00	0.00	13.90	5.90	3.72	9.62	0.00	0.00	0.389
PAD209-3	24.75	0.00	0.00	4.21	17.95	1.42	19.37	0.01	0.01	0.783
PAD209-4	24.75	0.00	0.00	4.22	17.95	1.42	19.37	0.01	0.00	0.783
PAD209-5	24.75	0.00	0.00	4.22	17.95	1.42	19.37	0.01	0.01	0.783

PAD209-6	24.75	0.00	0.00	4.21	17.95	1.43	19.38	0.00	0.00	0.783
PAD209-7	24.75	0.00	0.00	4.21	17.95	1.43	19.38	0.01	0.00	0.783
PAD209-8	24.75	0.00	0.00	4.20	17.96	1.44	19.39	0.01	0.01	0.784
PAD210	24.75	0.00	0.00	4.24	17.94	1.39	19.33	0.01	0.00	0.781
PAD210-1	24.75	0.00	0.00	4.21	17.95	1.42	19.37	0.00	0.00	0.783
PAD210-2	24.75	0.00	0.00	4.20	17.95	1.43	19.39	0.01	0.00	0.783
PAD210-3	24.75	1.99	0.00	4.21	19.47	1.91	21.37	0.02	0.02	0.799
PAD210-4	24.75	0.00	0.00	4.25	17.94	1.38	19.32	0.00	0.00	0.781
PAD210-5	24.75	21.79	0.00	4.36	34.50	6.51	41.01	0.05	0.04	0.881
PAD210-6	24.75	312.47	0.00	4.48	255.44	76.18	331.63	0.05	0.04	0.983
PAD210-7	24.75	0.00	0.00	14.11	5.91	3.50	9.41	0.00	0.00	0.380
PAD210-8	24.75	0.00	0.00	14.08	5.91	3.53	9.44	0.00	0.00	0.381
PAD210-9	24.75	0.00	0.00	14.11	5.91	3.50	9.41	0.00	0.00	0.380
Pond	24.75	0.00	0.00	0.00	24.79	0.00	24.79	0.03	0.03	1.002

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.00	0.05	241.63	0 01:00	0.05
J10	JUNCTION	0.00	0.12	240.59	0 01:06	0.12
J11	JUNCTION	0.00	0.06	241.15	0 01:00	0.06
J12	JUNCTION	0.01	0.23	240.48	0 01:01	0.23
J13	JUNCTION	0.01	0.23	240.48	0 01:01	0.23
J14	JUNCTION	0.01	0.24	240.48	0 01:01	0.24
J15	JUNCTION	0.02	0.26	240.36	0 02:23	0.26
J16	JUNCTION	0.00	0.10	240.97	0 01:00	0.10
J17	JUNCTION	0.00	0.11	241.21	0 01:00	0.11
J18	JUNCTION	0.00	0.07	241.49	0 01:00	0.07
J19	JUNCTION	0.00	0.06	241.04	0 01:00	0.06
J2	JUNCTION	0.00	0.12	240.76	0 01:01	0.12
J20	JUNCTION	0.00	0.04	241.24	0 01:00	0.04
J21	JUNCTION	0.00	0.11	240.49	0 01:11	0.11

J3	JUNCTION	0.01	0.22	240.39	0	01:03	0.22
J4	JUNCTION	0.03	0.08	239.66	0	02:23	0.08
J5	JUNCTION	0.00	0.09	241.35	0	01:00	0.09
J6	JUNCTION	0.01	0.05	239.32	0	03:22	0.05
J7	JUNCTION	0.00	0.13	241.07	0	01:00	0.13
J8	JUNCTION	0.00	0.03	241.35	0	01:00	0.03
J9	JUNCTION	0.00	0.12	240.87	0	01:00	0.12
Pre-J1	JUNCTION	0.00	0.10	240.10	0	01:00	0.10
Pre-J10	JUNCTION	0.02	0.13	238.63	0	01:01	0.13
Pre-J11	JUNCTION	0.01	0.09	238.59	0	01:00	0.09
Pre-J2	JUNCTION	0.00	0.09	239.59	0	01:03	0.09
Pre-J3	JUNCTION	0.00	0.10	239.10	0	01:08	0.10
Pre-J4	JUNCTION	0.00	0.06	238.76	0	01:10	0.06
Pre-J5	JUNCTION	0.00	0.00	240.00	0	00:00	0.00
Pre-J6	JUNCTION	0.00	0.07	239.57	0	00:55	0.07
Pre-J7	JUNCTION	0.00	0.04	239.24	0	01:00	0.04
Pre-J8	JUNCTION	0.01	0.07	238.93	0	01:00	0.07
Pre-J9	JUNCTION	0.01	0.07	238.67	0	01:00	0.07
OF1	OUTFALL	0.00	0.07	238.52	0	01:00	0.07
SU1	STORAGE	0.09	0.76	240.36	0	02:23	0.76

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J1	JUNCTION	0.019	0.019	0	01:00	0.0287	0.0287	-0.004
J10	JUNCTION	0.001	0.009	0	01:02	0.00189	0.0168	0.189
J11	JUNCTION	0.010	0.021	0	01:00	0.0128	0.0264	-0.002
J12	JUNCTION	0.002	0.011	0	00:56	0.00423	0.0264	-0.734
J13	JUNCTION	0.000	0.010	0	00:56	0	0.0303	0.001
J14	JUNCTION	0.037	0.037	0	01:00	0.0497	0.0758	-0.201
J15	JUNCTION	0.000	0.027	0	01:03	0	0.0709	-0.055

J16	JUNCTION	0.015	0.047	0	01:00	0.0189	0.0585	-0.002	
J17	JUNCTION	0.013	0.052	0	01:00	0.0158	0.0705	0.000	
J18	JUNCTION	0.010	0.029	0	01:00	0.0128	0.0415	-0.003	
J19	JUNCTION	0.011	0.032	0	01:00	0.0132	0.0396	-0.000	
J2	JUNCTION	0.004	0.011	0	01:00	0.00508	0.0149	-0.119	
J20	JUNCTION	0.005	0.011	0	01:00	0.00611	0.0136	-0.005	
J21	JUNCTION	0.000	0.009	0	01:01	0	0.0182	1.453	
J3	JUNCTION	0.000	0.028	0	01:01	0	0.0708	-0.008	
J4	JUNCTION	0.000	0.011	0	02:23	0	0.264	0.009	
J5	JUNCTION	0.011	0.039	0	01:00	0.0133	0.0548	-0.001	
J6	JUNCTION	0.000	0.011	0	02:23	0	0.264	0.003	
J7	JUNCTION	0.025	0.077	0	01:00	0.0317	0.102	-0.001	
J8	JUNCTION	0.006	0.006	0	01:00	0.00745	0.00745	-0.004	
J9	JUNCTION	0.007	0.007	0	01:00	0.00977	0.00977	-0.684	
Pre-J1	JUNCTION	0.038	0.038	0	01:00	0.0725	0.0725	-0.261	
Pre-J10	JUNCTION	0.000	0.031	0	01:00	0	0.315	0.016	
Pre-J11	JUNCTION	0.029	0.061	0	01:00	0.033	0.443	-0.006	
Pre-J2	JUNCTION	0.005	0.038	0	01:00	0.0167	0.0895	0.010	
Pre-J3	JUNCTION	0.001	0.038	0	01:05	0.00123	0.0907	0.178	
Pre-J4	JUNCTION	0.001	0.030	0	01:09	0.00523	0.0957	0.034	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.023	0.023	0	01:00	0.0431	0.0431	-0.038	
Pre-J7	JUNCTION	0.000	0.030	0	01:00	0	0.307	0.004	
Pre-J8	JUNCTION	0.001	0.031	0	01:00	0.00754	0.315	-0.004	
Pre-J9	JUNCTION	0.000	0.031	0	01:00	0	0.315	0.004	
OF1	OUTFALL	0.000	0.061	0	01:00	0	0.443	0.000	
SU1	STORAGE	0.027	0.165	0	01:00	0.0327	0.264	0.074	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	0.018	2.4	0.0	0.0	0.162	22.6	0 02:23	0.011

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	40.05	0.006	0.061	0.443
System	40.05	0.006	0.061	0.443

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth

DITCH-201	CONDUIT	0.028	0	01:01	0.09	0.10	0.32
DITCH-202	CONDUIT	0.027	0	01:03	0.12	0.07	0.29
DITCH-203	CONDUIT	0.007	0	01:00	0.05	0.06	0.24
DITCH-204	CONDUIT	0.008	0	01:02	0.07	0.06	0.23
DITCH-205_1	CONDUIT	0.007	0	01:06	0.06	0.04	0.20
DITCH-205_2	CONDUIT	0.006	0	01:11	0.03	0.04	0.27
DITCH-206	CONDUIT	0.009	0	00:56	0.06	0.05	0.32
DITCH-207	CONDUIT	0.010	0	00:56	0.06	0.06	0.33
POND-INLET	CONDUIT	0.030	0	01:02	0.22	0.05	0.71
POND-OUTLET_1	CONDUIT	0.011	0	02:23	0.78	0.04	0.14
POND-OUTLET_2	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
POND-OUTLET_3	CONDUIT	0.011	0	02:26	0.25	0.01	0.08
Pre-Swale01	CONDUIT	0.036	0	01:01	0.33	0.04	0.18
Pre-Swale02	CONDUIT	0.038	0	01:05	0.37	0.04	0.18
Pre-Swale03	CONDUIT	0.029	0	01:09	0.33	0.01	0.08
Pre-Swale04	CONDUIT	0.030	0	01:10	0.40	0.00	0.07
Pre-Swale05	CONDUIT	0.031	0	01:01	0.25	0.08	0.11
Pre-Swale06	CONDUIT	0.031	0	01:00	0.27	0.01	0.12
Pre-Swale07	CONDUIT	0.030	0	01:00	0.48	0.01	0.11
Pre-Swale08	CONDUIT	0.031	0	01:00	0.40	0.03	0.14
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.07
Pre-Swale10	CONDUIT	0.023	0	01:00	0.40	0.02	0.11
Pre-Swale11	CONDUIT	0.061	0	01:00	0.69	0.01	0.08
RCP-203	CONDUIT	0.076	0	01:00	1.95	0.19	0.29
RCP-204	CONDUIT	0.047	0	01:00	1.70	0.12	0.23
Trench_1	CONDUIT	0.021	0	01:00	0.70	0.03	0.12
Trench_2	CONDUIT	0.006	0	01:00	0.36	0.02	0.08
Trench_3	CONDUIT	0.032	0	01:00	0.76	0.03	0.17
Trench_4	CONDUIT	0.011	0	01:00	0.46	0.03	0.11
Trench_5	CONDUIT	0.019	0	01:00	0.62	0.06	0.15
Trench_6	CONDUIT	0.029	0	01:00	0.73	0.07	0.17
Trench_7	CONDUIT	0.039	0	01:00	0.78	0.09	0.19
Trench_8	CONDUIT	0.051	0	01:00	0.85	0.11	0.21
OF1	ORIFICE	0.011	0	02:23			1.00
W1	WEIR	0.000	0	00:00			0.00

****
Flow Classification Summary

****

Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
DITCH-201	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92	0.00
DITCH-202	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.37	0.00
DITCH-203	1.00	0.06	0.23	0.00	0.72	0.00	0.00	0.00	0.89	0.00
DITCH-204	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.98	0.00
DITCH-205_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
DITCH-205_2	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.98	0.00
DITCH-206	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.88	0.00
DITCH-207	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
POND-INLET	1.00	0.01	0.00	0.00	0.22	0.00	0.00	0.77	0.00	0.13
POND-OUTLET_1	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
POND-OUTLET_2	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
POND-OUTLET_3	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale01	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.98	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
Pre-Swale03	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale05	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale09	1.00	0.67	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	0.67	0.00	0.33	0.00	0.00	0.00	0.98	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
RCP-203	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
RCP-204	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Trench_1	1.00	0.47	0.12	0.00	0.41	0.00	0.00	0.00	0.35	0.00
Trench_2	1.00	0.67	0.11	0.00	0.22	0.00	0.00	0.00	0.22	0.00
Trench_3	1.00	0.00	0.50	0.00	0.50	0.00	0.00	0.00	1.00	0.00
Trench_4	1.00	0.56	0.12	0.00	0.31	0.00	0.00	0.00	0.30	0.00
Trench_5	1.00	0.22	0.23	0.00	0.56	0.00	0.00	0.00	0.50	0.00
Trench_6	1.00	0.11	0.16	0.00	0.73	0.00	0.00	0.00	0.71	0.00
Trench_7	1.00	0.04	0.11	0.00	0.85	0.01	0.00	0.00	0.78	0.00

Trench_8	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	1.00	0.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
POND-INLET	0.01	0.01	3.15	0.01	0.01

Analysis begun on: Thu Apr 30 11:40:03 2026
Analysis ended on: Thu Apr 30 11:40:06 2026
Total elapsed time: 00:00:03

Appendix K: PCSWMM Software Report Post-Development 3-hr 5 years Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

WARNING 03: negative offset ignored for Link Pre-Swale07
WARNING 03: negative offset ignored for Link Pre-Swale10
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J14
WARNING 02: maximum depth increased for Node J6

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 49
Number of nodes 34
Number of links 35
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

201	0.22	8.51	55.88	1.1500	Chicago_3h_5yr	Pre-J1
201_1	0.03	1.29	55.88	1.1500	Chicago_3h_5yr	PAD-208
201-2	0.11	4.08	55.88	1.1500	Chicago_3h_5yr	Pre-J1
202	0.13	20.61	8.21	1.6000	Chicago_3h_5yr	Pre-J1
203	0.07	8.82	5.25	2.3000	Chicago_3h_5yr	Pre-J6
203-1	0.02	2.90	8.21	1.6000	Chicago_3h_5yr	203
204	0.42	42.67	25.66	5.0000	Chicago_3h_5yr	Pre-J6
205	0.23	14.61	2.71	1.2700	Chicago_3h_5yr	Pre-J8
205_1	0.01	0.78	25.00	1.2700	Chicago_3h_5yr	Pre-J3
206	0.41	66.27	34.00	1.6000	Chicago_3h_5yr	Pre-J11
207	0.18	29.76	8.21	1.6000	Chicago_3h_5yr	Pre-J2
207-1	0.07	11.68	8.21	1.6000	Chicago_3h_5yr	Pre-J4
PAD-208	0.06	20.13	76.00	3.2200	Chicago_3h_5yr	PAD208-1
PAD208-1	0.05	18.67	76.00	0.1000	Chicago_3h_5yr	J1
PAD208-10	0.05	26.11	76.00	0.5300	Chicago_3h_5yr	J7
PAD208-11	0.03	18.07	76.00	5.0000	Chicago_3h_5yr	J7
PAD208-12	0.02	7.93	24.00	0.5300	Chicago_3h_5yr	PAD208-13
PAD208-13	0.03	8.02	25.00	0.7200	Chicago_3h_5yr	Pre-J1
PAD208-14	0.01	21.47	25.00	0.5000	Chicago_3h_5yr	Pre-J1
PAD208-15	0.03	76.91	25.00	0.5000	Chicago_3h_5yr	Pre-J1
PAD208-2	0.03	11.47	76.00	0.8850	Chicago_3h_5yr	J18
PAD208-3	0.03	10.99	76.00	0.8850	Chicago_3h_5yr	J18
PAD208-4	0.03	11.81	76.00	0.8850	Chicago_3h_5yr	J5
PAD208-5	0.03	11.40	76.00	0.8850	Chicago_3h_5yr	J5
PAD208-6	0.04	15.94	76.00	0.6100	Chicago_3h_5yr	J17
PAD208-7	0.04	15.48	76.00	0.6100	Chicago_3h_5yr	J17
PAD208-8	0.05	18.14	76.00	3.0000	Chicago_3h_5yr	J7
PAD208-9	0.04	15.29	76.00	3.0000	Chicago_3h_5yr	J7
PAD209	0.04	14.81	76.00	0.9700	Chicago_3h_5yr	J8
PAD209-1	0.03	10.53	76.00	0.8000	Chicago_3h_5yr	J20
PAD209-2	0.03	9.83	76.00	2.4200	Chicago_3h_5yr	J11
PAD209-20	0.04	88.00	25.00	5.8350	Chicago_3h_5yr	Pre-J2
PAD209-3	0.04	12.20	76.00	2.4200	Chicago_3h_5yr	J11
PAD209-4	0.03	7.97	76.00	3.0000	Chicago_3h_5yr	J19
PAD209-5	0.04	10.97	76.00	3.0000	Chicago_3h_5yr	J19
PAD209-6	0.02	7.75	76.00	3.0000	Chicago_3h_5yr	J16
PAD209-7	0.03	10.57	76.00	3.0000	Chicago_3h_5yr	J16
PAD209-8	0.05	25.72	76.00	1.7900	Chicago_3h_5yr	J16
PAD210	0.03	10.37	76.00	0.8000	Chicago_3h_5yr	J9

PAD210-1	0.01	3.07	76.00	2.4200	Chicago_3h_5yr	J9
PAD210-2	0.03	17.47	76.00	1.0000	Chicago_3h_5yr	J2
PAD210-3	0.12	58.25	76.00	2.0000	Chicago_3h_5yr	PAD210-5
PAD210-4	0.01	2.16	76.00	2.0000	Chicago_3h_5yr	PAD210-3
PAD210-5	0.11	15.15	76.00	1.2000	Chicago_3h_5yr	PAD210-6
PAD210-6	0.01	19.51	76.00	2.7500	Chicago_3h_5yr	J14
PAD210-7	0.02	30.00	25.00	0.5000	Chicago_3h_5yr	J9
PAD210-8	0.02	33.33	25.00	0.5000	Chicago_3h_5yr	J10
PAD210-9	0.04	64.14	25.00	0.5000	Chicago_3h_5yr	J12
Pond	0.13	89.17	100.00	0.5000	Chicago_3h_5yr	SU1

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	241.58	0.40	0.0	
J10	JUNCTION	240.47	0.56	0.0	
J11	JUNCTION	241.09	0.49	0.0	
J12	JUNCTION	240.25	0.72	0.0	
J13	JUNCTION	240.25	0.72	0.0	
J14	JUNCTION	240.24	0.70	0.0	
J15	JUNCTION	240.10	0.83	0.0	
J16	JUNCTION	240.87	0.58	0.0	
J17	JUNCTION	241.10	0.59	0.0	
J18	JUNCTION	241.42	0.46	0.0	
J19	JUNCTION	240.98	0.53	0.0	
J2	JUNCTION	240.63	0.50	0.0	
J20	JUNCTION	241.20	0.44	0.0	
J21	JUNCTION	240.38	0.59	0.0	
J3	JUNCTION	240.17	0.78	0.0	
J4	JUNCTION	239.58	1.49	0.0	
J5	JUNCTION	241.26	0.53	0.0	
J6	JUNCTION	239.27	1.69	0.0	
J7	JUNCTION	240.94	0.66	0.0	
J8	JUNCTION	241.32	0.40	0.0	
J9	JUNCTION	240.75	0.50	0.0	

Pre-J1	JUNCTION	240.00	0.50	0.0
Pre-J10	JUNCTION	238.50	1.00	0.0
Pre-J11	JUNCTION	238.50	1.50	0.0
Pre-J2	JUNCTION	239.50	0.50	0.0
Pre-J3	JUNCTION	239.00	1.00	0.0
Pre-J4	JUNCTION	238.70	1.30	0.0
Pre-J5	JUNCTION	240.00	0.50	0.0
Pre-J6	JUNCTION	239.50	0.50	0.0
Pre-J7	JUNCTION	239.20	0.50	0.0
Pre-J8	JUNCTION	238.86	0.50	0.0
Pre-J9	JUNCTION	238.60	0.87	0.0
OF1	OUTFALL	238.45	1.00	0.0
SU1	STORAGE	239.60	1.90	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
DITCH-201	J14	J3	CONDUIT	14.4	0.4875	0.2500
DITCH-202	J3	J15	CONDUIT	11.2	0.6267	0.2500
DITCH-203	J9	J2	CONDUIT	24.9	0.4412	0.2500
DITCH-204	J2	J10	CONDUIT	25.1	0.6578	0.2500
DITCH-205_1	J10	J21	CONDUIT	19.2	0.4477	0.2500
DITCH-205_2	J21	J12	CONDUIT	29.8	0.4495	0.2500
DITCH-206	J12	J13	CONDUIT	2.5	0.1968	0.2500
DITCH-207	J13	J14	CONDUIT	2.6	0.1904	0.2500
POND-INLET	J15	SU1	CONDUIT	47.0	1.0001	0.0130
POND-OUTLET_1	J4	J6	CONDUIT	15.5	0.4516	0.0100
POND-OUTLET_2	SU1	J6	CONDUIT	15.5	0.7742	0.0100
POND-OUTLET_3	J6	Pre-J7	CONDUIT	13.0	0.5385	0.0350
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	7.9	4.3780	0.0350

Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	30.3	0.9902	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350
RCP-203	J7	SU1	CONDUIT	17.0	2.0004	0.0130
RCP-204	J16	SU1	CONDUIT	17.0	2.0004	0.0130
Trench_1	J11	J19	CONDUIT	24.5	0.4481	0.0130
Trench_2	J8	J20	CONDUIT	24.6	0.4874	0.0130
Trench_3	J19	J16	CONDUIT	17.1	0.6417	0.0130
Trench_4	J20	J11	CONDUIT	23.7	0.4638	0.0130
Trench_5	J1	J18	CONDUIT	27.3	0.5862	0.0130
Trench_6	J18	J5	CONDUIT	28.0	0.5705	0.0130
Trench_7	J5	J17	CONDUIT	33.0	0.4852	0.0130
Trench_8	J17	J7	CONDUIT	35.6	0.4496	0.0130
OF1	SU1	J4	ORIFICE			
W1	SU1	Pre-J6	WEIR			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
DITCH-201	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.27
DITCH-202	TRAPEZOIDAL	0.77	2.10	0.42	4.66	1	0.38
DITCH-203	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.12
DITCH-204	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.15
DITCH-205_1	TRAPEZOIDAL	0.56	1.24	0.32	3.61	1	0.16
DITCH-205_2	TRAPEZOIDAL	0.59	1.35	0.34	3.76	1	0.18
DITCH-206	TRAPEZOIDAL	0.72	1.85	0.40	4.38	1	0.18
DITCH-207	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.17
POND-INLET	CIRCULAR	0.60	0.28	0.15	0.60	1	0.61
POND-OUTLET_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.25
POND-OUTLET_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.33
POND-OUTLET_3	TRAPEZOIDAL	0.50	1.25	0.30	4.00	1	1.18
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76

Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	2.73
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.30
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85
RCP-203	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
RCP-204	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
Trench_1	RECT_OPEN	0.49	0.24	0.49	0.50	1	0.78
Trench_2	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.31
Trench_3	RECT_OPEN	0.50	0.25	0.50	0.50	1	0.97
Trench_4	RECT_OPEN	0.44	0.22	0.16	0.50	1	0.34
Trench_5	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.34
Trench_6	RECT_OPEN	0.46	0.23	0.16	0.50	1	0.40
Trench_7	RECT_OPEN	0.53	0.27	0.17	0.50	1	0.44
Trench_8	RECT_OPEN	0.59	0.29	0.18	0.50	1	0.48

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196
	0.6816	0.7436	0.8129	0.8884	0.9625

1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606
0.7987 0.8365 0.8552 0.8620 0.8749

```
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/26/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
```

Number of Threads 6
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.106	31.506
Evaporation Loss	0.000	0.000
Infiltration Loss	0.040	11.954
Surface Runoff	0.062	18.425
Final Storage	0.004	1.159
Continuity Error (%)	-0.100	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.062	0.622
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.062	0.622
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

****
Highest Continuity Errors
****
Node J21 (1.09%)

****

Time-Step Critical Elements
****
None

****
Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec
Maximum Time Step	:	1.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
1.000 - 0.871 sec	:	100.00 %
0.871 - 0.758 sec	:	0.00 %
0.758 - 0.660 sec	:	0.00 %
0.660 - 0.574 sec	:	0.00 %
0.574 - 0.500 sec	:	0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
201	31.51	0.00	0.00	7.08	16.96	6.27	23.23	0.05	0.03	0.737
201_1	31.51	0.00	0.00	7.08	16.96	6.27	23.23	0.01	0.00	0.737
201-2	31.51	0.00	0.00	7.08	16.96	6.27	23.23	0.02	0.02	0.737
202	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.02	0.01	0.388
203	31.51	2.94	0.00	19.49	1.75	11.96	13.71	0.01	0.00	0.398
203-1	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.00	0.00	0.388
204	31.51	0.00	0.00	16.62	7.80	5.86	13.66	0.06	0.03	0.434
205	31.51	0.00	0.00	22.98	0.82	6.45	7.28	0.02	0.00	0.231
205_1	31.51	0.00	0.00	15.01	7.59	7.68	15.27	0.00	0.00	0.485
206	31.51	0.00	0.00	19.36	10.33	0.61	10.94	0.04	0.04	0.347
207	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.02	0.01	0.388
207-1	31.51	0.00	0.00	18.03	2.50	9.73	12.23	0.01	0.00	0.388
PAD-208	31.51	12.47	0.00	3.77	33.44	6.77	40.21	0.03	0.02	0.914
PAD208-1	31.51	49.79	0.00	4.91	60.87	14.30	75.17	0.04	0.03	0.925
PAD208-10	31.51	0.00	0.00	4.69	23.09	2.57	25.67	0.01	0.01	0.815
PAD208-11	31.51	0.00	0.00	4.61	23.18	2.66	25.84	0.01	0.01	0.820
PAD208-12	31.51	0.00	0.00	15.32	7.30	7.67	14.97	0.00	0.00	0.475
PAD208-13	31.51	11.46	0.00	15.38	10.47	15.91	26.38	0.01	0.00	0.614
PAD208-14	31.51	0.00	0.00	18.64	7.60	4.05	11.65	0.00	0.00	0.370
PAD208-15	31.51	0.00	0.00	18.63	7.60	4.06	11.66	0.00	0.00	0.370
PAD208-2	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-3	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-4	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-5	31.51	0.00	0.00	4.70	23.09	2.56	25.65	0.01	0.01	0.814
PAD208-6	31.51	0.00	0.00	4.70	23.09	2.56	25.64	0.01	0.01	0.814
PAD208-7	31.51	0.00	0.00	4.70	23.09	2.56	25.64	0.01	0.01	0.814
PAD208-8	31.51	0.00	0.00	4.66	23.11	2.60	25.71	0.01	0.01	0.816
PAD208-9	31.51	0.00	0.00	4.66	23.11	2.60	25.71	0.01	0.01	0.816
PAD209	31.51	0.00	0.00	4.69	23.09	2.57	25.66	0.01	0.01	0.815
PAD209-1	31.51	0.00	0.00	4.70	23.09	2.55	25.64	0.01	0.01	0.814
PAD209-2	31.51	0.00	0.00	4.67	23.10	2.59	25.69	0.01	0.01	0.815
PAD209-20	31.51	0.00	0.00	15.59	7.59	7.12	14.71	0.01	0.00	0.467
PAD209-3	31.51	0.00	0.00	4.67	23.10	2.59	25.69	0.01	0.01	0.815
PAD209-4	31.51	0.00	0.00	4.68	23.10	2.59	25.68	0.01	0.01	0.815
PAD209-5	31.51	0.00	0.00	4.68	23.10	2.59	25.68	0.01	0.01	0.815

PAD209-6	31.51	0.00	0.00	4.66	23.11	2.60	25.70	0.01	0.00	0.816
PAD209-7	31.51	0.00	0.00	4.66	23.11	2.60	25.70	0.01	0.01	0.816
PAD209-8	31.51	0.00	0.00	4.66	23.11	2.61	25.72	0.01	0.01	0.816
PAD210	31.51	0.00	0.00	4.70	23.09	2.55	25.64	0.01	0.01	0.814
PAD210-1	31.51	0.00	0.00	4.67	23.10	2.59	25.69	0.00	0.00	0.815
PAD210-2	31.51	0.00	0.00	4.66	23.11	2.60	25.71	0.01	0.01	0.816
PAD210-3	31.51	2.64	0.00	4.67	25.11	3.23	28.35	0.03	0.03	0.830
PAD210-4	31.51	0.00	0.00	4.72	23.09	2.54	25.63	0.00	0.00	0.813
PAD210-5	31.51	28.89	0.00	4.82	45.05	9.38	54.42	0.06	0.05	0.901
PAD210-6	31.51	414.72	0.00	4.94	338.30	101.90	440.20	0.07	0.05	0.987
PAD210-7	31.51	0.00	0.00	15.82	7.61	6.87	14.47	0.00	0.00	0.459
PAD210-8	31.51	0.00	0.00	15.79	7.61	6.90	14.51	0.00	0.00	0.460
PAD210-9	31.51	0.00	0.00	15.82	7.61	6.87	14.47	0.01	0.00	0.459
Pond	31.51	0.00	0.00	0.00	31.56	0.00	31.56	0.04	0.04	1.002

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.00	0.06	241.64	0 01:00	0.06
J10	JUNCTION	0.00	0.15	240.62	0 01:05	0.15
J11	JUNCTION	0.00	0.07	241.16	0 01:00	0.07
J12	JUNCTION	0.02	0.27	240.52	0 01:03	0.27
J13	JUNCTION	0.02	0.27	240.52	0 01:03	0.27
J14	JUNCTION	0.02	0.28	240.52	0 01:01	0.28
J15	JUNCTION	0.04	0.41	240.51	0 02:33	0.41
J16	JUNCTION	0.00	0.12	240.99	0 01:00	0.12
J17	JUNCTION	0.00	0.14	241.24	0 01:00	0.14
J18	JUNCTION	0.00	0.09	241.51	0 01:00	0.09
J19	JUNCTION	0.00	0.08	241.06	0 01:00	0.08
J2	JUNCTION	0.00	0.15	240.78	0 01:01	0.15
J20	JUNCTION	0.00	0.05	241.25	0 01:00	0.05
J21	JUNCTION	0.01	0.15	240.54	0 01:07	0.15

J3	JUNCTION	0.03	0.34	240.51	0	02:33	0.34
J4	JUNCTION	0.03	0.09	239.67	0	02:33	0.09
J5	JUNCTION	0.00	0.11	241.37	0	01:00	0.11
J6	JUNCTION	0.01	0.05	239.32	0	03:27	0.05
J7	JUNCTION	0.00	0.16	241.10	0	01:00	0.16
J8	JUNCTION	0.00	0.03	241.35	0	01:00	0.03
J9	JUNCTION	0.00	0.14	240.89	0	01:00	0.14
Pre-J1	JUNCTION	0.00	0.13	240.13	0	01:00	0.13
Pre-J10	JUNCTION	0.02	0.15	238.65	0	01:01	0.15
Pre-J11	JUNCTION	0.01	0.10	238.60	0	01:09	0.10
Pre-J2	JUNCTION	0.00	0.12	239.62	0	01:02	0.12
Pre-J3	JUNCTION	0.00	0.14	239.14	0	01:07	0.14
Pre-J4	JUNCTION	0.00	0.08	238.78	0	01:08	0.08
Pre-J5	JUNCTION	0.00	0.00	240.00	0	00:00	0.00
Pre-J6	JUNCTION	0.00	0.08	239.58	0	01:00	0.08
Pre-J7	JUNCTION	0.01	0.05	239.25	0	01:00	0.05
Pre-J8	JUNCTION	0.01	0.09	238.94	0	01:00	0.09
Pre-J9	JUNCTION	0.01	0.08	238.68	0	01:01	0.08
OF1	OUTFALL	0.01	0.08	238.54	0	01:09	0.08
SU1	STORAGE	0.13	0.91	240.51	0	02:33	0.91

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J1	JUNCTION	0.027	0.027	0	01:00	0.0379	0.0379	-0.003
J10	JUNCTION	0.002	0.013	0	01:01	0.0029	0.0231	-0.019
J11	JUNCTION	0.014	0.029	0	01:00	0.017	0.035	0.001
J12	JUNCTION	0.004	0.015	0	00:56	0.0065	0.0375	-0.385
J13	JUNCTION	0.000	0.014	0	01:08	0	0.0422	0.003
J14	JUNCTION	0.051	0.051	0	01:00	0.066	0.102	-0.227
J15	JUNCTION	0.000	0.038	0	01:05	0	0.0958	0.111

J16	JUNCTION	0.021	0.065	0	01:00	0.0251	0.0776	-0.002	
J17	JUNCTION	0.017	0.071	0	01:00	0.0209	0.0934	-0.000	
J18	JUNCTION	0.014	0.040	0	01:00	0.017	0.0549	-0.002	
J19	JUNCTION	0.015	0.043	0	01:00	0.0175	0.0525	-0.002	
J2	JUNCTION	0.006	0.015	0	01:00	0.00674	0.0202	-0.178	
J20	JUNCTION	0.007	0.015	0	01:00	0.0081	0.018	-0.004	
J21	JUNCTION	0.000	0.014	0	01:01	0	0.0255	1.099	
J3	JUNCTION	0.000	0.039	0	01:01	0	0.0958	-0.006	
J4	JUNCTION	0.000	0.012	0	02:33	0	0.35	0.007	
J5	JUNCTION	0.014	0.054	0	01:00	0.0176	0.0725	0.000	
J6	JUNCTION	0.000	0.012	0	02:33	0	0.35	0.003	
J7	JUNCTION	0.036	0.106	0	01:00	0.042	0.135	-0.001	
J8	JUNCTION	0.008	0.008	0	01:00	0.00988	0.00988	-0.003	
J9	JUNCTION	0.010	0.010	0	01:00	0.0134	0.0134	-0.593	
Pre-J1	JUNCTION	0.060	0.060	0	01:00	0.104	0.104	-0.271	
Pre-J10	JUNCTION	0.000	0.042	0	01:01	0	0.435	0.012	
Pre-J11	JUNCTION	0.037	0.084	0	01:08	0.0449	0.622	-0.005	
Pre-J2	JUNCTION	0.014	0.066	0	01:00	0.0277	0.132	-0.016	
Pre-J3	JUNCTION	0.001	0.065	0	01:04	0.00188	0.134	0.204	
Pre-J4	JUNCTION	0.004	0.054	0	01:07	0.00885	0.142	0.034	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.036	0.036	0	01:00	0.068	0.068	-0.028	
Pre-J7	JUNCTION	0.000	0.042	0	01:00	0	0.418	0.003	
Pre-J8	JUNCTION	0.003	0.043	0	01:00	0.0167	0.435	-0.003	
Pre-J9	JUNCTION	0.000	0.043	0	01:00	0	0.435	0.003	
OF1	OUTFALL	0.000	0.084	0	01:09	0	0.622	0.000	
SU1	STORAGE	0.035	0.239	0	01:00	0.0416	0.35	0.037	

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	0.027	3.8	0.0	0.0	0.215	30.0	0 02:33	0.012

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	43.72	0.008	0.084	0.622
System	43.72	0.008	0.084	0.622

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Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth

DITCH-201	CONDUIT	0.039	0	01:01	0.10	0.15	0.44
DITCH-202	CONDUIT	0.038	0	01:05	0.14	0.10	0.49
DITCH-203	CONDUIT	0.010	0	01:00	0.06	0.08	0.29
DITCH-204	CONDUIT	0.012	0	01:01	0.08	0.08	0.28
DITCH-205_1	CONDUIT	0.010	0	01:05	0.06	0.07	0.27
DITCH-205_2	CONDUIT	0.010	0	01:09	0.04	0.06	0.35
DITCH-206	CONDUIT	0.014	0	01:08	0.06	0.08	0.38
DITCH-207	CONDUIT	0.014	0	01:08	0.06	0.09	0.39
POND-INLET	CONDUIT	0.044	0	01:03	0.25	0.07	0.85
POND-OUTLET_1	CONDUIT	0.012	0	02:33	0.80	0.05	0.15
POND-OUTLET_2	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
POND-OUTLET_3	CONDUIT	0.012	0	02:30	0.26	0.01	0.09
Pre-Swale01	CONDUIT	0.056	0	01:01	0.38	0.07	0.24
Pre-Swale02	CONDUIT	0.064	0	01:04	0.44	0.07	0.24
Pre-Swale03	CONDUIT	0.051	0	01:07	0.40	0.01	0.11
Pre-Swale04	CONDUIT	0.053	0	01:08	0.50	0.01	0.09
Pre-Swale05	CONDUIT	0.042	0	01:01	0.28	0.11	0.12
Pre-Swale06	CONDUIT	0.042	0	01:01	0.30	0.01	0.14
Pre-Swale07	CONDUIT	0.042	0	01:00	0.54	0.02	0.14
Pre-Swale08	CONDUIT	0.043	0	01:00	0.44	0.04	0.17
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.08
Pre-Swale10	CONDUIT	0.034	0	01:00	0.46	0.03	0.13
Pre-Swale11	CONDUIT	0.084	0	01:09	0.76	0.01	0.09
RCP-203	CONDUIT	0.105	0	01:00	2.14	0.26	0.35
RCP-204	CONDUIT	0.064	0	01:00	1.86	0.16	0.27
Trench_1	CONDUIT	0.029	0	01:00	0.79	0.04	0.15
Trench_2	CONDUIT	0.008	0	01:00	0.41	0.03	0.10
Trench_3	CONDUIT	0.043	0	01:00	0.87	0.04	0.20
Trench_4	CONDUIT	0.015	0	01:00	0.51	0.04	0.13
Trench_5	CONDUIT	0.026	0	01:00	0.70	0.08	0.19
Trench_6	CONDUIT	0.040	0	01:00	0.81	0.10	0.21
Trench_7	CONDUIT	0.054	0	01:00	0.87	0.12	0.23
Trench_8	CONDUIT	0.070	0	01:00	0.96	0.15	0.25
OF1	ORIFICE	0.012	0	02:33			1.00
W1	WEIR	0.000	0	00:00			0.00

****
Flow Classification Summary

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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
DITCH-201	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87	0.00
DITCH-202	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.37	0.00
DITCH-203	1.00	0.06	0.23	0.00	0.72	0.00	0.00	0.00	0.89	0.00
DITCH-204	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	0.98	0.00
DITCH-205_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
DITCH-205_2	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.92	0.00
DITCH-206	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.86	0.00
DITCH-207	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
POND-INLET	1.00	0.01	0.00	0.00	0.26	0.00	0.00	0.73	0.00	0.13
POND-OUTLET_1	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
POND-OUTLET_2	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
POND-OUTLET_3	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale01	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.98	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
Pre-Swale03	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale05	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale09	1.00	0.67	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	0.67	0.00	0.33	0.00	0.00	0.00	0.97	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
RCP-203	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
RCP-204	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Trench_1	1.00	0.47	0.12	0.00	0.41	0.00	0.00	0.00	0.35	0.00
Trench_2	1.00	0.67	0.11	0.00	0.22	0.00	0.00	0.00	0.22	0.00
Trench_3	1.00	0.00	0.50	0.00	0.50	0.00	0.00	0.00	1.00	0.00
Trench_4	1.00	0.56	0.13	0.00	0.31	0.00	0.00	0.00	0.30	0.00
Trench_5	1.00	0.22	0.23	0.00	0.56	0.00	0.00	0.00	0.50	0.00
Trench_6	1.00	0.11	0.16	0.00	0.73	0.00	0.00	0.00	0.71	0.00
Trench_7	1.00	0.04	0.11	0.00	0.85	0.01	0.00	0.00	0.78	0.00

Trench_8	1.00	0.00	0.06	0.00	0.94	0.00	0.00	0.00	1.00	0.00

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
POND-INLET	0.01	0.01	5.26	0.01	0.01

Analysis begun on: Thu Apr 30 11:42:18 2026
Analysis ended on: Thu Apr 30 11:42:22 2026
Total elapsed time: 00:00:04

Appendix L: PCSWMM Software Report Post-Development 24-hr 100-year Storm Event

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

WARNING 03: negative offset ignored for Link Pre-Swale07
WARNING 03: negative offset ignored for Link Pre-Swale10
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J14
WARNING 02: maximum depth increased for Node J6

****
Element Count
****
Number of rain gages 6
Number of subcatchments ... 49
Number of nodes 34
Number of links 35
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet

201	0.22	8.51	55.88	1.1500	Chicago_24h_100yr	Pre-J1
201_1	0.03	1.29	55.88	1.1500	Chicago_24h_100yr	PAD-208
201-2	0.11	4.08	55.88	1.1500	Chicago_24h_100yr	Pre-J1
202	0.13	20.61	8.21	1.6000	Chicago_24h_100yr	Pre-J1
203	0.07	8.82	5.25	2.3000	Chicago_24h_100yr	Pre-J6
203-1	0.02	2.90	8.21	1.6000	Chicago_24h_100yr	203
204	0.42	42.67	25.66	5.0000	Chicago_24h_100yr	Pre-J6
205	0.23	14.61	2.71	1.2700	Chicago_24h_100yr	Pre-J8
205_1	0.01	0.78	25.00	1.2700	Chicago_24h_100yr	Pre-J3
206	0.41	66.27	34.00	1.6000	Chicago_24h_100yr	Pre-J11
207	0.18	29.76	8.21	1.6000	Chicago_24h_100yr	Pre-J2
207-1	0.07	11.68	8.21	1.6000	Chicago_24h_100yr	Pre-J4
PAD-208	0.06	20.13	76.00	3.2200	Chicago_24h_100yr	PAD208-1
PAD208-1	0.05	18.67	76.00	0.1000	Chicago_24h_100yr	J1
PAD208-10	0.05	26.11	76.00	0.5300	Chicago_24h_100yr	J7
PAD208-11	0.03	18.07	76.00	5.0000	Chicago_24h_100yr	J7
PAD208-12	0.02	7.93	24.00	0.5300	Chicago_24h_100yr	PAD208-13
PAD208-13	0.03	8.02	25.00	0.7200	Chicago_24h_100yr	Pre-J1
PAD208-14	0.01	21.47	25.00	0.5000	Chicago_24h_100yr	Pre-J1
PAD208-15	0.03	76.91	25.00	0.5000	Chicago_24h_100yr	Pre-J1
PAD208-2	0.03	11.47	76.00	0.8850	Chicago_24h_100yr	J18
PAD208-3	0.03	10.99	76.00	0.8850	Chicago_24h_100yr	J18
PAD208-4	0.03	11.81	76.00	0.8850	Chicago_24h_100yr	J5
PAD208-5	0.03	11.40	76.00	0.8850	Chicago_24h_100yr	J5
PAD208-6	0.04	15.94	76.00	0.6100	Chicago_24h_100yr	J17
PAD208-7	0.04	15.48	76.00	0.6100	Chicago_24h_100yr	J17
PAD208-8	0.05	18.14	76.00	3.0000	Chicago_24h_100yr	J7
PAD208-9	0.04	15.29	76.00	3.0000	Chicago_24h_100yr	J7
PAD209	0.04	14.81	76.00	0.9700	Chicago_24h_100yr	J8
PAD209-1	0.03	10.53	76.00	0.8000	Chicago_24h_100yr	J20
PAD209-2	0.03	9.83	76.00	2.4200	Chicago_24h_100yr	J11
PAD209-20	0.04	88.00	25.00	5.8350	Chicago_24h_100yr	Pre-J2
PAD209-3	0.04	12.20	76.00	2.4200	Chicago_24h_100yr	J11
PAD209-4	0.03	7.97	76.00	3.0000	Chicago_24h_100yr	J19
PAD209-5	0.04	10.97	76.00	3.0000	Chicago_24h_100yr	J19
PAD209-6	0.02	7.75	76.00	3.0000	Chicago_24h_100yr	J16
PAD209-7	0.03	10.57	76.00	3.0000	Chicago_24h_100yr	J16
PAD209-8	0.05	25.72	76.00	1.7900	Chicago_24h_100yr	J16
PAD210	0.03	10.37	76.00	0.8000	Chicago_24h_100yr	J9

PAD210-1	0.01	3.07	76.00	2.4200	Chicago_24h_100yr	J9
PAD210-2	0.03	17.47	76.00	1.0000	Chicago_24h_100yr	J2
PAD210-3	0.12	58.25	76.00	2.0000	Chicago_24h_100yr	PAD210-5
PAD210-4	0.01	2.16	76.00	2.0000	Chicago_24h_100yr	PAD210-3
PAD210-5	0.11	15.15	76.00	1.2000	Chicago_24h_100yr	PAD210-6
PAD210-6	0.01	19.51	76.00	2.7500	Chicago_24h_100yr	J14
PAD210-7	0.02	30.00	25.00	0.5000	Chicago_24h_100yr	J9
PAD210-8	0.02	33.33	25.00	0.5000	Chicago_24h_100yr	J10
PAD210-9	0.04	64.14	25.00	0.5000	Chicago_24h_100yr	J12
Pond	0.13	89.17	100.00	0.5000	Chicago_24h_100yr	SU1

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	241.58	0.40	0.0	
J10	JUNCTION	240.47	0.56	0.0	
J11	JUNCTION	241.09	0.49	0.0	
J12	JUNCTION	240.25	0.72	0.0	
J13	JUNCTION	240.25	0.72	0.0	
J14	JUNCTION	240.24	0.70	0.0	
J15	JUNCTION	240.10	0.83	0.0	
J16	JUNCTION	240.87	0.58	0.0	
J17	JUNCTION	241.10	0.59	0.0	
J18	JUNCTION	241.42	0.46	0.0	
J19	JUNCTION	240.98	0.53	0.0	
J2	JUNCTION	240.63	0.50	0.0	
J20	JUNCTION	241.20	0.44	0.0	
J21	JUNCTION	240.38	0.59	0.0	
J3	JUNCTION	240.17	0.78	0.0	
J4	JUNCTION	239.58	1.49	0.0	
J5	JUNCTION	241.26	0.53	0.0	
J6	JUNCTION	239.27	1.69	0.0	
J7	JUNCTION	240.94	0.66	0.0	
J8	JUNCTION	241.32	0.40	0.0	
J9	JUNCTION	240.75	0.50	0.0	

Pre-J1	JUNCTION	240.00	0.50	0.0
Pre-J10	JUNCTION	238.50	1.00	0.0
Pre-J11	JUNCTION	238.50	1.50	0.0
Pre-J2	JUNCTION	239.50	0.50	0.0
Pre-J3	JUNCTION	239.00	1.00	0.0
Pre-J4	JUNCTION	238.70	1.30	0.0
Pre-J5	JUNCTION	240.00	0.50	0.0
Pre-J6	JUNCTION	239.50	0.50	0.0
Pre-J7	JUNCTION	239.20	0.50	0.0
Pre-J8	JUNCTION	238.86	0.50	0.0
Pre-J9	JUNCTION	238.60	0.87	0.0
OF1	OUTFALL	238.45	1.00	0.0
SU1	STORAGE	239.60	1.90	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
DITCH-201	J14	J3	CONDUIT	14.4	0.4875	0.2500
DITCH-202	J3	J15	CONDUIT	11.2	0.6267	0.2500
DITCH-203	J9	J2	CONDUIT	24.9	0.4412	0.2500
DITCH-204	J2	J10	CONDUIT	25.1	0.6578	0.2500
DITCH-205_1	J10	J21	CONDUIT	19.2	0.4477	0.2500
DITCH-205_2	J21	J12	CONDUIT	29.8	0.4495	0.2500
DITCH-206	J12	J13	CONDUIT	2.5	0.1968	0.2500
DITCH-207	J13	J14	CONDUIT	2.6	0.1904	0.2500
POND-INLET	J15	SU1	CONDUIT	47.0	1.0001	0.0130
POND-OUTLET_1	J4	J6	CONDUIT	15.5	0.4516	0.0100
POND-OUTLET_2	SU1	J6	CONDUIT	15.5	0.7742	0.0100
POND-OUTLET_3	J6	Pre-J7	CONDUIT	13.0	0.5385	0.0350
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	7.9	4.3780	0.0350

Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	30.3	0.9902	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350
RCP-203	J7	SU1	CONDUIT	17.0	2.0004	0.0130
RCP-204	J16	SU1	CONDUIT	17.0	2.0004	0.0130
Trench_1	J11	J19	CONDUIT	24.5	0.4481	0.0130
Trench_2	J8	J20	CONDUIT	24.6	0.4874	0.0130
Trench_3	J19	J16	CONDUIT	17.1	0.6417	0.0130
Trench_4	J20	J11	CONDUIT	23.7	0.4638	0.0130
Trench_5	J1	J18	CONDUIT	27.3	0.5862	0.0130
Trench_6	J18	J5	CONDUIT	28.0	0.5705	0.0130
Trench_7	J5	J17	CONDUIT	33.0	0.4852	0.0130
Trench_8	J17	J7	CONDUIT	35.6	0.4496	0.0130
OF1	SU1	J4	ORIFICE			
W1	SU1	Pre-J6	WEIR			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
DITCH-201	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.27
DITCH-202	TRAPEZOIDAL	0.77	2.10	0.42	4.66	1	0.38
DITCH-203	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.12
DITCH-204	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.15
DITCH-205_1	TRAPEZOIDAL	0.56	1.24	0.32	3.61	1	0.16
DITCH-205_2	TRAPEZOIDAL	0.59	1.35	0.34	3.76	1	0.18
DITCH-206	TRAPEZOIDAL	0.72	1.85	0.40	4.38	1	0.18
DITCH-207	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.17
POND-INLET	CIRCULAR	0.60	0.28	0.15	0.60	1	0.61
POND-OUTLET_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.25
POND-OUTLET_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.33
POND-OUTLET_3	TRAPEZOIDAL	0.50	1.25	0.30	4.00	1	1.18
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76

Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	2.73
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.30
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85
RCP-203	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
RCP-204	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
Trench_1	RECT_OPEN	0.49	0.24	0.49	0.50	1	0.78
Trench_2	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.31
Trench_3	RECT_OPEN	0.50	0.25	0.50	0.50	1	0.97
Trench_4	RECT_OPEN	0.44	0.22	0.16	0.50	1	0.34
Trench_5	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.34
Trench_6	RECT_OPEN	0.46	0.23	0.16	0.50	1	0.40
Trench_7	RECT_OPEN	0.53	0.27	0.17	0.50	1	0.44
Trench_8	RECT_OPEN	0.59	0.29	0.18	0.50	1	0.48

****
Transect Summary
****

Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196
	0.6816	0.7436	0.8129	0.8884	0.9625

1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606
0.7987 0.8365 0.8552 0.8620 0.8749

```
            0.8920     0.9122     0.9346     0.9588     0.9844
            1.0112     1.0388     1.0671     1.0960     1.0000
Width:
            0.1060     0.1120     0.1180     0.1240     0.1300
            0.1360     0.1420     0.1480     0.1540     0.1600
            0.1660     0.1720     0.1760     0.1780     0.1800
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/26/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
```

Number of Threads 6
Head Tolerance ..... 0.001500 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.263	77.792
Evaporation Loss	0.000	0.000
Infiltration Loss	0.055	16.313
Surface Runoff	0.201	59.535
Final Storage	0.007	2.005
Continuity Error (%)	-0.079	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.201	2.010
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.201	2.010
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.003	

****
Time-Step Critical Elements
****
None

****

Highest Flow Instability Indexes
****
All links are stable.

****
Most Frequent Nonconverging Nodes
****
Convergence obtained at all time steps.

****
Routing Time Step Summary
****
Minimum Time Step : 0.79 sec
Average Time Step : 1.00 sec
Maximum Time Step : 1.00 sec
% of Time in Steady State : 0.00
Average Iterations per Step : 2.00
% of Steps Not Converging : 0.00
Time Step Frequencies :
1.000 - 0.871 sec : 100.00 %
0.871 - 0.758 sec : 0.00 %
0.758 - 0.660 sec : 0.00 %
0.660 - 0.574 sec : 0.00 %
0.574 - 0.500 sec : 0.00 %

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
201	77.79	0.00	0.00	7.07	42.83	25.42	68.25	0.15	0.08	0.877
201_1	77.79	0.00	0.00	7.07	42.83	25.42	68.25	0.02	0.01	0.877

201-2	77.79	0.00	0.00	7.07	42.83	25.42	68.25	0.07	0.04	0.877
202	77.79	0.00	0.00	21.85	6.30	46.47	52.77	0.07	0.04	0.678
203	77.79	12.67	0.00	24.27	4.69	58.41	63.10	0.05	0.02	0.698
203-1	77.79	0.00	0.00	21.85	6.30	46.47	52.77	0.01	0.01	0.678
204	77.79	0.00	0.00	22.86	19.69	33.13	52.82	0.22	0.13	0.679
205	77.79	0.00	0.00	31.50	2.08	41.75	43.83	0.10	0.03	0.563
205_1	77.79	0.00	0.00	17.85	19.17	37.88	57.05	0.01	0.00	0.733
206	77.79	0.00	0.00	33.71	26.09	16.80	42.89	0.18	0.07	0.551
207	77.79	0.00	0.00	21.85	6.30	46.47	52.77	0.10	0.06	0.678
207-1	77.79	0.00	0.00	21.85	6.30	46.47	52.77	0.04	0.02	0.678
PAD-208	77.79	36.64	0.00	5.37	87.02	22.09	109.11	0.07	0.04	0.954
PAD208-1	77.79	135.09	0.00	5.71	160.91	44.55	205.46	0.10	0.05	0.965
PAD208-10	77.79	0.00	0.00	5.71	58.30	12.16	70.46	0.03	0.02	0.906
PAD208-11	77.79	0.00	0.00	5.71	58.40	12.21	70.61	0.02	0.01	0.908
PAD208-12	77.79	0.00	0.00	18.09	18.42	38.35	56.78	0.01	0.01	0.730
PAD208-13	77.79	43.48	0.00	17.85	30.05	70.39	100.45	0.03	0.01	0.828
PAD208-14	77.79	0.00	0.00	28.85	19.18	28.53	47.71	0.00	0.00	0.613
PAD208-15	77.79	0.00	0.00	28.85	19.18	28.54	47.72	0.02	0.01	0.613
PAD208-2	77.79	0.00	0.00	5.71	58.30	12.16	70.45	0.02	0.01	0.906
PAD208-3	77.79	0.00	0.00	5.71	58.30	12.16	70.45	0.02	0.01	0.906
PAD208-4	77.79	0.00	0.00	5.71	58.30	12.16	70.45	0.02	0.01	0.906
PAD208-5	77.79	0.00	0.00	5.71	58.30	12.16	70.45	0.02	0.01	0.906
PAD208-6	77.79	0.00	0.00	5.71	58.30	12.15	70.45	0.03	0.02	0.906
PAD208-7	77.79	0.00	0.00	5.71	58.30	12.15	70.45	0.03	0.02	0.906
PAD208-8	77.79	0.00	0.00	5.71	58.33	12.17	70.50	0.03	0.02	0.906
PAD208-9	77.79	0.00	0.00	5.71	58.33	12.17	70.50	0.03	0.02	0.906
PAD209	77.79	0.00	0.00	5.71	58.30	12.16	70.46	0.03	0.02	0.906
PAD209-1	77.79	0.00	0.00	5.71	58.30	12.15	70.45	0.02	0.01	0.906
PAD209-2	77.79	0.00	0.00	5.71	58.32	12.17	70.48	0.02	0.01	0.906
PAD209-20	77.79	0.00	0.00	20.53	19.16	35.73	54.89	0.02	0.01	0.706
PAD209-3	77.79	0.00	0.00	5.71	58.32	12.17	70.48	0.03	0.01	0.906
PAD209-4	77.79	0.00	0.00	5.71	58.31	12.16	70.48	0.02	0.01	0.906
PAD209-5	77.79	0.00	0.00	5.71	58.31	12.16	70.48	0.03	0.02	0.906
PAD209-6	77.79	0.00	0.00	5.71	58.32	12.17	70.49	0.02	0.01	0.906
PAD209-7	77.79	0.00	0.00	5.71	58.32	12.17	70.49	0.02	0.01	0.906
PAD209-8	77.79	0.00	0.00	5.71	58.33	12.17	70.50	0.03	0.02	0.906
PAD210	77.79	0.00	0.00	5.71	58.30	12.15	70.45	0.02	0.01	0.906
PAD210-1	77.79	0.00	0.00	5.71	58.32	12.17	70.48	0.01	0.00	0.906
PAD210-2	77.79	0.00	0.00	5.71	58.33	12.17	70.50	0.02	0.01	0.906

PAD210-3	77.79	7.26	0.00	5.71	63.84	13.91	77.75	0.09	0.05	0.914
PAD210-4	77.79	0.00	0.00	5.71	58.29	12.15	70.44	0.01	0.00	0.905
PAD210-5	77.79	79.25	0.00	5.71	118.53	31.15	149.68	0.17	0.09	0.953
PAD210-6	77.79	1140.55	0.00	5.71	925.10	285.91	1211.01	0.18	0.10	0.994
PAD210-7	77.79	0.00	0.00	20.53	19.19	35.62	54.81	0.01	0.01	0.705
PAD210-8	77.79	0.00	0.00	20.53	19.19	35.63	54.82	0.01	0.01	0.705
PAD210-9	77.79	0.00	0.00	20.53	19.19	35.62	54.81	0.02	0.01	0.705
Pond	77.79	0.00	0.00	0.00	77.89	0.00	77.89	0.10	0.06	1.001

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.00	0.10	241.68	0 08:00	0.10
J10	JUNCTION	0.03	0.29	240.76	0 08:15	0.29
J11	JUNCTION	0.00	0.10	241.19	0 08:00	0.10
J12	JUNCTION	0.08	0.51	240.76	0 08:15	0.51
J13	JUNCTION	0.08	0.51	240.76	0 08:15	0.51
J14	JUNCTION	0.08	0.52	240.76	0 08:15	0.52
J15	JUNCTION	0.12	0.66	240.76	0 08:16	0.66
J16	JUNCTION	0.01	0.17	241.04	0 08:00	0.17
J17	JUNCTION	0.01	0.22	241.32	0 08:00	0.22
J18	JUNCTION	0.00	0.14	241.56	0 08:00	0.14
J19	JUNCTION	0.00	0.12	241.10	0 08:00	0.12
J2	JUNCTION	0.01	0.22	240.85	0 08:00	0.22
J20	JUNCTION	0.00	0.07	241.27	0 08:00	0.07
J21	JUNCTION	0.05	0.38	240.76	0 08:16	0.38
J3	JUNCTION	0.10	0.59	240.76	0 08:16	0.59
J4	JUNCTION	0.05	0.09	239.67	0 08:16	0.09
J5	JUNCTION	0.01	0.18	241.44	0 08:00	0.18
J6	JUNCTION	0.03	0.13	239.40	0 08:17	0.13
J7	JUNCTION	0.01	0.23	241.17	0 08:00	0.23
J8	JUNCTION	0.00	0.05	241.37	0 08:00	0.05

J9	JUNCTION	0.01	0.22	240.96	0	08:00	0.22
Pre-J1	JUNCTION	0.01	0.22	240.22	0	08:00	0.21
Pre-J10	JUNCTION	0.05	0.29	238.80	0	08:01	0.29
Pre-J11	JUNCTION	0.02	0.23	238.73	0	08:01	0.23
Pre-J2	JUNCTION	0.01	0.23	239.73	0	08:00	0.23
Pre-J3	JUNCTION	0.01	0.27	239.27	0	08:03	0.27
Pre-J4	JUNCTION	0.01	0.17	238.87	0	08:03	0.17
Pre-J5	JUNCTION	0.00	0.00	240.00	0	00:00	0.00
Pre-J6	JUNCTION	0.01	0.18	239.68	0	08:00	0.18
Pre-J7	JUNCTION	0.01	0.11	239.31	0	08:00	0.11
Pre-J8	JUNCTION	0.02	0.20	239.05	0	08:00	0.19
Pre-J9	JUNCTION	0.02	0.22	238.82	0	08:00	0.21
OF1	OUTFALL	0.02	0.21	238.67	0	08:01	0.21
SU1	STORAGE	0.31	1.16	240.76	0	08:16	1.16

****
Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J1	JUNCTION	0.052	0.052	0	08:00	0.104	0.104	0.000
J10	JUNCTION	0.007	0.032	0	08:00	0.011	0.0698	0.316
J11	JUNCTION	0.027	0.055	0	08:00	0.0466	0.096	0.003
J12	JUNCTION	0.014	0.030	0	07:56	0.0246	0.106	-0.098
J13	JUNCTION	0.000	0.022	0	07:55	0	0.111	0.003
J14	JUNCTION	0.099	0.099	0	08:00	0.182	0.285	-0.136
J15	JUNCTION	0.000	0.056	0	07:58	0	0.276	0.052
J16	JUNCTION	0.040	0.122	0	08:00	0.0688	0.213	0.097
J17	JUNCTION	0.033	0.137	0	08:00	0.0575	0.256	0.001
J18	JUNCTION	0.027	0.078	0	08:00	0.0468	0.15	0.000
J19	JUNCTION	0.028	0.082	0	08:00	0.0481	0.144	-0.002
J2	JUNCTION	0.011	0.032	0	08:00	0.0185	0.0586	-0.467
J20	JUNCTION	0.013	0.028	0	08:00	0.0223	0.0494	-0.001

J21	JUNCTION	0.000	0.030	0	07:58	0	0.0743	0.491	
J3	JUNCTION	0.000	0.078	0	08:00	0	0.276	0.037	
J4	JUNCTION	0.000	0.013	0	08:16	0	0.77	0.003	
J5	JUNCTION	0.027	0.105	0	08:00	0.0483	0.199	0.001	
J6	JUNCTION	0.000	0.070	0	08:16	0	0.962	0.004	
J7	JUNCTION	0.066	0.203	0	08:00	0.115	0.371	0.061	
J8	JUNCTION	0.016	0.016	0	08:00	0.0271	0.0271	-0.000	
J9	JUNCTION	0.023	0.023	0	08:00	0.0399	0.0399	-0.463	
Pre-J1	JUNCTION	0.173	0.173	0	08:00	0.339	0.339	-0.173	
Pre-J10	JUNCTION	0.000	0.188	0	08:00	0	1.33	0.006	
Pre-J11	JUNCTION	0.069	0.387	0	08:01	0.176	2.01	-0.002	
Pre-J2	JUNCTION	0.069	0.229	0	08:00	0.117	0.456	-0.036	
Pre-J3	JUNCTION	0.003	0.216	0	08:00	0.00702	0.463	0.160	
Pre-J4	JUNCTION	0.022	0.202	0	08:03	0.0382	0.501	0.012	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.155	0.155	0	08:00	0.27	0.27	-0.024	
Pre-J7	JUNCTION	0.000	0.164	0	08:00	0	1.23	0.002	
Pre-J8	JUNCTION	0.032	0.194	0	08:00	0.101	1.33	-0.004	
Pre-J9	JUNCTION	0.000	0.192	0	08:00	0	1.33	0.004	
OF1	OUTFALL	0.000	0.386	0	08:01	0	2.01	0.000	
SU1	STORAGE	0.057	0.409	0	07:59	0.103	0.962	-0.041	

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Node Surcharge Summary
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No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary

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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CMS
SU1	0.069	9.6	0.0	0.0	0.311	43.3	0 08:16	0.070

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	77.20	0.015	0.386	2.010
System	77.20	0.015	0.386	2.010

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Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
DITCH-201	CONDUIT	0.078	0 08:00	0.13	0.29	0.79
DITCH-202	CONDUIT	0.056	0 07:58	0.13	0.15	0.81
DITCH-203	CONDUIT	0.022	0 08:00	0.08	0.18	0.43
DITCH-204	CONDUIT	0.027	0 08:00	0.09	0.18	0.46
DITCH-205_1	CONDUIT	0.020	0 08:01	0.06	0.13	0.59
DITCH-205_2	CONDUIT	0.016	0 07:57	0.05	0.09	0.75

DITCH-206	CONDUIT	0.018	0	07:56	0.05	0.10	0.72
DITCH-207	CONDUIT	0.022	0	07:55	0.06	0.13	0.74
POND-INLET	CONDUIT	0.039	0	08:02	0.32	0.06	1.00
POND-OUTLET_1	CONDUIT	0.013	0	08:16	0.83	0.05	0.16
POND-OUTLET_2	CONDUIT	0.057	0	08:16	1.54	0.17	0.28
POND-OUTLET_3	CONDUIT	0.070	0	08:16	0.51	0.06	0.21
Pre-Swale01	CONDUIT	0.161	0	08:00	0.51	0.20	0.44
Pre-Swale02	CONDUIT	0.214	0	08:00	0.64	0.22	0.49
Pre-Swale03	CONDUIT	0.191	0	08:03	0.61	0.05	0.22
Pre-Swale04	CONDUIT	0.200	0	08:03	0.75	0.03	0.19
Pre-Swale05	CONDUIT	0.186	0	08:01	0.47	0.50	0.26
Pre-Swale06	CONDUIT	0.188	0	08:00	0.49	0.06	0.32
Pre-Swale07	CONDUIT	0.163	0	08:00	0.82	0.06	0.31
Pre-Swale08	CONDUIT	0.192	0	08:00	0.67	0.16	0.41
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.18
Pre-Swale10	CONDUIT	0.152	0	08:00	0.82	0.12	0.29
Pre-Swale11	CONDUIT	0.386	0	08:01	1.21	0.06	0.22
RCP-203	CONDUIT	0.202	0	08:00	2.54	0.50	0.50
RCP-204	CONDUIT	0.122	0	08:00	2.22	0.30	0.38
Trench_1	CONDUIT	0.055	0	08:00	0.99	0.07	0.23
Trench_2	CONDUIT	0.015	0	08:00	0.51	0.05	0.15
Trench_3	CONDUIT	0.082	0	08:00	1.13	0.08	0.29
Trench_4	CONDUIT	0.028	0	08:00	0.65	0.08	0.20
Trench_5	CONDUIT	0.052	0	08:00	0.87	0.15	0.30
Trench_6	CONDUIT	0.078	0	08:00	1.00	0.20	0.34
Trench_7	CONDUIT	0.105	0	08:00	1.05	0.24	0.38
Trench_8	CONDUIT	0.136	0	08:00	1.25	0.29	0.38
OF1	ORIFICE	0.013	0	08:16			1.00
W1	WEIR	0.000	0	00:00			0.00

****
Flow Classification Summary
****

	Adjusted	Fraction of Time in Flow Class							
	/Actual		Up	Down	Sub	Sup	Up	Down	Norm	Inlet
Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl

DITCH-201	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.67	0.00
DITCH-202	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.02	0.00
DITCH-203	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95	0.00
DITCH-204	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
DITCH-205_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.67	0.00
DITCH-205_2	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.78	0.00
DITCH-206	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.47	0.00
DITCH-207	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.02	0.00
POND-INLET	1.00	0.02	0.00	0.00	0.55	0.00	0.00	0.43	0.00	0.26
POND-OUTLET_1	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
POND-OUTLET_2	1.00	0.92	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
POND-OUTLET_3	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale01	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.83	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94	0.00
Pre-Swale03	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.02	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale05	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.97	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
Pre-Swale09	1.00	0.25	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	0.25	0.00	0.75	0.00	0.00	0.00	0.97	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
RCP-203	1.00	0.00	0.00	0.00	0.05	0.03	0.00	0.92	0.08	0.00
RCP-204	1.00	0.00	0.00	0.00	0.13	0.01	0.00	0.87	0.13	0.00
Trench_1	1.00	0.11	0.08	0.00	0.81	0.00	0.00	0.00	0.75	0.00
Trench_2	1.00	0.25	0.10	0.00	0.65	0.00	0.00	0.00	0.65	0.00
Trench_3	1.00	0.00	0.13	0.00	0.87	0.00	0.00	0.00	1.00	0.00
Trench_4	1.00	0.17	0.09	0.00	0.74	0.00	0.00	0.00	0.72	0.00
Trench_5	1.00	0.01	0.05	0.00	0.94	0.00	0.00	0.00	0.93	0.00
Trench_6	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.98	0.00
Trench_7	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Trench_8	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00

****
Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
POND-INLET	1.12	1.12	12.27	0.01	0.01

Analysis begun on: Thu Apr 30 11:17:02 2026
Analysis ended on: Thu Apr 30 11:17:06 2026
Total elapsed time: 00:00:04

Appendix M: PCSWMM Software Report Post-Development Regional Storm (Hazel)

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

WARNING 03: negative offset ignored for Link Pre-Swale07
WARNING 03: negative offset ignored for Link Pre-Swale10
WARNING 02: maximum depth increased for Node J10
WARNING 02: maximum depth increased for Node J14
WARNING 02: maximum depth increased for Node J6

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Element Count
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Number of rain gages 6
Number of subcatchments ... 49
Number of nodes 34
Number of links 35
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr	Chicago_24h_100yr	INTENSITY	10 min.
Chicago_24h_2yr	Chicago_24h_2yr	INTENSITY	10 min.
Chicago_3h_2yr	Chicago_3h_2yr	INTENSITY	10 min.
Chicago_3h_5yr	Chicago_3h_5yr	INTENSITY	10 min.
Chicago_4h_25mm	Chicago_4h_25mm	INTENSITY	10 min.
Hurricane_Hazel_(0-25)	Hurricane_Hazel_(0-25)	INTENSITY	60 min.

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Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
201	0.22	8.51	55.88	1.1500	Chicago_4h_25mm	Pre-J1
201_1	0.03	1.29	55.88	1.1500	Chicago_4h_25mm	PAD-208
201-2	0.11	4.08	55.88	1.1500	Chicago_4h_25mm	Pre-J1
202	0.13	20.61	8.21	1.6000	Chicago_4h_25mm	Pre-J1
203	0.07	8.82	5.25	2.3000	Chicago_4h_25mm	Pre-J6
203-1	0.02	2.90	8.21	1.6000	Chicago_4h_25mm	203
204	0.42	42.67	25.66	5.0000	Chicago_4h_25mm	Pre-J6

205	0.23	14.61	2.71	1.2700	Chicago_4h_25mm	Pre-J8
205_1	0.01	0.78	25.00	1.2700	Chicago_4h_25mm	Pre-J3
206	0.41	66.27	34.00	1.6000	Chicago_4h_25mm	Pre-J11
207	0.18	29.76	8.21	1.6000	Chicago_4h_25mm	Pre-J2
207-1	0.07	11.68	8.21	1.6000	Chicago_4h_25mm	Pre-J4
PAD-208	0.06	20.13	76.00	3.2200	Chicago_4h_25mm	PAD208-1
PAD208-1	0.05	18.67	76.00	0.1000	Chicago_4h_25mm	J1
PAD208-10	0.05	26.11	76.00	0.5300	Chicago_4h_25mm	J7
PAD208-11	0.03	18.07	76.00	5.0000	Chicago_4h_25mm	J7
PAD208-12	0.02	7.93	24.00	0.5300	Chicago_4h_25mm	PAD208-13
PAD208-13	0.03	8.02	25.00	0.7200	Chicago_4h_25mm	Pre-J1
PAD208-14	0.01	21.47	25.00	0.5000	Chicago_4h_25mm	Pre-J1
PAD208-15	0.03	76.91	25.00	0.5000	Chicago_4h_25mm	Pre-J1
PAD208-2	0.03	11.47	76.00	0.8850	Chicago_4h_25mm	J18
PAD208-3	0.03	10.99	76.00	0.8850	Chicago_4h_25mm	J18
PAD208-4	0.03	11.81	76.00	0.8850	Chicago_4h_25mm	J5
PAD208-5	0.03	11.40	76.00	0.8850	Chicago_4h_25mm	J5
PAD208-6	0.04	15.94	76.00	0.6100	Chicago_4h_25mm	J17
PAD208-7	0.04	15.48	76.00	0.6100	Chicago_4h_25mm	J17
PAD208-8	0.05	18.14	76.00	3.0000	Chicago_4h_25mm	J7
PAD208-9	0.04	15.29	76.00	3.0000	Chicago_4h_25mm	J7
PAD209	0.04	14.81	76.00	0.9700	Chicago_4h_25mm	J8
PAD209-1	0.03	10.53	76.00	0.8000	Chicago_4h_25mm	J20
PAD209-2	0.03	9.83	76.00	2.4200	Chicago_4h_25mm	J11
PAD209-20	0.04	88.00	25.00	5.8350	Chicago_4h_25mm	Pre-J2
PAD209-3	0.04	12.20	76.00	2.4200	Chicago_4h_25mm	J11
PAD209-4	0.03	7.97	76.00	3.0000	Chicago_4h_25mm	J19
PAD209-5	0.04	10.97	76.00	3.0000	Chicago_4h_25mm	J19
PAD209-6	0.02	7.75	76.00	3.0000	Chicago_4h_25mm	J16
PAD209-7	0.03	10.57	76.00	3.0000	Chicago_4h_25mm	J16
PAD209-8	0.05	25.72	76.00	1.7900	Chicago_4h_25mm	J16
PAD210	0.03	10.37	76.00	0.8000	Chicago_4h_25mm	J9
PAD210-1	0.01	3.07	76.00	2.4200	Chicago_4h_25mm	J9
PAD210-2	0.03	17.47	76.00	1.0000	Chicago_4h_25mm	J2
PAD210-3	0.12	58.25	76.00	2.0000	Chicago_4h_25mm	PAD210-5
PAD210-4	0.01	2.16	76.00	2.0000	Chicago_4h_25mm	PAD210-3
PAD210-5	0.11	15.15	76.00	1.2000	Chicago_4h_25mm	PAD210-6
PAD210-6	0.01	19.51	76.00	2.7500	Chicago_4h_25mm	J14
PAD210-7	0.02	30.00	25.00	0.5000	Chicago_4h_25mm	J9
PAD210-8	0.02	33.33	25.00	0.5000	Chicago_4h_25mm	J10
PAD210-9	0.04	64.14	25.00	0.5000	Chicago_4h_25mm	J12
Pond	0.13	89.17	100.00	0.5000	Chicago_4h_25mm	SU1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	241.58	0.40	0.0	
J10	JUNCTION	240.47	0.56	0.0	
J11	JUNCTION	241.09	0.49	0.0	
J12	JUNCTION	240.25	0.72	0.0	
J13	JUNCTION	240.25	0.72	0.0	
J14	JUNCTION	240.24	0.70	0.0	
J15	JUNCTION	240.10	0.83	0.0	
J16	JUNCTION	240.87	0.58	0.0	
J17	JUNCTION	241.10	0.59	0.0	
J18	JUNCTION	241.42	0.46	0.0	
J19	JUNCTION	240.98	0.53	0.0	
J2	JUNCTION	240.63	0.50	0.0	
J20	JUNCTION	241.20	0.44	0.0	
J21	JUNCTION	240.38	0.59	0.0	
J3	JUNCTION	240.17	0.78	0.0	
J4	JUNCTION	239.58	1.49	0.0	
J5	JUNCTION	241.26	0.53	0.0	
J6	JUNCTION	239.27	1.69	0.0	
J7	JUNCTION	240.94	0.66	0.0	
J8	JUNCTION	241.32	0.40	0.0	
J9	JUNCTION	240.75	0.50	0.0	
Pre-J1	JUNCTION	240.00	0.50	0.0	
Pre-J10	JUNCTION	238.50	1.00	0.0	
Pre-J11	JUNCTION	238.50	1.50	0.0	
Pre-J2	JUNCTION	239.50	0.50	0.0	
Pre-J3	JUNCTION	239.00	1.00	0.0	
Pre-J4	JUNCTION	238.70	1.30	0.0	
Pre-J5	JUNCTION	240.00	0.50	0.0	
Pre-J6	JUNCTION	239.50	0.50	0.0	
Pre-J7	JUNCTION	239.20	0.50	0.0	
Pre-J8	JUNCTION	238.86	0.50	0.0	
Pre-J9	JUNCTION	238.60	0.87	0.0	
OF1	OUTFALL	238.45	1.00	0.0	
SU1	STORAGE	239.60	1.90	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
DITCH-201	J14	J3	CONDUIT	14.4	0.4875	0.2500
DITCH-202	J3	J15	CONDUIT	11.2	0.6267	0.2500
DITCH-203	J9	J2	CONDUIT	24.9	0.4412	0.2500

DITCH-204	J2	J10	CONDUIT	25.1	0.6578	0.2500
DITCH-205_1	J10	J21	CONDUIT	19.2	0.4477	0.2500
DITCH-205_2	J21	J12	CONDUIT	29.8	0.4495	0.2500
DITCH-206	J12	J13	CONDUIT	2.5	0.1968	0.2500
DITCH-207	J13	J14	CONDUIT	2.6	0.1904	0.2500
POND-INLET	J15	SU1	CONDUIT	47.0	1.0001	0.0130
POND-OUTLET_1	J4	J6	CONDUIT	15.5	0.4516	0.0100
POND-OUTLET_2	SU1	J6	CONDUIT	15.5	0.7742	0.0100
POND-OUTLET_3	J6	Pre-J7	CONDUIT	13.0	0.5385	0.0350
Pre-Swale01	Pre-J1	Pre-J2	CONDUIT	125.9	0.3971	0.0350
Pre-Swale02	Pre-J2	Pre-J3	CONDUIT	89.9	0.5559	0.0350
Pre-Swale03	Pre-J3	Pre-J4	CONDUIT	69.9	0.4290	0.0350
Pre-Swale04	Pre-J4	Pre-J11	CONDUIT	12.7	1.5784	0.0350
Pre-Swale05	Pre-J10	Pre-J11	CONDUIT	23.5	0.0043	0.0350
Pre-Swale06	Pre-J9	Pre-J10	CONDUIT	11.5	0.8869	0.0350
Pre-Swale07	Pre-J7	Pre-J8	CONDUIT	7.9	4.3780	0.0350
Pre-Swale08	Pre-J8	Pre-J9	CONDUIT	31.5	0.8026	0.0350
Pre-Swale09	Pre-J5	Pre-J6	CONDUIT	24.2	2.0682	0.0350
Pre-Swale10	Pre-J6	Pre-J7	CONDUIT	30.3	0.9902	0.0350
Pre-Swale11	Pre-J11	OF1	CONDUIT	3.2	1.4239	0.0350
RCP-203	J7	SU1	CONDUIT	17.0	2.0004	0.0130
RCP-204	J16	SU1	CONDUIT	17.0	2.0004	0.0130
Trench_1	J11	J19	CONDUIT	24.5	0.4481	0.0130
Trench_2	J8	J20	CONDUIT	24.6	0.4874	0.0130
Trench_3	J19	J16	CONDUIT	17.1	0.6417	0.0130
Trench_4	J20	J11	CONDUIT	23.7	0.4638	0.0130
Trench_5	J1	J18	CONDUIT	27.3	0.5862	0.0130
Trench_6	J18	J5	CONDUIT	28.0	0.5705	0.0130
Trench_7	J5	J17	CONDUIT	33.0	0.4852	0.0130
Trench_8	J17	J7	CONDUIT	35.6	0.4496	0.0130
OF1	SU1	J4	ORIFICE			
W1	SU1	Pre-J6	WEIR			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
DITCH-201	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.27
DITCH-202	TRAPEZOIDAL	0.77	2.10	0.42	4.66	1	0.38
DITCH-203	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.12
DITCH-204	TRAPEZOIDAL	0.50	1.02	0.29	3.30	1	0.15
DITCH-205_1	TRAPEZOIDAL	0.56	1.24	0.32	3.61	1	0.16
DITCH-205_2	TRAPEZOIDAL	0.59	1.35	0.34	3.76	1	0.18
DITCH-206	TRAPEZOIDAL	0.72	1.85	0.40	4.38	1	0.18

DITCH-207	TRAPEZOIDAL	0.70	1.78	0.39	4.30	1	0.17
POND-INLET	CIRCULAR	0.60	0.28	0.15	0.60	1	0.61
POND-OUTLET_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.25
POND-OUTLET_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.33
POND-OUTLET_3	TRAPEZOIDAL	0.50	1.25	0.30	4.00	1	1.18
Pre-Swale01	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.82
Pre-Swale02	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	0.97
Pre-Swale03	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	3.76
Pre-Swale04	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	7.21
Pre-Swale05	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	0.37
Pre-Swale06	TRAPEZOIDAL	0.80	2.08	0.45	4.20	1	3.31
Pre-Swale07	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	2.73
Pre-Swale08	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.17
Pre-Swale09	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.88
Pre-Swale10	TRAPEZOIDAL	0.50	1.00	0.31	3.00	1	1.30
Pre-Swale11	TRAPEZOIDAL	1.00	3.00	0.55	5.00	1	6.85
RCP-203	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
RCP-204	CIRCULAR	0.45	0.16	0.11	0.45	1	0.40
Trench_1	RECT_OPEN	0.49	0.24	0.49	0.50	1	0.78
Trench_2	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.31
Trench_3	RECT_OPEN	0.50	0.25	0.50	0.50	1	0.97
Trench_4	RECT_OPEN	0.44	0.22	0.16	0.50	1	0.34
Trench_5	RECT_OPEN	0.40	0.20	0.15	0.50	1	0.34
Trench_6	RECT_OPEN	0.46	0.23	0.16	0.50	1	0.40
Trench_7	RECT_OPEN	0.53	0.27	0.17	0.50	1	0.44
Trench_8	RECT_OPEN	0.59	0.29	0.18	0.50	1	0.48

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Transect Summary
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Transect 2
Area:

	0.0005	0.0020	0.0044	0.0079	0.0123
	0.0177	0.0241	0.0315	0.0399	0.0492
	0.0596	0.0709	0.0832	0.0962	0.1100
	0.1245	0.1398	0.1558	0.1725	0.1900
	0.2082	0.2272	0.2469	0.2673	0.2885
	0.3101	0.3320	0.3542	0.3766	0.3992
	0.4221	0.4453	0.4686	0.4923	0.5162
	0.5403	0.5646	0.5924	0.6236	0.6554
	0.6876	0.7204	0.7536	0.7873	0.8215
	0.8562	0.8914	0.9271	0.9633	1.0000

Hrad:

	0.0620	0.1239	0.1859	0.2479	0.3098
	0.3718	0.4337	0.4957	0.5577	0.6196

0.6816 0.7436 0.8129 0.8884 0.9625
1.0353 1.1071 1.1780 1.2480 1.3174
1.3861 1.4543 1.5221 1.5894 1.6563
1.7563 1.8551 1.9525 2.0488 2.1439
2.2378 2.3307 2.4225 2.5134 2.6032
2.6922 2.7802 2.3149 2.3962 2.4766
2.5563 2.6352 2.7134 2.7909 2.8678
2.9441 3.0197 3.0949 3.1694 1.0000

Width:

0.0080 0.0160 0.0240 0.0320 0.0400
0.0480 0.0560 0.0640 0.0720 0.0800
0.0880 0.0960 0.1030 0.1090 0.1150
0.1210 0.1270 0.1330 0.1390 0.1450
0.1510 0.1570 0.1630 0.1690 0.1750
0.1770 0.1790 0.1810 0.1830 0.1850
0.1870 0.1890 0.1910 0.1930 0.1950
0.1970 0.1990 0.2520 0.2560 0.2600
0.2640 0.2680 0.2720 0.2760 0.2800
0.2840 0.2880 0.2920 0.2960 1.0000

Transect 3

Area:

0.0046 0.0094 0.0145 0.0199 0.0256
0.0315 0.0376 0.0441 0.0508 0.0578
0.0650 0.0725 0.0803 0.0882 0.0961
0.1041 0.1123 0.1205 0.1288 0.1372
0.1457 0.1543 0.1629 0.1717 0.1805
0.2029 0.2253 0.2480 0.2709 0.2939
0.3171 0.3404 0.3640 0.3877 0.4116
0.4357 0.4600 0.4922 0.5326 0.5733
0.6144 0.6558 0.6976 0.7397 0.7822
0.8251 0.8683 0.9118 0.9557 1.0000

Hrad:

0.0439 0.0855 0.1251 0.1630 0.1995
0.2347 0.2688 0.3020 0.3343 0.3659
0.3968 0.4271 0.4614 0.4997 0.5375
0.5748 0.6116 0.6479 0.6838 0.7192
0.7542 0.7888 0.8231 0.8569 0.3627
0.4040 0.4450 0.4856 0.5258 0.5657
0.6053 0.6446 0.6836 0.7222 0.7606
0.7987 0.8365 0.8552 0.8620 0.8749
0.8920 0.9122 0.9346 0.9588 0.9844
1.0112 1.0388 1.0671 1.0960 1.0000

Width:

0.1060 0.1120 0.1180 0.1240 0.1300
0.1360 0.1420 0.1480 0.1540 0.1600
0.1660 0.1720 0.1760 0.1780 0.1800

```
            0.1820     0.1840     0.1860     0.1880     0.1900
            0.1920     0.1940     0.1960     0.1980     0.4999
            0.5039     0.5079     0.5119     0.5159     0.5199
            0.5239     0.5279     0.5319     0.5359     0.5399
            0.5439     0.5479     0.9040     0.9120     0.9200
            0.9280     0.9360     0.9440     0.9520     0.9600
            0.9680     0.9760     0.9840     0.9920     1.0000


****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... CURVE_NUMBER
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 07/24/2025 00:00:00
Ending Date .............. 07/26/2025 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:01:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 1.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 6
Head Tolerance ........... 0.001500 m


*************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
*************************     ---------       -------
Total Precipitation ......         0.084        25.000
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.035        10.486
Surface Runoff ...........         0.045        13.372
Final Storage ............         0.004         1.159
Continuity Error (%) .....        -0.068
```

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.045	0.452
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.045	0.451
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

Highest Continuity Errors

Node J21 (1.35%)

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Most Frequent Nonconverging Nodes

Convergence obtained at all time steps.

Routing Time Step Summary

Minimum Time Step	:	0.50 sec
Average Time Step	:	1.00 sec

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Maximum Time Step           :     1.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
    1.000 -  0.871 sec      :   100.00 %
    0.871 -  0.758 sec      :     0.00 %
    0.758 -  0.660 sec      :     0.00 %
    0.660 -  0.574 sec      :     0.00 %
    0.574 -  0.500 sec      :     0.00 %
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Subcatchment Runoff Summary
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Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
201	25.00	0.00	0.00	6.54	13.32	3.93	17.25	0.04	0.02	0.690
201_1	25.00	0.00	0.00	6.54	13.32	3.93	17.25	0.01	0.00	0.690
201-2	25.00	0.00	0.00	6.54	13.32	3.93	17.25	0.02	0.01	0.690
202	25.00	0.00	0.00	16.26	1.96	5.53	7.49	0.01	0.00	0.300
203	25.00	1.80	0.00	17.45	1.35	6.74	8.09	0.01	0.00	0.302
203-1	25.00	0.00	0.00	16.26	1.96	5.53	7.49	0.00	0.00	0.300
204	25.00	0.00	0.00	14.71	6.12	2.94	9.06	0.04	0.02	0.362
205	25.00	0.00	0.00	20.14	0.65	2.96	3.60	0.01	0.00	0.144
205_1	25.00	0.00	0.00	13.49	5.96	4.31	10.27	0.00	0.00	0.411
206	25.00	0.00	0.00	15.66	8.11	0.00	8.11	0.03	0.03	0.324
207	25.00	0.00	0.00	16.26	1.96	5.53	7.49	0.01	0.00	0.300
207-1	25.00	0.00	0.00	16.26	1.96	5.53	7.49	0.01	0.00	0.300
PAD-208	25.00	9.26	0.00	3.34	26.04	4.87	30.91	0.02	0.01	0.902
PAD208-1	25.00	38.27	0.00	4.41	47.15	10.48	57.63	0.03	0.02	0.911
PAD208-10	25.00	0.00	0.00	4.23	18.13	1.47	19.60	0.01	0.01	0.784
PAD208-11	25.00	0.00	0.00	4.17	18.21	1.54	19.74	0.01	0.00	0.790
PAD208-12	25.00	0.00	0.00	13.75	5.73	4.29	10.02	0.00	0.00	0.401
PAD208-13	25.00	7.67	0.00	13.78	7.89	9.78	17.67	0.00	0.00	0.541
PAD208-14	25.00	0.00	0.00	16.21	5.97	1.59	7.56	0.00	0.00	0.302
PAD208-15	25.00	0.00	0.00	16.20	5.97	1.60	7.57	0.00	0.00	0.303
PAD208-2	25.00	0.00	0.00	4.24	18.13	1.46	19.59	0.01	0.01	0.783
PAD208-3	25.00	0.00	0.00	4.24	18.13	1.46	19.59	0.01	0.00	0.783
PAD208-4	25.00	0.00	0.00	4.24	18.13	1.46	19.59	0.01	0.01	0.783
PAD208-5	25.00	0.00	0.00	4.24	18.13	1.46	19.59	0.01	0.00	0.783
PAD208-6	25.00	0.00	0.00	4.24	18.13	1.45	19.58	0.01	0.01	0.783
PAD208-7	25.00	0.00	0.00	4.24	18.13	1.45	19.58	0.01	0.01	0.783

PAD208-8	25.00	0.00	0.00	4.21	18.14	1.49	19.63	0.01	0.01	0.785
PAD208-9	25.00	0.00	0.00	4.21	18.14	1.49	19.63	0.01	0.01	0.785
PAD209	25.00	0.00	0.00	4.23	18.13	1.47	19.60	0.01	0.01	0.784
PAD209-1	25.00	0.00	0.00	4.24	18.13	1.45	19.58	0.01	0.00	0.783
PAD209-2	25.00	0.00	0.00	4.22	18.13	1.48	19.61	0.01	0.00	0.785
PAD209-20	25.00	0.00	0.00	13.94	5.96	3.87	9.83	0.00	0.00	0.393
PAD209-3	25.00	0.00	0.00	4.22	18.13	1.48	19.61	0.01	0.01	0.785
PAD209-4	25.00	0.00	0.00	4.22	18.13	1.48	19.61	0.01	0.00	0.784
PAD209-5	25.00	0.00	0.00	4.22	18.13	1.48	19.61	0.01	0.01	0.784
PAD209-6	25.00	0.00	0.00	4.21	18.14	1.49	19.62	0.00	0.00	0.785
PAD209-7	25.00	0.00	0.00	4.21	18.14	1.49	19.62	0.01	0.00	0.785
PAD209-8	25.00	0.00	0.00	4.21	18.14	1.49	19.63	0.01	0.01	0.785
PAD210	25.00	0.00	0.00	4.24	18.13	1.45	19.58	0.01	0.00	0.783
PAD210-1	25.00	0.00	0.00	4.22	18.13	1.48	19.61	0.00	0.00	0.785
PAD210-2	25.00	0.00	0.00	4.21	18.14	1.49	19.63	0.01	0.00	0.785
PAD210-3	25.00	2.02	0.00	4.21	19.67	1.97	21.64	0.03	0.02	0.801
PAD210-4	25.00	0.00	0.00	4.25	18.12	1.45	19.57	0.00	0.00	0.783
PAD210-5	25.00	22.06	0.00	4.34	34.89	6.66	41.55	0.05	0.03	0.883
PAD210-6	25.00	316.58	0.00	4.44	258.75	77.27	336.01	0.05	0.04	0.984
PAD210-7	25.00	0.00	0.00	14.12	5.97	3.68	9.65	0.00	0.00	0.386
PAD210-8	25.00	0.00	0.00	14.10	5.97	3.71	9.68	0.00	0.00	0.387
PAD210-9	25.00	0.00	0.00	14.12	5.97	3.68	9.65	0.00	0.00	0.386
Pond	25.00	0.00	0.00	0.00	25.03	0.00	25.03	0.03	0.03	1.001

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	0.00	0.05	241.63	0 01:40	0.05
J10	JUNCTION	0.00	0.12	240.59	0 01:45	0.12
J11	JUNCTION	0.00	0.05	241.14	0 01:40	0.05
J12	JUNCTION	0.01	0.23	240.48	0 01:42	0.23
J13	JUNCTION	0.01	0.23	240.48	0 01:42	0.23
J14	JUNCTION	0.01	0.24	240.48	0 01:42	0.24
J15	JUNCTION	0.02	0.24	240.34	0 02:47	0.24
J16	JUNCTION	0.00	0.10	240.97	0 01:40	0.10
J17	JUNCTION	0.00	0.11	241.21	0 01:40	0.11
J18	JUNCTION	0.00	0.07	241.49	0 01:40	0.07
J19	JUNCTION	0.00	0.06	241.04	0 01:40	0.06
J2	JUNCTION	0.00	0.12	240.75	0 01:41	0.12
J20	JUNCTION	0.00	0.04	241.24	0 01:40	0.04

J21	JUNCTION	0.00	0.12	240.50	0	01:48	0.12
J3	JUNCTION	0.01	0.22	240.39	0	01:44	0.22
J4	JUNCTION	0.03	0.08	239.66	0	02:47	0.08
J5	JUNCTION	0.00	0.09	241.35	0	01:40	0.09
J6	JUNCTION	0.01	0.05	239.32	0	04:28	0.05
J7	JUNCTION	0.00	0.13	241.07	0	01:40	0.13
J8	JUNCTION	0.00	0.03	241.35	0	01:40	0.03
J9	JUNCTION	0.00	0.12	240.86	0	01:40	0.12
Pre-J1	JUNCTION	0.00	0.10	240.10	0	01:40	0.10
Pre-J10	JUNCTION	0.02	0.13	238.63	0	01:41	0.13
Pre-J11	JUNCTION	0.01	0.09	238.59	0	01:40	0.09
Pre-J2	JUNCTION	0.00	0.08	239.58	0	01:43	0.08
Pre-J3	JUNCTION	0.00	0.10	239.10	0	01:47	0.10
Pre-J4	JUNCTION	0.00	0.06	238.76	0	01:49	0.06
Pre-J5	JUNCTION	0.00	0.00	240.00	0	00:00	0.00
Pre-J6	JUNCTION	0.00	0.06	239.56	0	01:36	0.06
Pre-J7	JUNCTION	0.00	0.04	239.24	0	01:40	0.04
Pre-J8	JUNCTION	0.01	0.07	238.93	0	01:40	0.07
Pre-J9	JUNCTION	0.01	0.07	238.67	0	01:40	0.07
OF1	OUTFALL	0.01	0.07	238.52	0	01:40	0.07
SU1	STORAGE	0.09	0.74	240.34	0	02:47	0.74

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
J1	JUNCTION	0.019	0.019	0	01:40	0.029	0.029	-0.004
J10	JUNCTION	0.001	0.008	0	01:41	0.00194	0.017	-0.055
J11	JUNCTION	0.010	0.020	0	01:40	0.013	0.0267	-0.003
J12	JUNCTION	0.002	0.009	0	01:36	0.00433	0.0261	-0.679
J13	JUNCTION	0.000	0.009	0	01:48	0	0.03	0.004
J14	JUNCTION	0.036	0.036	0	01:40	0.0504	0.0765	-0.153
J15	JUNCTION	0.000	0.028	0	01:44	0	0.0719	-0.018
J16	JUNCTION	0.015	0.045	0	01:40	0.0192	0.0592	-0.002
J17	JUNCTION	0.012	0.050	0	01:40	0.016	0.0715	0.001
J18	JUNCTION	0.010	0.028	0	01:40	0.013	0.0421	-0.003
J19	JUNCTION	0.010	0.030	0	01:40	0.0134	0.0401	0.001
J2	JUNCTION	0.004	0.011	0	01:40	0.00514	0.0151	-0.005
J20	JUNCTION	0.005	0.010	0	01:40	0.00619	0.0137	-0.005
J21	JUNCTION	0.000	0.009	0	01:40	0	0.0181	1.366

J3	JUNCTION	0.000	0.029	0	01:42	0	0.0718	-0.026	
J4	JUNCTION	0.000	0.010	0	02:47	0	0.267	0.009	
J5	JUNCTION	0.010	0.038	0	01:40	0.0134	0.0555	-0.001	
J6	JUNCTION	0.000	0.010	0	02:48	0	0.267	0.003	
J7	JUNCTION	0.025	0.074	0	01:40	0.0321	0.104	-0.001	
J8	JUNCTION	0.006	0.006	0	01:40	0.00754	0.00754	-0.004	
J9	JUNCTION	0.007	0.007	0	01:40	0.00992	0.00992	-0.465	
Pre-J1	JUNCTION	0.039	0.039	0	01:40	0.0741	0.0741	-0.167	
Pre-J10	JUNCTION	0.000	0.030	0	01:40	0	0.32	0.011	
Pre-J11	JUNCTION	0.027	0.064	0	01:40	0.0333	0.451	-0.003	
Pre-J2	JUNCTION	0.006	0.038	0	01:40	0.0173	0.0915	0.009	
Pre-J3	JUNCTION	0.001	0.035	0	01:43	0.00126	0.0928	0.111	
Pre-J4	JUNCTION	0.002	0.031	0	01:48	0.00542	0.0981	0.027	
Pre-J5	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
Pre-J6	JUNCTION	0.022	0.022	0	01:40	0.0443	0.0443	-0.026	
Pre-J7	JUNCTION	0.000	0.030	0	01:40	0	0.312	0.003	
Pre-J8	JUNCTION	0.001	0.031	0	01:40	0.00827	0.32	-0.002	
Pre-J9	JUNCTION	0.000	0.031	0	01:40	0	0.32	0.003	
OF1	OUTFALL	0.000	0.063	0	01:40	0	0.451	0.000	
SU1	STORAGE	0.025	0.161	0	01:40	0.033	0.268	0.055	

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Node Surcharge Summary
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No nodes were surcharged.

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Node Flooding Summary
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No nodes were flooded.

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Storage Volume Summary
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Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days	Time of Max Occurrence hr:min	Maximum Outflow CMS
SU1	0.017	2.4	0.0	0.0	0.157	21.9	0	02:47	0.010

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	41.43	0.006	0.063	0.451
System	41.43	0.006	0.063	0.451

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
DITCH-201	CONDUIT	0.029	0	01:42	0.09	0.11	0.33
DITCH-202	CONDUIT	0.028	0	01:44	0.12	0.07	0.27
DITCH-203	CONDUIT	0.007	0	01:40	0.05	0.06	0.23
DITCH-204	CONDUIT	0.008	0	01:42	0.06	0.05	0.23
DITCH-205_1	CONDUIT	0.007	0	01:45	0.06	0.05	0.21
DITCH-205_2	CONDUIT	0.007	0	01:48	0.04	0.04	0.29
DITCH-206	CONDUIT	0.009	0	01:48	0.04	0.05	0.32
DITCH-207	CONDUIT	0.010	0	01:48	0.04	0.06	0.34
POND-INLET	CONDUIT	0.032	0	01:43	0.22	0.05	0.70
POND-OUTLET_1	CONDUIT	0.010	0	02:48	0.78	0.04	0.14
POND-OUTLET_2	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
POND-OUTLET_3	CONDUIT	0.010	0	02:50	0.25	0.01	0.08
Pre-Swale01	CONDUIT	0.034	0	01:41	0.33	0.04	0.18
Pre-Swale02	CONDUIT	0.035	0	01:43	0.36	0.04	0.18
Pre-Swale03	CONDUIT	0.030	0	01:48	0.33	0.01	0.08
Pre-Swale04	CONDUIT	0.031	0	01:49	0.41	0.00	0.07
Pre-Swale05	CONDUIT	0.030	0	01:41	0.24	0.08	0.11
Pre-Swale06	CONDUIT	0.030	0	01:40	0.26	0.01	0.12
Pre-Swale07	CONDUIT	0.030	0	01:40	0.48	0.01	0.11
Pre-Swale08	CONDUIT	0.031	0	01:40	0.39	0.03	0.14
Pre-Swale09	CONDUIT	0.000	0	00:00	0.00	0.00	0.06
Pre-Swale10	CONDUIT	0.022	0	01:40	0.39	0.02	0.10
Pre-Swale11	CONDUIT	0.063	0	01:40	0.69	0.01	0.08

RCP-203	CONDUIT	0.074	0	01:40	1.93	0.18	0.29
RCP-204	CONDUIT	0.045	0	01:40	1.67	0.11	0.22
Trench_1	CONDUIT	0.020	0	01:40	0.69	0.03	0.12
Trench_2	CONDUIT	0.006	0	01:40	0.36	0.02	0.08
Trench_3	CONDUIT	0.030	0	01:40	0.74	0.03	0.16
Trench_4	CONDUIT	0.010	0	01:40	0.45	0.03	0.11
Trench_5	CONDUIT	0.019	0	01:40	0.62	0.06	0.15
Trench_6	CONDUIT	0.028	0	01:40	0.72	0.07	0.17
Trench_7	CONDUIT	0.038	0	01:40	0.78	0.09	0.18
Trench_8	CONDUIT	0.049	0	01:40	0.84	0.10	0.20
OF1	ORIFICE	0.010	0	02:47			1.00
W1	WEIR	0.000	0	00:00			0.00

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
DITCH-201	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
DITCH-202	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.34	0.00
DITCH-203	1.00	0.04	0.22	0.00	0.74	0.00	0.00	0.00	0.90	0.00
DITCH-204	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.96	0.00
DITCH-205_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
DITCH-205_2	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.98	0.00
DITCH-206	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.86	0.00
DITCH-207	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
POND-INLET	1.00	0.01	0.00	0.00	0.23	0.00	0.00	0.76	0.00	0.14
POND-OUTLET_1	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
POND-OUTLET_2	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
POND-OUTLET_3	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.01	0.00
Pre-Swale01	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
Pre-Swale02	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
Pre-Swale03	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.02	0.00
Pre-Swale04	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Pre-Swale05	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale06	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99	0.00
Pre-Swale07	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
Pre-Swale08	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale09	1.00	0.64	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pre-Swale10	1.00	0.00	0.64	0.00	0.36	0.00	0.00	0.00	0.97	0.00
Pre-Swale11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
RCP-203	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

RCP-204	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Trench_1	1.00	0.44	0.12	0.00	0.43	0.00	0.00	0.00	0.38	0.00
Trench_2	1.00	0.65	0.11	0.00	0.24	0.00	0.00	0.00	0.25	0.00
Trench_3	1.00	0.00	0.48	0.00	0.52	0.00	0.00	0.00	1.00	0.00
Trench_4	1.00	0.54	0.13	0.00	0.34	0.00	0.00	0.00	0.32	0.00
Trench_5	1.00	0.21	0.22	0.00	0.58	0.00	0.00	0.00	0.52	0.00
Trench_6	1.00	0.10	0.15	0.00	0.74	0.00	0.00	0.00	0.73	0.00
Trench_7	1.00	0.04	0.10	0.00	0.86	0.01	0.00	0.00	0.79	0.00
Trench_8	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	1.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
POND-INLET	0.01	0.01	3.19	0.01	0.01

Analysis begun on: Thu Apr 30 13:11:54 2026
Analysis ended on: Thu Apr 30 13:11:57 2026
Total elapsed time: 00:00:03