FUNCTIONAL SERVICING REPORT

FRED'S FARM FRESH CONDOS

MIX-USE DEVELOPMENT

2144 HURON CHURCH ROAD

WINDSOR, ONTARIO

PROJECT NO: 22-072

DATED: MAY 08, 2023

REVISION 1: DECEMBER 21, 2023

BAIRD|AE
architecture + engineering
27 Princess St., Unit 102
Leamington, ON N8H 2X8
519.326.6161 TF 1.844.842.9188
bairdAE.ca

TABLE OF CONTENT

FIGURES

TABLES

APPENDICES

ABBREVIATIONS

WERSMSM – Windsor/Essex Region Stormwater Management Standards Manual

ERCA – Essex Region Conservation Authority

ICD – Inlet Control Device

MTO – The Ministry of Transportation of Ontario

MECP – Ministry of Environment Conservation and Parks

1. INTRODUCTION

Baird AE was retained to provide civil engineering services for the development of a multi-unit residential apartment building at 2144 Huron Church Road in Windsor, Ontario. This report, and the associated design, are prepared in accordance with the Windsor-Essex Regional Stormwater Management Standards Manual (WERSMSM) and the City of Windsor Development Manual to ensure compliance with local design standards and development regulations.

The property, **0.57 hectares** in size, was severed from a 1.28-hectare parcel. The retained 0.71-hectare lot is zoned commercial and currently accommodates 2 market buildings and an asphalt parking lot. The severed parcel consists of 0.102 hectares of asphalt parking lot and an open grass field. The proposed development will include a 6-storey combined use building with commercial spaces on the ground floor, an asphalt parking lot, and an entrance on Daytona Avenue. The development will also be accessible from Huron Church Road via an entrance on the retained Fred's Farm Fresh lot.

The Janisse Drain, a municipal drain, runs along the southern property boundary, resulting in 0.12 hectares of the severed parcel being left undeveloped to comply with Essex Region Conservation Authority (ERCA) guidelines concerning existing municipal drains. This resulted in an effective development area of **0.45 hectares.**

This report intends to summarize existing conditions, storm and sanitary servicing provisions, and potable water servicing provisions to support the severance and proposed development

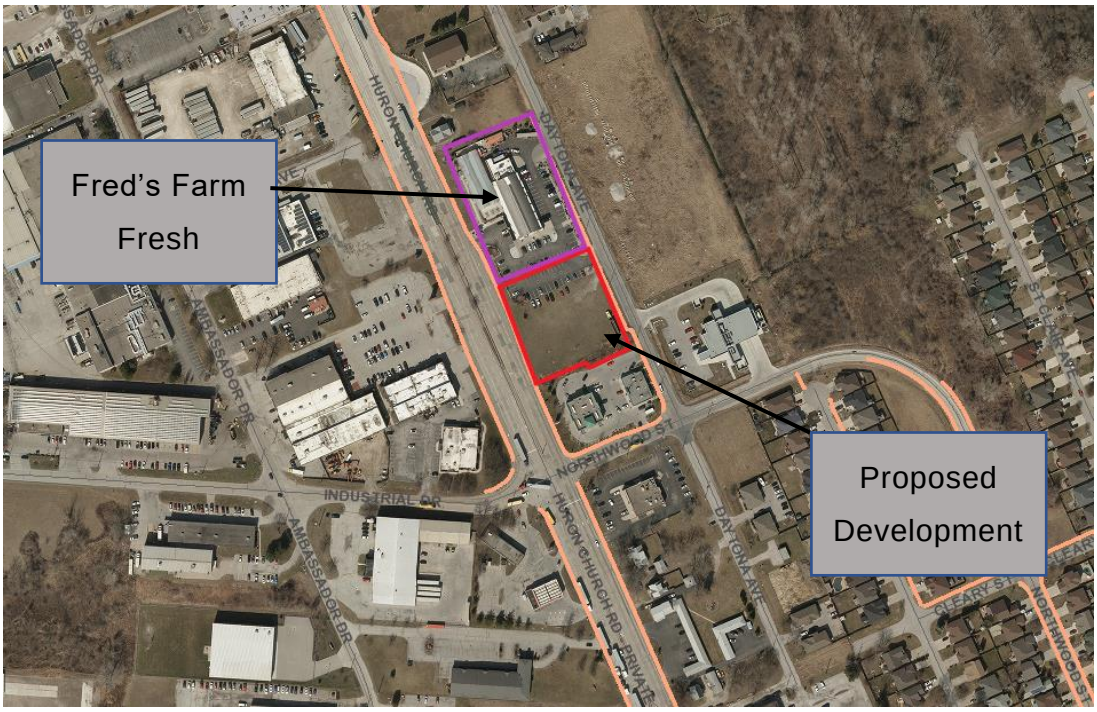


Figure 1: Existing Conditions

2. EXISTING CONDITIONS

2.1. EXISTING DRAINAGE

A topographic survey of the severed property suggests it currently sheet drains south-easterly into the Janisse Drain. Janisse Drain drains into a storm manhole (8R8814) along Huron Church Road. Based on soil maps provided by ERCA, the underlying soil type is Berrien Sand, which belongs to Hydrological Soil Group C. Details of existing drainage conditions are provided in Appendix A of this report.

2.2 ALLOWABLE RELEASE RATE

The pre-development analysis of the site was completed in accordance with the WERSMSM and using the Hydraflow Hydrographs Extension for Autodesk Civil 3D. Under subsection 3.3.1.4 of WERSMSM, the allowable release rate was calculated

through a hydrologic analysis of the site by applying the SCS Type II distribution of the 5-year design storm.

As a result of the severance, a portion of the existing parking lot from Fred's Farm Fresh was coopted for the new development. Applying a weighted curve number of **79.4**, the 5-year pre-development release rate for the site was determined to be **38 L/s.** Storm and runoff hydrographs for the SCS 5-year design storm are provided in Appendix C.

Table 1: Weighted Curve Number

COVER	AREA (A) Ha	CURVE NUMBER (CN)	A * CN
Paved parking lot	0.1022	98	10.0156
Open space (Good condition)	0.3482	74	25.7668
	0.4504		35.7824
Weighted Curve Number		**79.4**	

2.2. EXISTING INFRASTRUCTURE

The following storm, sanitary and watermain infrastructure exist adjacent to the subject property:

- One existing 250mm diameter PVC sanitary sewer along Daytona Avenue.
- One existing 675mm diameter reinforced concrete storm sewer along Huron Church Road. This pipe increases in size to 1050mm after the Janisse Drain connection.
- One existing 200mm diameter watermain along Huron Church Road.
- One existing 200mm diameter watermain along Daytona Avenue.

3. PROPOSED CONDITIONS

3.1. BUILDING AND PARKING LOT

The development will consist of one mid-rise building, landscaped areas and an asphalt parking lot. The area adjacent to the Janisse Drain will be left undeveloped, consistent with ERCA guidelines.

Table 2: Proposed Mixed-Use Building

FLOOR	UNITS
1	One Commercial Space (2,945 sq.ft.)
2-4	18 1-BR Suites and 18 2-BR Suites (36 units total)
5-6	8 1-BR Suites and 14 2-BR Suites (22 units total)

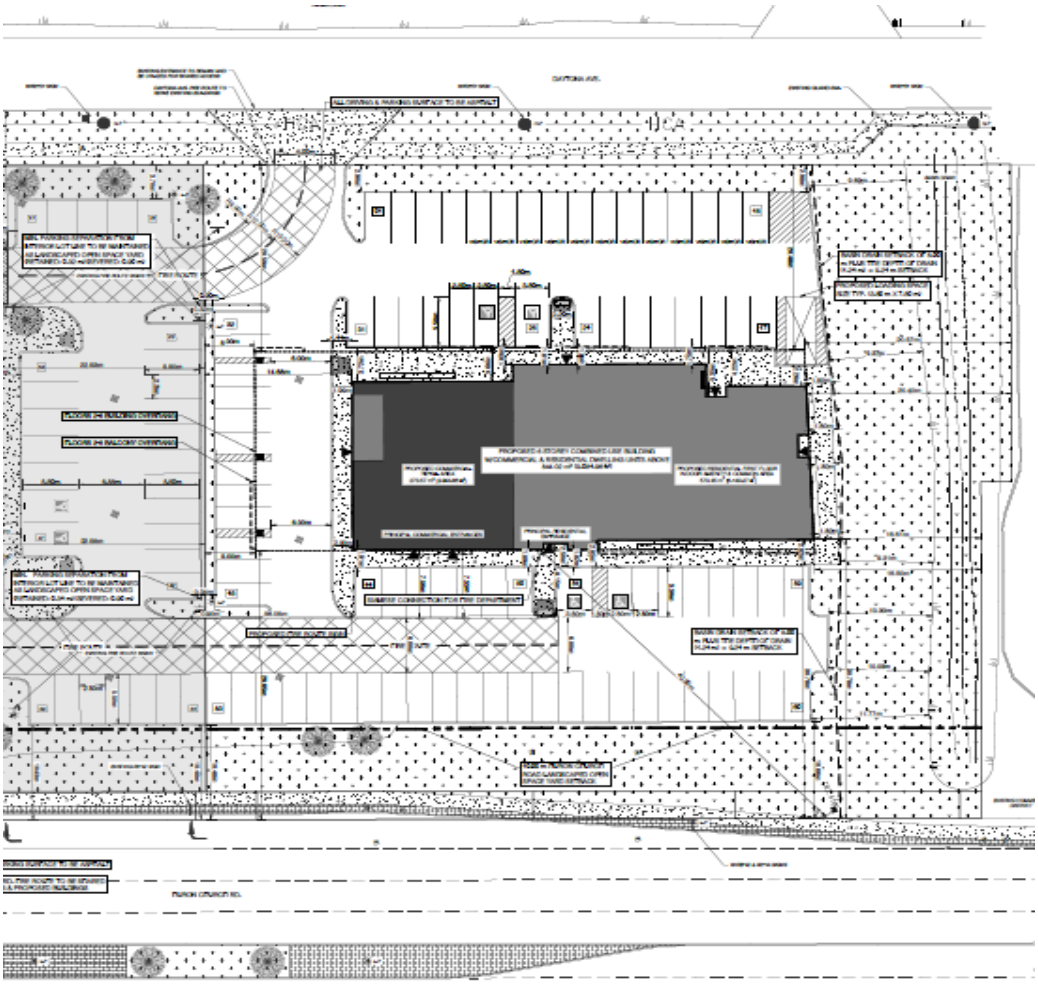


Figure 2: Proposed Development

3.2. DRAINAGE

The stormwater management criteria for this development are based on the requirements of the City of Windsor, ERCA and the WERSMSM. PCSWMM 2022 Professional 2D modelling software was used for the hydrologic and hydraulic assessment of the site. In accordance with the aforementioned standards, the post-development release rate was restricted to **38 L/s.**

As part of the proposed development, existing storm sewers from Fred Farm's Fresh passing through the severed parcel will be re-routed, as illustrated in Figure 3 below. This allows for the separation of both stormwater management schemes and the restriction of storm outflow to the allowable release rate.

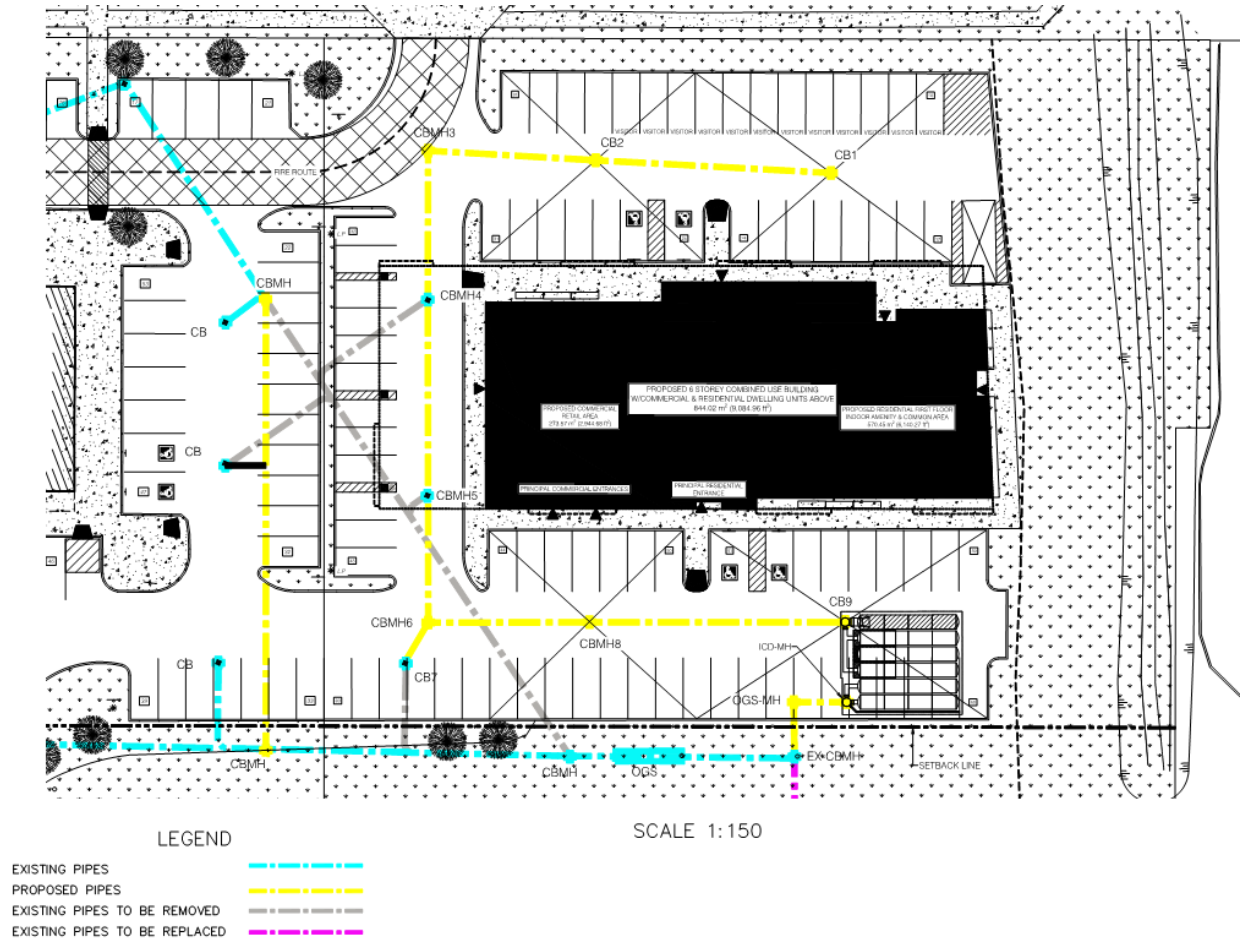


Figure 3: Pipe Removals and Proposed Layout

Table 4 below summarizes the sub-catchment properties used in the post-development runoff analyses.

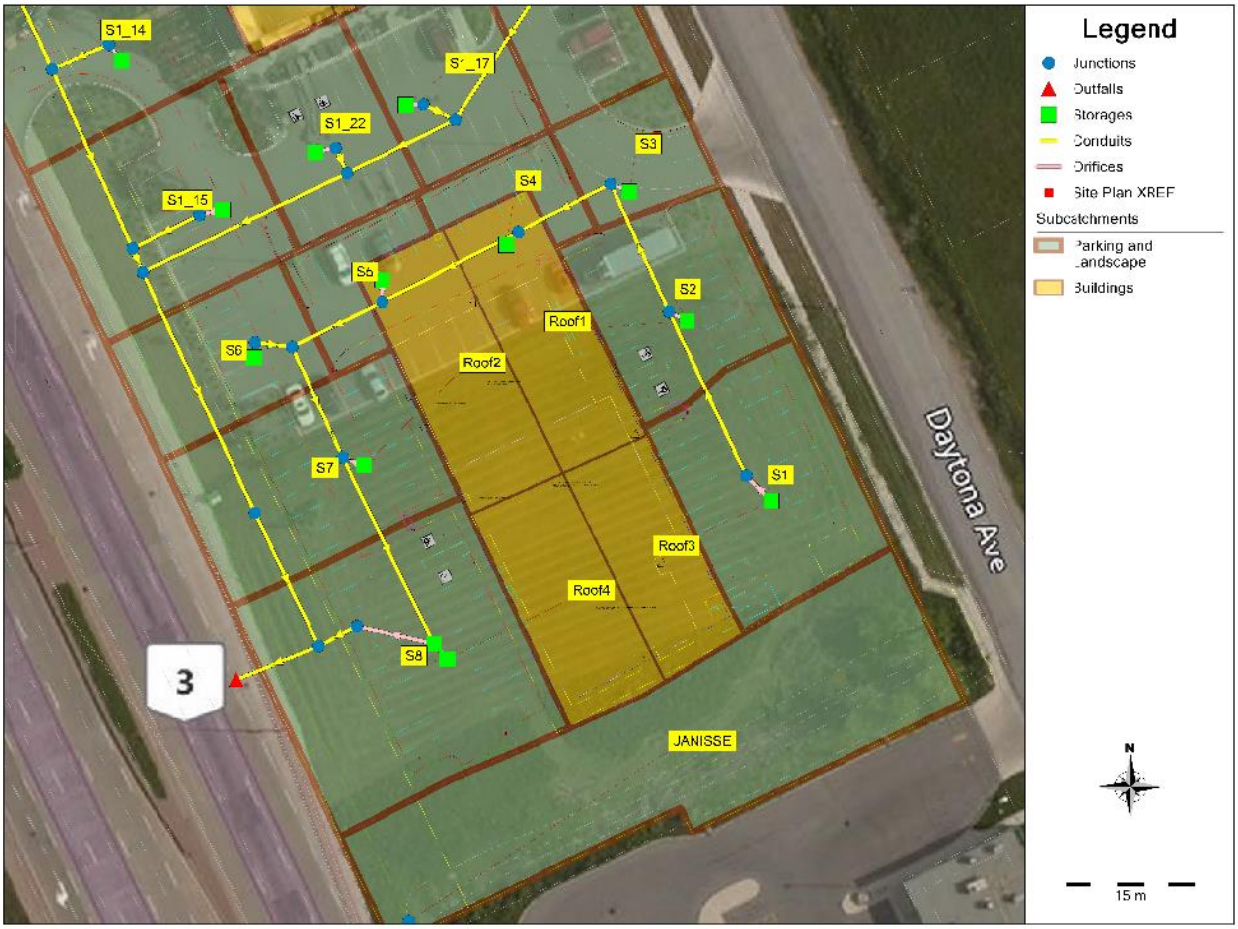


Figure 4: Propoosed Development Subcatchments

The following rainfall distributions were used in the analyses for modelling stormwater management facilities' response to design storm events.

Table 3: Design Storms

Storm Event	Storm Duration	Rainfall Depth
Chicago 5-year	4 hours	49.50 mm
Chicago 100-year	4 hours	81.60mm
SCS Type II 100-year	24 hours	108.00 mm
Urban Stress Test	24 hours	150 mm

Table 4: Subcatchment Properties

NAME	IMPERV %	FLOW LENGTH	N (Impervious)	N (Pervious)
S1	0	17.5	0.013	0.15
S2	85	16	0.013	0.15
S3	85	15	0.013	0.15
S4	85	12	0.013	0.15
S5	100	13	0.013	0.15
S6	66	18	0.013	0.15
S7	66	20	0.013	0.15
S8	66	25	0.013	0.15
ROOF1	100	30	0.013	0.15
ROOF2	100	30	0.013	0.15
ROOF3	100	30	0.013	0.15
ROOF4	100	30	0.013	0.15
JANISSE	0	70	0.013	0.15

The Horton Infiltration method was used to compute infiltration losses to the soil. Table 5 below shows the infiltration parameters used, congruent with the characteristics of the underlying soil type. Normal infiltration parameters were used over dry infiltration parameters to account for antecedent soil moisture. The model was simulated using the dynamic wave routing method to account for both major and minor systems. The modelling input and output files are attached in Appendix C.

Table 5: Horton Infiltration Parameters

Attribute		Berrien Sand
Horton's Infiltration	Max. Infiltration Rate (mm/hr)	50
	Min. Infiltration Rate (mm/hr)	3.8
	Decay Constant (1/hr)	4
	Drying Time (days)	7

3.3 STORMWATER MANAGEMENT AND QUANTITY CONTROL

Table 6: Storm Release Rates

Design Storm	Outflow (l/s)	Underground Storage Max Percent Full (%)
Water Quality Storm	19	55
Chicago 5-Year	28	99
Chicago 100-Year	38	100
SCS 100-Year	26	87
Urban Stress Test	38	100

Table 7: Available Storage

Storage	Storage Volume (cu.m.)
Underground Storage Chambers	96
Parking Lot Storage	146
Total Available Storage	242

Table 8: Required Storage Volumes

Design Storm	Required Storage (cu.m.)
Water Quality Storm	54
Chicago 5-Year	100
Chicago 100-Year	178
SCS 100-Year	83
Urban Stress Test	189

Both the 100-Yr SCS and the 100-Yr Chicago Storms were analyzed to determine which would result in higher storage demand. The 100-Year Chicago storm was determined to require more storage for attenuation and was thus used to govern the design. Storm pipes have been designed with a minimum cover of 1m and a minimum flow velocity of 0.76 m/s. Refer to the storm design sheet in Appendix B for details on minor system pipes and relevant parameters.

The proposed stormwater management provisions described above meet relevant design standards. Below is a summary of the proposed system and results:

- The proposed storm sewer system will outlet to a 675mm diameter sewer along Huron Church Road, as illustrated in the Site Servicing Plan Drawing in Appendix D.
- Pipe sizes and slopes have been designed to provide a flow velocity of greater than 0.76m/s.
- Pipe inverts are designed to provide a cover of at least 1m.
- The hydraulic grade lines resulting from the water quality storm and 5-year Chicago Storm are maintained below the manhole rim elevations.

- The hydraulic grade lines resulting from the 100-year Chicago Storm do not exceed 0.3m above manhole rim elevations.
- Runoff resulting from the Urban Stress Test design storm is contained within the subject property.

The stormwater management system includes underground storage chambers with a storage volume of **96 cu.m**. These will provide storage and stormwater attenuation for the system. Parking lots will also be used to provide temporary storage during major storm events. The building's finished floor elevation will be set at an elevation such that there is a minimum freeboard of 300mm above the 100-Year Chicago Storm High-Water Levels. Refer to Appendix B and C for pipe design sheets and PCSWMM model results.

To restrict storm outflow from underground storage chambers, a 125mm orifice is required. Detailed results from the post-development PCSWMM model are provided in Appendix B.

3.4 SANITARY SEWER SYSTEM

The sanitary servicing provisions for the development have been analyzed as per criteria set by the Ministry of Environment Conservation and Parks (MECP) sewer design guidelines and the City of Windsor standards. As stated in previous sections of this report, there is an existing 250mm PVC sanitary sewer on Daytona Avenue. Sanitary waste from the proposed development will be connected to a sanitary manhole (manhole ID: 244593) via a proposed 250mm PVC sanitary sewer.

A comprehensive sanitary study was conducted to assess the existing sanitary systems' capacity to accommodate the proposed development. This included the 600mm trunk sewer west of Cleary Street. It was determined that the catchment area draining into this trunk sewer consisted of 234 hectares. Figure 5 and Table 6 break down the sanitary drainage areas

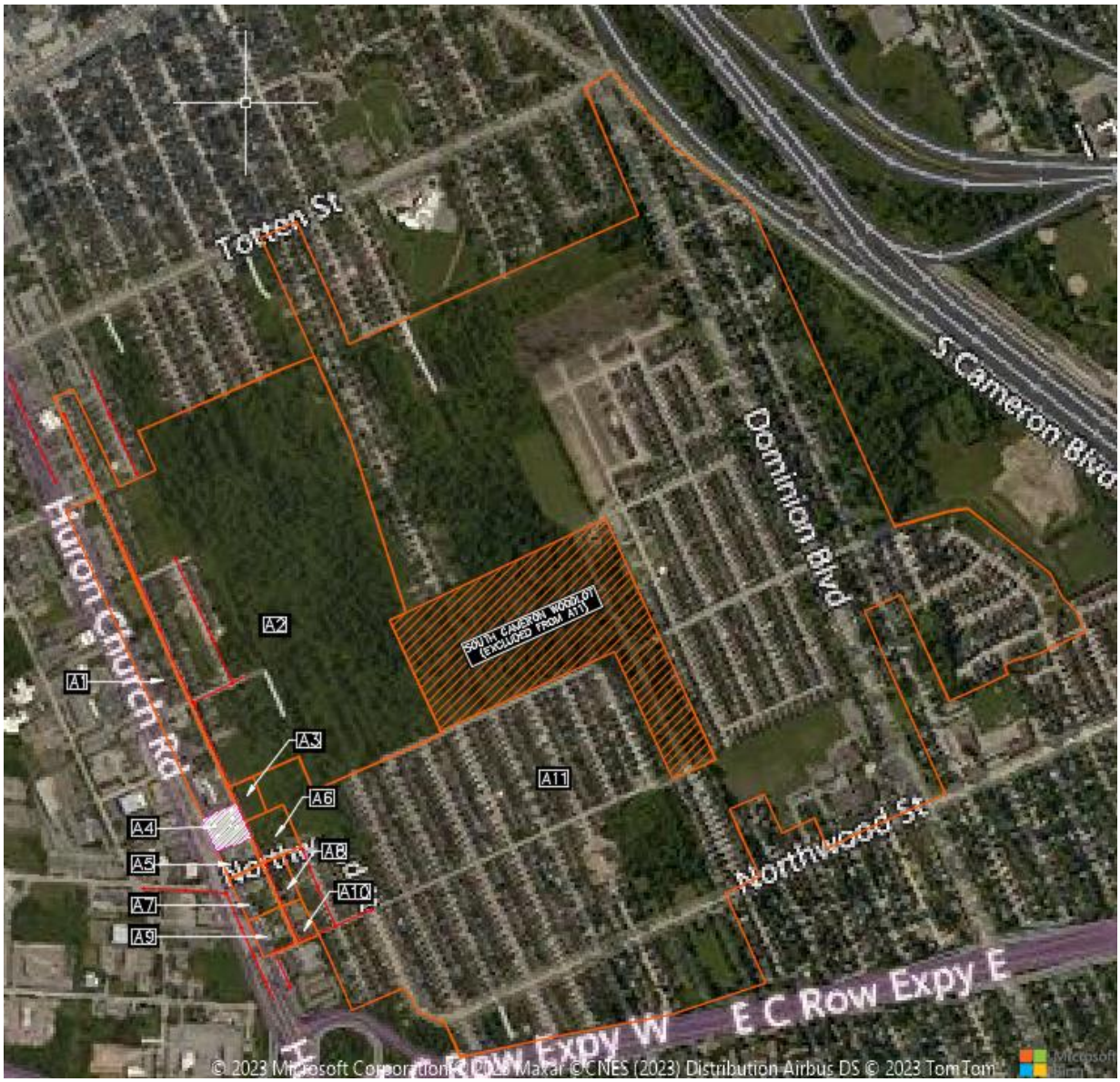


Figure 5: Sanitary Drainage Areas

Table 9: Sanitary Drainage Areas

AREAS	RESIDENTIAL	COMMERCIAL	INSTITUTIONAL	TOTAL
A1		5.9365		5.9365
A2	45.5468			45.5468
A3	0.5045			0.5045
A4[1]	0.567			0.567
A5		0.5095		0.5095
A6			0.9696	0.9696
A7		0.8194		0.8194
A8	0.5395			0.5395
A9		0.7176		0.7176
A10	0.4575			0.4575
A11	166.9176	1.0382	9.1152	177.071
1 This is area of severed lot for proposed development				233.6375

Population densities of 50, 74 and 22 persons/ha were assigned to residential, commercial and industrial land uses respectively and used to determine appropriate design populations. The average per capita flow per day was assessed at 362.88 L/cap/day, and an infiltration factor of 0.156 L/s/ha was used to calculate the peak flow for the subject development.

Findings are summarized below, and detailed calculations are provided in Appendix B:

- The 250mm PVC sanitary sewer immediately upstream of the proposed development flows at **37.80%** capacity.

- The 250mm PVC sanitary sewer immediately downstream of the proposed development will flow at **46.7%** capacity (I.e., post-development).

- The 600mm trunk sewer west of Cleary Street will flow at **99.5%** capacity, taking into consideration **ALL** possible future developments with reference to Schedule D: City of Windsor Official Plan. While this indicates the pipe will flow at almost maximum capacity, it is worth noting that the ultimate flow factors proposed by the City of Windsor Development Manual are significantly more conservative than the peak factors obtained using the Harmon Formula, which is an industry standard.

Additional Scenario for sanitary sewer assessment:

As per the City of Windsor recommendation, an additional calculation was considered due to relatively low likelihood of immediate development for the provincially significant wetlands area.

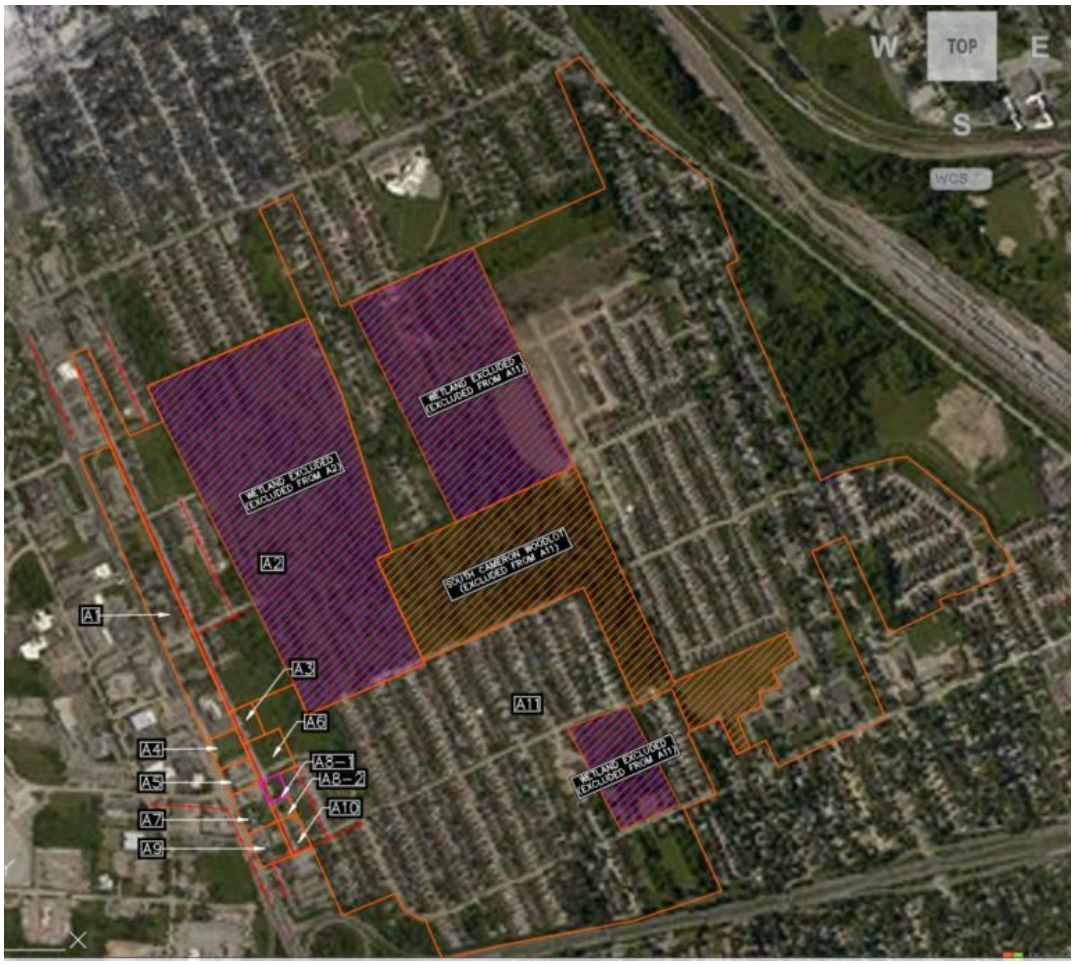


Figure 6: Additional Scenario Sanitary Drainage Areas

Table 10: Additional Scenario Sanitary Drainage Areas

AREAS	RESIDENTIAL	COMMERCIAL	INSTITUTIONAL	TOTAL
A1		5.9365		5.9365
A2	12.503			12.503
A3	0.5045			0.5045
A4[1]	0.567			0.567
A5		0.5095		0.5095

A6			0.9696	0.9696
A7		0.8194		0.8194
A8	0.5381			0.5381
A9		0.7176		0.7176
A10	0.4575			0.4575
A11	143.47	1.0382	9.1152	153.6234
A4[1] This is the area for the proposed development				177.146

Findings are summarized below, and detailed calculations are provided in Appendix C:

- The 250mm PVC sanitary sewer immediately upstream of the proposed development operates at **37.8%** capacity.

- The 250mm PVC sanitary sewer immediately downstream of the proposed development will flow at **46.7%** capacity post-development.

- The 600mm trunk sewer west of Cleary Street will flow at **80.8%** capacity. This additional scenario with reduced area / design flows determines the current capacity of the trunk sewer as compared to **99.5%** capacity, accounting for all potential future developments as specified in the Land Use Plan (Schedule D) and South Cameron Secondary Plan of the City of Windsor Official Plan.

3.5. WATERMAINS

To serve the proposed developments' domestic and fire water supply requirements, a 150mm water service connection is proposed. The water service connection will be teed close to the property line to bifurcate the flow. This will serve the building with a 100mm main for potable water and a 150mm main for fire service.

- There will be no need for additional fire hydrants, as the principal entrance of the building will be less than 45m from the closest existing fire hydrant on Huron Church Road.
- The watermain connection for the proposed development will be tied into the existing 200mm watermain on Huron Church Road.

Note: No hydrant flow test has been completed at this time. If required, tests will be conducted at the detailed design stage.

3.4. WATER QUALITY, EROSION AND SEDIMENT CONTROL

Discussions with ERCA and characterization of the site following MECP guidelines have led to the designation that this development should provide a "normal level" of protection capable of removing at least 70% of suspended solids. Water quality control for the proposed development will be provided through an **FD-4HC** water quality unit (OGS) designed by Hydro International. The unit is designed to provide an overall TSS removal efficiency of **74.5%** for the 100-year design storm peak flow and treat 99.9% of total runoff volume. Detailed information on the water quality unit is included in Appendix D of this report.

The erosion and sediment control measures for the site will include:

- A silt fence is to be erected before grading begins on the property to protect downstream areas from sediment migration in the overland flow;
- Filter fabric will be placed over drainage grates; and

- All disturbed areas will be stabilized by the restoration of vegetative ground cover as soon as possible.

Details of sediment control measures for the site will be provided in Appendix D of this report

4. CONCLUSION

This report presents municipal servicing details, proposed servicing and stormwater management requirements for the proposed mixed-use development in the City of Windsor. Based on our investigations, we conclude and recommend the following:

Storm Servicing – As a result of the lot severance, pipes from the existing Fred's Farm Fresh will be relocated to separate drainage facilities. All minor storm events will be serviced through the proposed storm sewers. Storms up to the 5-year Chicago storm will result in no surface ponding above manhole rim elevations. During major storm events, parking lots and 65.5 cu.m. of underground storage will provide temporary storage and attenuate storm outflows. Parking lot ponding depths never exceed 0.3m. Building finished floor elevations are at least 0.3m above the 100-year Chicago Storm's high-water level.

Sanitary Servicing – A new 250 mm diameter sanitary service will connect the proposed development to an existing 250mm municipal sanitary sewer on Daytona Avenue. Detailed calculations indicate that the proposed development will not negatively impact the existing sanitary drainage system. The downstream 600mm trunk sewer will operate at 99.5% capacity at its peak when all the potential future development is accounted for and will operate at 80.8% capacity under current scenario.

Water Servicing – The proposed development will be serviced via a 150mm water service connection. There is an existing fire hydrant along Huron Church Road, less than 45m from the proposed development's principal entrance; this removes the need to add additional fire hydrants to the development.

We trust the foregoing is satisfactory and will allow for the review and approval of the stormwater, sanitary and watermain servicing design and engineering drawings for this development. If you have questions or require additional information, please contact Baird AE at your earliest convenience.

All of which is respectfully submitted.

BAIRD AE INC.

700 - 1350 PROVINCIAL ROAD,

N8W 5W1,

WINDSOR, ONTARIO.

Reviewed By:

Gowtham Sivakumar, P.Eng.

Senior Civil Engineer

Appendix A

BACKGROUND INFORMATION

SCHEDULE D:
LAND USE

CITY OF DETROIT

DETROIT RIVER

TOWN OF LASALLE

Refer to Schedule E: City Centre

OPA #59, OPA #62, OPA #33, OPA #97, OPA #36, OPA #34, OPA #107, OPA #38, OPA #39, OPA #64, OPA #18, OPA #33, OPA #80, OPA #119, OPA #40, OPA #133, OPA #123, OPA #70, OPA #13, OPA #35, OPA #143, OPA #48, OPA #131, OPA #2, OPA #30, OPA #28, OPA #92, OPA #110, OPA #5, OPA #12, OPA #24, OPA #21, OPA #73, OPA #109, OPA #47, OPA #104, OPA #17, OPA #120, OPA #21, OPA #94, OPA #23, OPA #32, OPA #74

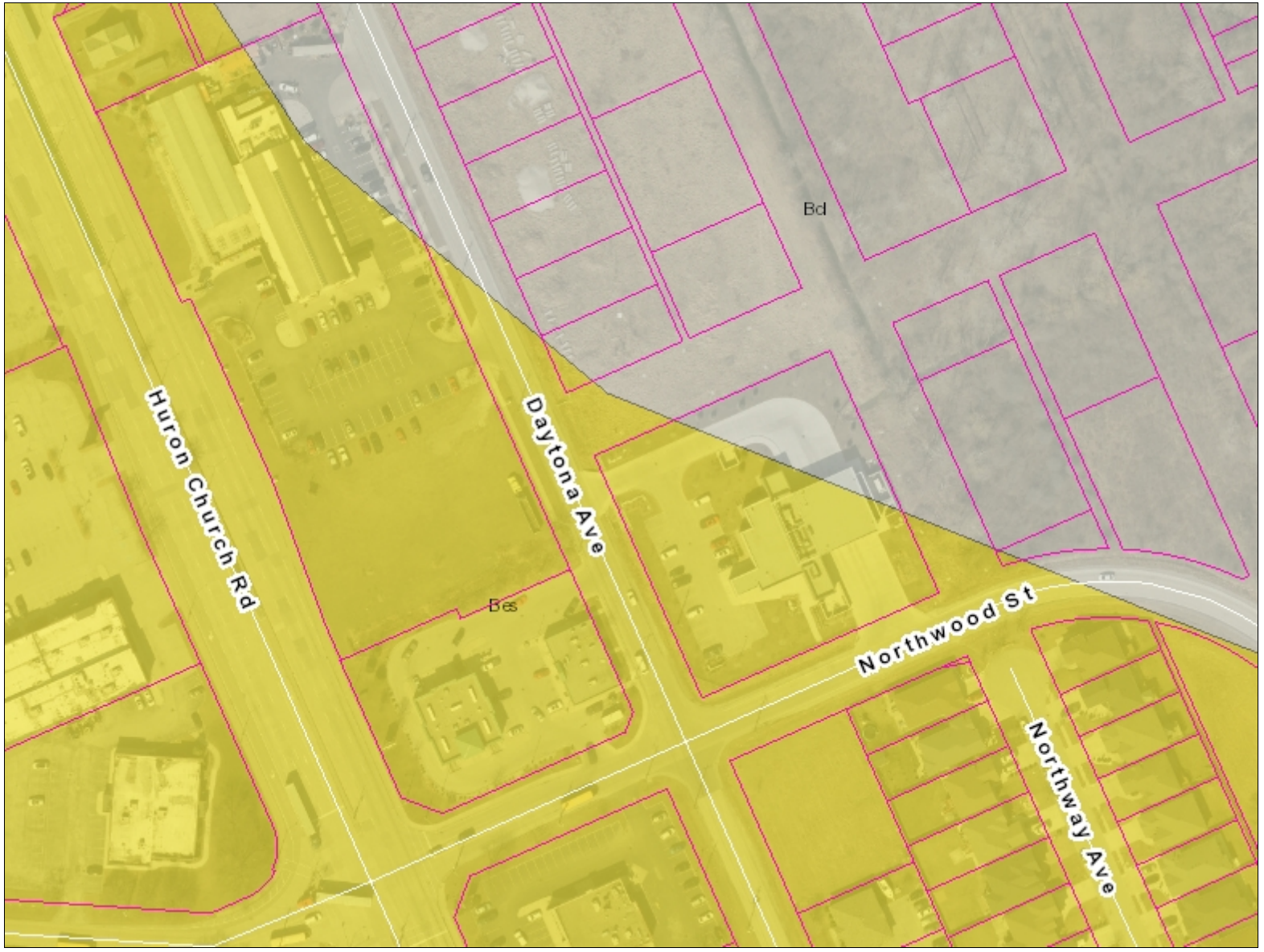
- RESIDENTIAL
- OPEN SPACE
- BUSINESS PARK
- MAJOR INSTITUTIONAL
- FUTURE URBAN AREA
- MINOR INSTITUTIONAL
- WATERFRONT RESIDENTIAL
- WATERFRONT RECREATION
- WATERFRONT PORT
- COMMERCIAL CENTRE
- FUTURE EMPLOYMENT AREA
- PRIVATE RECREATION
- MIXED USE
- NATURAL HERITAGE
- INDUSTRIAL
- COMMERCIAL CORRIDOR
- AIRPORT

0 750 1,500 3,000 Meters

City of Windsor Official Plan Volume I
Office Consolidation : December 9, 2020

AS AMENDED BY:
OPA# 2 - Approved: Dec. 11, 2000
OPA#13 - Approved: Nov. 22, 2001
OPA#17 - Approved: Jan. 3, 2002
OPA#18 - Approved: Mar. 15, 2002
OPA#21 - Approved: July 16, 2002
OPA#12 - Approved: Aug. 21, 2002
OPA#24 - Approved: Oct. 7, 2002
OPA#23 - Approved: Oct. 9, 2002
OPA# 5 - Approved: Oct. 29, 2002
OPA#27 - Approved: Dec. 16, 2002
(Superseded by OPA #40)
OPA#28 - Approved: Dec. 16, 2002
OPA#30 - Approved: Apr. 7, 2003
OPA#31 - Approved: Apr. 14, 2003
OPA#32 - Approved: May 5, 2003
OPA#34 - Approved: May 20, 2003
OPA#33 - Approved: June 2, 2003
OPA#35 - Approved: Aug. 11,2003
OPA#37 - Approved: Feb 19, 2004 (Superseded by OPA #40)
OPA#36 - Approved : March 3, 2004
OPA#39 - Approved : March 26, 2004
OPA#38 - Approved : July 21, 2004
OPA#40 - Approved : July 21, 2004
OPA #44 - Approved : January 6, 2005 (Superseded by OPA #131)
OPA #47 - Approved : May 10, 2005
OPA #48 - Approved : August 18, 2005
OPA #59 - Approved : March 27, 2007
OPA #62 - Approved : June 15, 2007
OPA #64 - Approved : September 20, 2007
OPA #60 - Approved : May 7, 2007
(Former Township of Sandwich South)
OMB Decision/Order No. 2667 - October 5, 2007
OPA #67 - Approved : December 4, 2015
OMB Case No. PL080049 - April 26, 2016
OPA #70 - Approved : April 20, 2009
OPA #73 - Approved : September 7, 2006
OMB Decision/Order No. 2513 - February 12, 2009
OPA #74 - Approved : December 4, 2009
OPA #80 - Approved : November 22, 2010
OPA #92 - Approved : September 19, 2016
OPA #94 - Approved : December 21, 2016
OPA #97 - Approved : October 6, 2014
OPA #103 - Approved : June 1, 2015
OPA #104 - Approved : June 24, 2015
OPA #107 - Approved : August 15, 2016
OPA #109 - Approved : February 6, 2017
OPA #110 - Approved : August 22, 2016
OPA #119 - Approved : October 15, 2018
OPA #120 - Approved : September 17, 2018
LPAT Decision/Order No. PL180842 - December 3, 2019
OPA #123 - Approved : January 21, 2020
OPA #131 - Approved : August 4, 2020
OPA #133 - Approved : November 9, 2020
OPA #143 - Approved : June 13, 2022

ERCA Public Internet Mapping



Essex Region Conservation Authority

Public Interactive Mapping

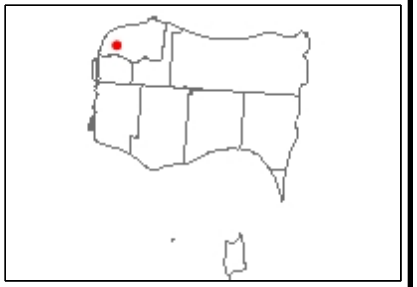
Legend

- Parcel Fabric - City
- Parcel Fabric - County

Essex Soils

- B-s
- B.L.
- Bc
- Bcl
- Bel
- Bes
- Bg
- Bg-s
- C-s
- Cac
- Cacl
- Cc
- Cdl
- Es
- Fl
- Fsl

Location



ERCA Geomatics **THIS MAP HAS BEEN PRODUCED BY THE GENERAL PUBLIC AND NOT BY QUALIFIED ERCA STAFF.**

Notes

0 39.45 78.9

Meters

1: 1,775

4/5/2023

City of Windsor

Legend

- Storm Sewer Manholes
- Storm Sewers
- Dual Manholes

1: 1,972

Notes

100.2 0 50.08 100.2 Meters

City of Windsor

Legend

- Sanitary Sewer Manholes
- Sanitary Sewers
- Combined Sewer Manholes
- Combined Sewers
- Dual Manholes
- Municipal Address
- Major Roads
- Parcels

1: 3,703

188.1 0 94.06 188.1 Meters

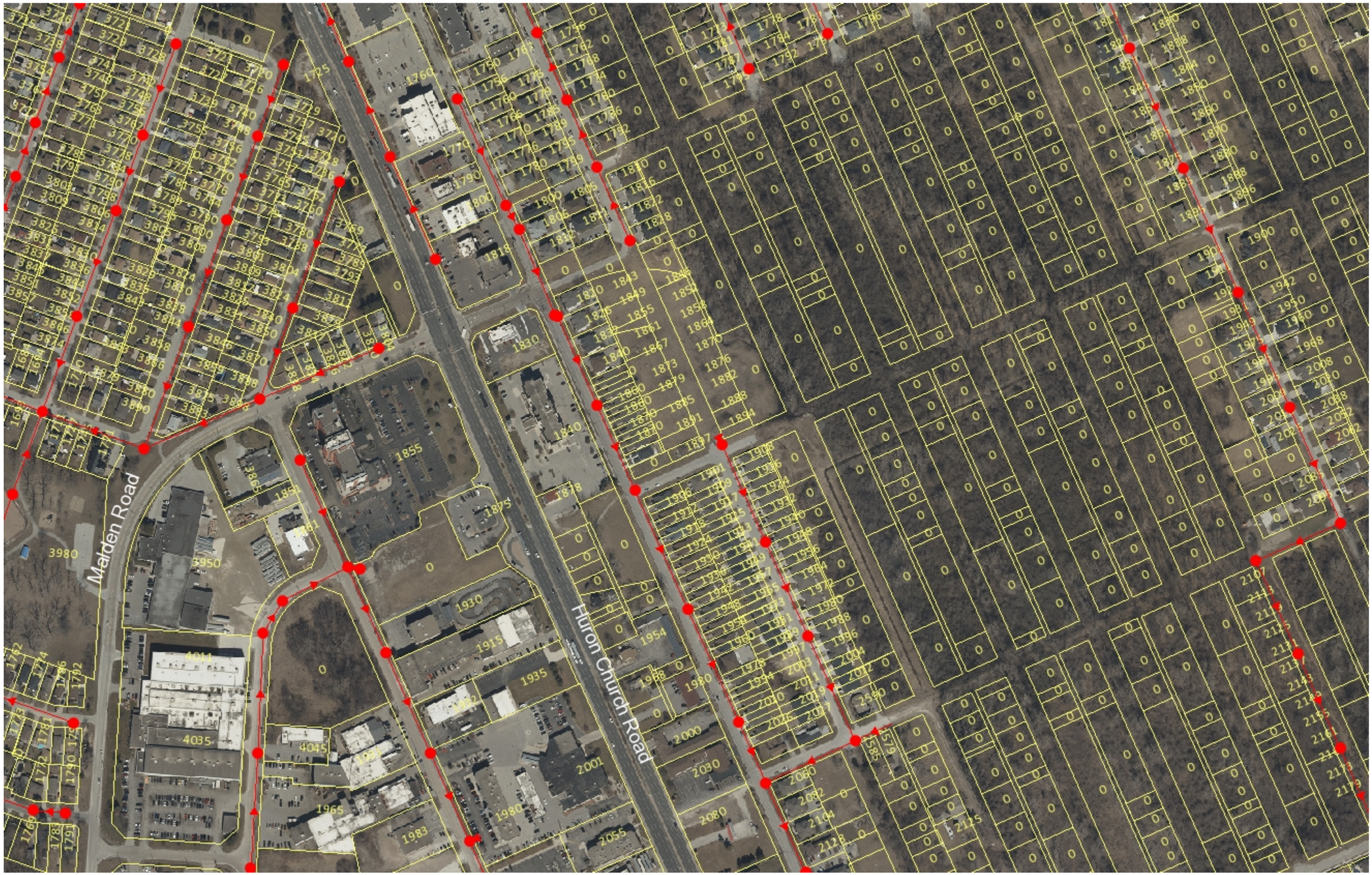
NAD_1983_UTM_Zone_17N

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

City of Windsor



Legend

- Sanitary Sewer Manholes
- Sanitary Sewers
- Combined Sewer Manholes
- Combined Sewers
- Dual Manholes
- Municipal Address
- Major Roads
- Parcels

1: 3,703

188.1 0 94.06 188.1 Meters

NAD_1983_UTM_Zone_17N

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

Table 2-2a Runoff curve numbers for urban areas [1/]

Cover description: Cover type and hydrologic condition	Average percent impervious area [2/]	Curve numbers for hydrologic soil group: A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3/]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4/]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5/]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

1 Average runoff condition, and $I_a = 0.2S$.

2 The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

3 CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

4 Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

5 Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

! Table 3.2.2.7 – Minimum C Values for Standard 5-Year Sewer Design

Land Use	C value
Asphalt, concrete, roof areas	0.95
Gravel	0.70
Grass – sandy soil	0.15
Grass – clay soil	0.20
Residential – Single family	0.60
Residential – Single family (lot size 500 m^2 or less)	0.70
Residential – Semi-detached	0.70
Residential – Townhouse / Row housing	0.80
Industrial / Commercial	0.90

Table 3.2.1.1 – IDF Curve Parameters

Parameters	Return Period (Years)					
	2	5	10	25	50	100
a	854	1259	1511	1851	2114	2375
b	7.0	8.8	9.5	10.2	10.6	11.0
c	0.818	0.838	0.845	0.852	0.858	0.861

! Table 3.7.4.1 – Typical Manning's Roughness Coefficients for Overland Flow

Surface	n
Smooth Asphalt/Concrete	0.013
Cultivated Soils - Residue Cover < 20%	0.06
Cultivated Soils - Residue Cover > 20%	0.17
Range (natural)	0.13
Grass - Short Prairie	0.15
Grass - Dense	0.24
Woods - Light Underbrush	0.40
Woods - Dense Underbrush	0.80

! Table 3.7.7.5 – Typical Horton Infiltration Parameters

Parameter	Hydrologic Group			
	A	B	C	D
fmax, dry (mm/hr)	250	200	125	75
fmax, normal (mm/hr)	250	80	50	25
fmin (mm/hr)				
clay	7.6	3.8	1.3	0.5
loam	9.5	5.7	2.5	1.0
sand	11.4	7.6	3.8	1.3
k (1/hr)	4	4	4	4

Table A-3.7.7 – Soil Types in Essex County

Texture	Symbol	Name	Acreage	Hydrologic Group
Clay Soils	Bc	Brookston Clay	250,000	D
	Toc	Toledo Clay	17,500	D
	Cc	Clyde Clay	2,500	D
	Jc	Jeddo Clay	3,500	D
	Cac	Caistor Clay	13,500	C
	Pc	Perth Clay	9,000	C
Clay Loams	Pcl	Perth Clay Loam	8,000	C
	Cacl	Caistor Clay Loam	2,500	C
	Bcl	Brookston Clay Loam	30,000	D
Silt Loam	Tos	Toledo Silt Loam	1,000	D
Loams	Bg	Burford Loam	3,700	A
	Bg-s	Burford Loam Shallow Phase	5,300	A
	Hl	Harrow Loam	4,000	A
	Fl	Farmington Loam	2,000	B
	Pl	Parkhill Loam	5,000	C
	P-r	Parkhill Loam Red Sand Spot Phase	5,000	C

5-YEAR DESIGN STORMS

CHICAGO 4-HOUR
Depth = 49.5 mm

Time h:mm	5min Rain mm/hr
0:00	2.44
0:05	2.58
0:10	2.73
0:15	2.91
0:20	3.12
0:25	3.36
0:30	3.65
0:35	3.99
0:40	4.41
0:45	4.92
0:50	5.59
0:55	6.46
1:00	7.66
1:05	9.42
1:10	12.20
1:15	17.18
1:20	28.20
1:25	64.52
1:30	139.58
1:35	60.83
1:40	35.06
1:45	23.95
1:50	17.96
1:55	14.28
2:00	11.81
2:05	10.06
2:10	8.75
2:15	7.74
2:20	6.94
2:25	6.29
2:30	5.76
2:35	5.30
2:40	4.92
2:45	4.59
2:50	4.30
2:55	4.05
3:00	3.83
3:05	3.63
3:10	3.45
3:15	3.29
3:20	3.14
3:25	3.01
3:30	2.89
3:35	2.78
3:40	2.67
3:45	2.58
3:50	2.49
3:55	2.41
4:00	0.00

Time h:mm	10min Rain mm/hr
0:00	2.51
0:10	2.82
0:20	3.24
0:30	3.82
0:40	4.67
0:50	6.02
1:00	8.54
1:10	14.69
1:20	38.85
1:30	107.72
1:40	29.51
1:50	16.12
2:00	10.93
2:10	8.25
2:20	6.62
2:30	5.53
2:40	4.76
2:50	4.18
3:00	3.73
3:10	3.37
3:20	3.08
3:30	2.83
3:40	2.63
3:50	2.45
4:00	0.00

Time h:mm	15min Rain mm/hr
0:00	2.58
0:15	3.13
0:30	4.02
0:45	5.66
1:00	9.76
1:15	26.72
1:30	88.40
1:45	18.73
2:00	10.21
2:15	6.99
2:30	5.33
2:45	4.31
3:00	3.64
3:15	3.15
3:30	2.78
3:45	2.49
4:00	0.00

Time h:mm	20min Rain mm/hr
0:00	2.66
0:20	3.53
0:40	5.34
1:00	11.61
1:20	75.35
1:40	20.75
2:00	9.59
2:20	6.07
2:40	4.47
3:00	3.55
3:20	2.95
3:40	2.54
4:00	0.00

Time h:mm	30min Rain mm/hr
0:00	2.86
0:30	4.84
1:00	13.11
1:30	58.69
2:00	8.60
2:30	4.82
3:00	3.39
3:30	2.64
4:00	0.00

100-YEAR DESIGN STORMS

CHICAGO 4-HOUR
Depth = 81.6 mm

Time h:mm	5min Rain mm/hr
0:00	3.71
0:05	3.94
0:10	4.20
0:15	4.50
0:20	4.85
0:25	5.25
0:30	5.73
0:35	6.31
0:40	7.03
0:45	7.92
0:50	9.07
0:55	10.59
1:00	12.72
1:05	15.84
1:10	20.81
1:15	29.71
1:20	49.12
1:25	108.91
1:30	218.23
1:35	103.42
1:40	60.97
1:45	41.72
1:50	31.11
1:55	24.53
2:00	20.12
2:05	16.98
2:10	14.65
2:15	12.86
2:20	11.44
2:25	10.30
2:30	9.36
2:35	8.58
2:40	7.91
2:45	7.34
2:50	6.85
2:55	6.42
3:00	6.04
3:05	5.70
3:10	5.40
3:15	5.13
3:20	4.88
3:25	4.66
3:30	4.46
3:35	4.27
3:40	4.10
3:45	3.95
3:50	3.80
3:55	3.67
4:00	0.00

Time h:mm	10min Rain mm/hr
0:00	3.83
0:10	4.35
0:20	5.05
0:30	6.02
0:40	7.47
0:50	9.83
1:00	14.28
1:10	25.26
1:20	67.16
1:30	172.68
1:40	51.34
1:50	27.82
2:00	18.55
2:10	13.75
2:20	10.87
2:30	8.97
2:40	7.63
2:50	6.63
3:00	5.87
3:10	5.26
3:20	4.77
3:30	4.37
3:40	4.03
3:50	3.74
4:00	0.00

Time h:mm	15min Rain mm/hr
0:00	3.95
0:15	4.87
0:30	6.36
0:45	9.19
1:00	16.45
1:15	46.45
1:30	143.67
1:45	32.45
2:00	17.25
2:15	11.53
2:30	8.62
2:45	6.87
3:00	5.71
3:15	4.89
3:30	4.28
3:45	3.81
4:00	0.00

Time h:mm	20min Rain mm/hr
0:00	4.09
0:20	5.54
0:40	8.65
1:00	19.77
1:20	123.48
1:40	36.02
2:00	16.15
2:20	9.92
2:40	7.13
3:00	5.56
3:20	4.57
3:40	3.88
4:00	0.00

Time h:mm	30min Rain mm/hr
0:00	4.41
0:30	7.78
1:00	22.45
1:30	97.06
2:00	14.39
2:30	7.74
3:00	5.30
3:30	4.04
4:00	0.00

SCS TYPE II 24-HOUR DESIGN STORMS

		Unit Rainfall Depth = 1 mm	100-Year Depth = 108 mm	Rural Stress Test Depth = 150 mm	5-Year Depth = 68.0 mm
Time h:mm	Rain %	2hour Rain mm/hr	2hour Rain mm/hr	2hour Rain mm/hr	2hour Rain mm/hr
0:00	0	0.000	0.00	0.00	0.00
2:00	2	0.010	1.08	1.50	0.68
4:00	3	0.015	1.62	2.25	1.02
6:00	3	0.015	1.62	2.25	1.02
8:00	4	0.020	2.16	3.00	1.36
10:00	6	0.030	3.24	4.50	2.04
12:00	48	0.240	25.92	36.00	16.32
14:00	16	0.080	8.64	12.00	5.44
16:00	4	0.030	3.24	4.50	2.04
18:00	3	0.020	2.16	3.00	1.36
20:00	3	0.015	1.62	2.25	1.02
22:00	2	0.015	1.62	2.25	1.02
0:00	0	0.010	1.08	1.50	0.68

URBAN STRESS TEST STORM

CHICAGO 100-YEAR 24-HOUR (108 mm) + UNIFORM DISTRIBUTION OF ADDITIONAL 42 mm Depth = 108 mm + 42 mm = 150 mm			
Time h:mm	**15min Rain mm/hr**	**Time h:mm**	**15min Rain mm/hr**
0:00	2.41	12:15	4.49
0:15	2.43	12:30	4.29
0:30	2.45	12:45	4.12
0:45	2.46	13:00	3.98
1:00	2.48	13:15	3.85
1:15	2.51	13:30	3.74
1:30	2.53	13:45	3.63
1:45	2.55	14:00	3.54
2:00	2.58	14:15	3.46
2:15	2.61	14:30	3.39
2:30	2.64	14:45	3.32
2:45	2.67	15:00	3.26
3:00	2.71	15:15	3.20
3:15	2.74	15:30	3.15
3:30	2.79	15:45	3.10
3:45	2.83	16:00	3.05
4:00	2.88	16:15	3.01
4:15	2.94	16:30	2.97
4:30	3.00	16:45	2.93
4:45	3.07	17:00	2.90
5:00	3.15	17:15	2.87
5:15	3.23	17:30	2.84
5:30	3.33	17:45	2.81
5:45	3.45	18:00	2.78
6:00	3.59	18:15	2.76
6:15	3.75	18:30	2.73
6:30	3.94	18:45	2.71
6:45	4.18	19:00	2.69
7:00	4.49	19:15	2.67
7:15	4.89	19:30	2.65
7:30	5.43	19:45	2.63
7:45	6.20	20:00	2.61
8:00	7.41	20:15	2.59
8:15	9.56	20:30	2.57
8:30	14.29	20:45	2.56
8:45	32.01	21:00	2.54
9:00	145.13	21:15	2.53
9:15	48.51	21:30	2.51
9:30	23.13	21:45	2.50
9:45	15.08	22:00	2.49
10:00	11.35	22:15	2.47
10:15	9.23	22:30	2.46
10:30	7.88	22:45	2.45
10:45	6.94	23:00	2.44
11:00	6.25	23:15	2.43
11:15	5.73	23:30	2.42
11:30	5.32	23:45	2.41
11:45	4.99	0:00	0.00
12:00	4.72		


2156
2158
Units 1 to 4
2166
Units 1 to 4
2174
Units 1 to 4
2182
Units 1 to 4
2190
Units 1 to 4
2198
Units 1 to 4
2144
HURON CHURCH RD
DAYTONA AVE
250 mm
300 mm
200 mm
BLDG. 200
Units 210
to 240
BLDG. B
2212
UNIT 1
UNIT 2

Appendix B

STORM AND SANITARY DESIGN SHEETS

FRED'S FARM FRESH CONDOS
STORM SEWER DESIGN SHEET (5-YEAR EVENT, Computed Tc)

LOCATION				AREA (ha)				FLOW							SEWER DATA									PROFILE			
Area ID	Area Included	From Node	To Node	Paved Parking C= 0.90	Grass C= 0.15	From Roof C= 0.95	Total (includnig downspouts)	Indiv 2.78 AC	Accum 5 2.78AC	Time of Conc.	Design Storm	Rainfall Intensity	Peak Flow (L/sec)	Qtotal (L/s)	Dia. (m) Actual	Dia. (mm)	Type	Slope (%)	Length (m)	Capacity (L/s)	Velocity (m/s)	Flow Time (min)	Ratio Q/Q full	Upstream Elevation		Downstream Elevation	
																								Invert (m)	Ground (m)	Invert (m)	Ground (m)
A1		CB1	CB2	0.0470	0.0080	0.0032	0.0582	0.13	0.13	15.00	5	88.40	11.43	11.43	0.375	375	PVC	0.23	21.30	84.0	0.76	0.47	14%	180.305	181.240	180.256	181.292
A2		CB2	CBMH3	0.0348	0.0058	0.0032	0.0438	0.10	0.23	15.47	5	86.97	19.76	19.76	0.375	375	PVC	0.23	15.20	84.0	0.76	0.33	24%	180.256	181.292	180.221	181.357
A3		CBMH3	CBMH4	0.0175	0.0055		0.0230	0.05	0.27	15.80	5	85.99	23.50	23.50	0.375	375	PVC	0.23	13.48	84.0	0.76	0.30	28%	180.221	181.357	180.190	181.307
A4		CBMH4	CBMH5	0.0114	0.0015		0.0129	0.03	0.30	16.10	5	85.13	25.75	25.75	0.375	375	PVC	0.23	17.68	84.0	0.76	0.39	31%	180.190	181.307	180.149	181.308
A5		CBMH5	CBMH6	0.0139	0.0020		0.0159	0.04	0.34	16.48	5	84.04	28.41	28.41	0.375	375	PVC	0.23	11.48	84.0	0.76	0.25	34%	180.149	181.308	180.123	181.317
A6		CB7	CBMH6	0.0165	0.0146		0.0311	0.05	0.05	1.00	5	185.94	8.81	8.81	0.150	150	PVC	0.78	4.23	13.4	0.76	0.09	66%	180.156	181.358	180.123	181.317
		CBMH6	CBMH8					0.00	0.39	16.73	5	83.34	32.12	32.12	0.375	375	PVC	0.23	14.58	84.0	0.76	0.32	38%	180.123	181.317	180.089	181.299
A7		CBMH8	CBMH9	0.0376	0.0209	0.0032	0.0617	0.11	0.50	17.05	5	82.48	40.96	40.96	0.375	375	PVC	0.23	23.14	84.0	0.76	0.51	49%	180.089	181.299	180.036	181.269
		STORAGE	OGS MH	0.0564	0.0300	0.0032	0.0896	0.16	0.66	17.56	5	81.15	53.45	53.45	0.375	375	PVC	0.23	4.79	84.0	0.76	0.10	64%	180.036	181.269	180.025	181.400
		OGS MH	EX-CBMH					0.00	0.66	17.67	5	80.88	53.27	53.27	0.375	375	PVC	0.23	4.95	84.0	0.76	0.11	63%	180.025	181.400	180.014	0.000
		EX-CBMH	OUTLET	1.1600			1.1600	2.90	3.56	17.77	5	80.60	287.01	287.01	0.900	900	PVC	0.06	9.57	435.8	0.68	0.23	66%	180.014		180.008	

Q = 2.78 AIR, where
Q= Peak Flow in Litres per Second (l/s)
A= Area in hectares (ha)
I= Rainfall Intensity (mm/hr)
R= Runoff Coefficient

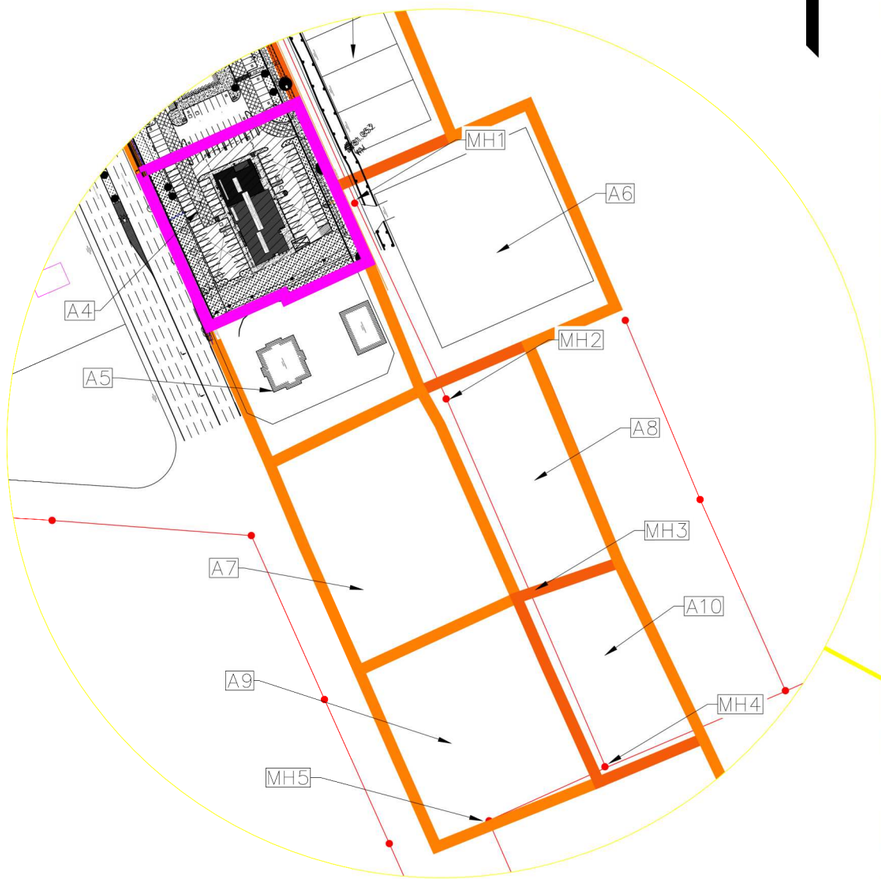
1) Windsor Rainfall-Intensity Curve
2) Min Pipe Velocity = 0.76 m/s
3) Tc =15 min
Minimum cover = 1m
I= A/(T+B)^C

A= 1259
B= 8.8
C= 0.838

BAIRD|AE architecture + engineering

Consultant:	Baird AE - Architects & Engineers
Date:	May 8, 2023
Design By:	Nii Nartei Nartey

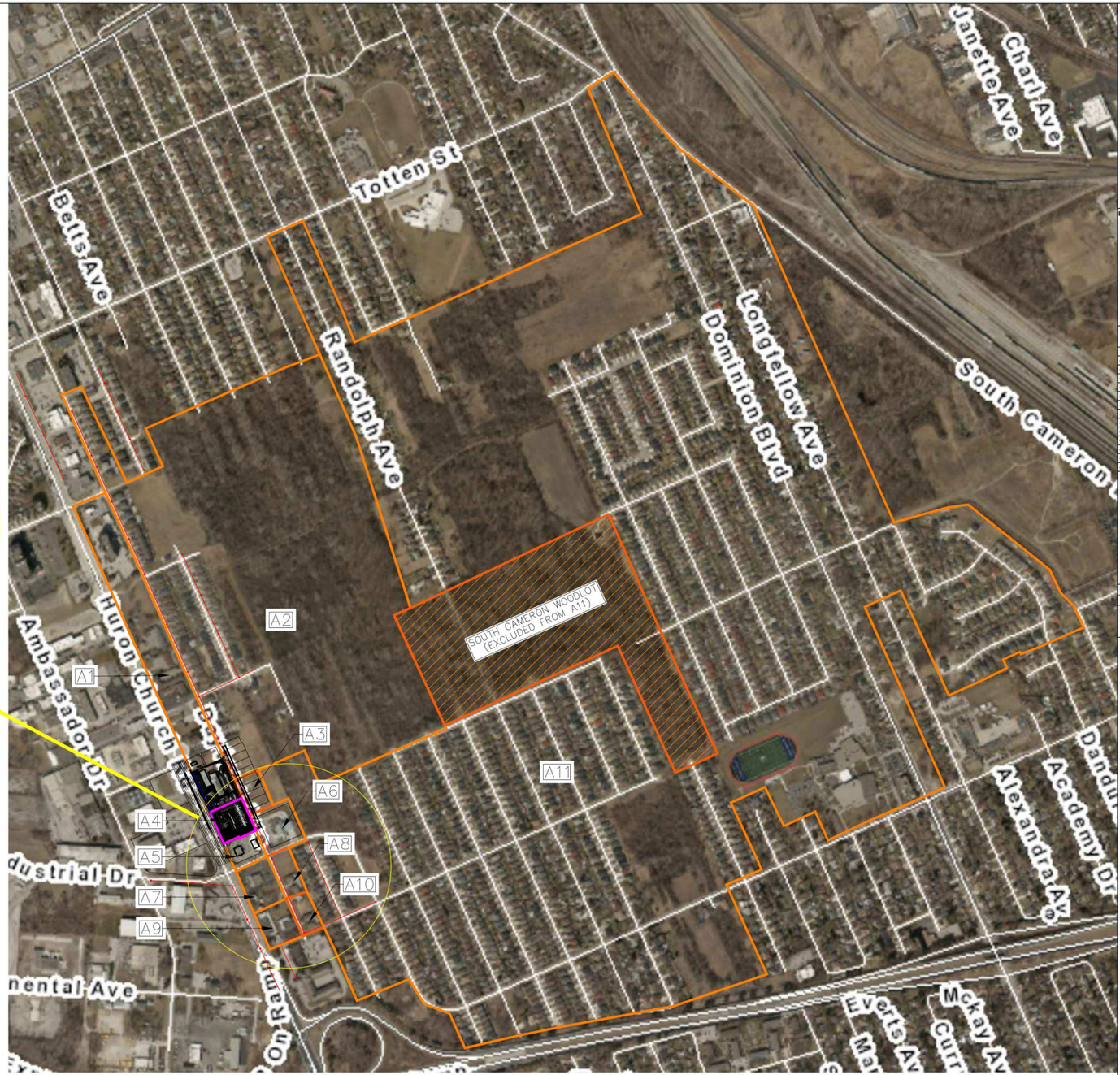
Client:	Dwg. Reference:	Checked and Stamped:
Fred's Farm Fresh	22-072	Gowtham Sivakumar



SANITARY DRAINAGE AREA PLAN
1:2,500

LEGEND

- SANITARY AREA
- PROPOSED DEVELOPMENT
- SANITARY SEWER
- SANITARY MANHOLE



SANITARY DRAINAGE AREA PLAN
1:5,000

BAIRD|AE
architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X8
1350 Provincial Road, Unit 700 Windsor ON N8W 5W1
519 326-6161
www.bairdae.ca
info@bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----

LICENSED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100545565
DEC 21,2023
PROVINCE OF ONTARIO

DATE:	DECEMBER 21, 2023
SCALE:	AS SHOWN
DRAWN BY: NNN	[X] PRELIMINARY
CHECKED BY: BP	[ ] CONSTRUCTION
APPROVED BY: ----	[ ] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

SHEET TITLE
SANITARY SEWER DRAINAGE AREA PLAN - ULTIMATE BUILD OUT

JOB NUMBER 22-072

SHEET NUMBER 01

A:\2022 Projects\22-072 - Fred's Farm Fresh Condo (SV, SW)\06_Engineering\Production Drawings
December 21, 2023

FRED'S FARM FRESH CONDOS
SANITARY SEWER DESIGN SHEET (Ultimate D.A Design)
Ultimate Buildout Conditions

CATCHMENT AREA			DESIGN AREA				DESIGN POPULATION				Ult. Flow Factor	DESIGN FLOW			SEWER DATA						
Area Included	From Node	To Node	Residential (ha)	Commercial (ha)	Institutional (ha)	Total Area (ha)	Residential 1	Commercial 2	Institutional	Total		Sewage (L/s)	Infiltration Flow (L/s)	Q Total Flow (L/s)	Dia. (m) Actual	Dia. (mm)	Slope (%)	Length (m)	Capacity (L/s)	Velocity (m/s)	Flow Time (min)	Ratio Q/Q full
A1,A3	MH0	MH1	0.505	5.937		6.441	25	439	0	465	6.00	11.71	1.00	12.71	0.250	250	0.32	100.31	33.6	0.68	2.44	37.8%
A1,A3, A4,A5,A6	MH1	MH2	1.072	6.446	0.970	8.487	161	479	21	662	6.00	16.67	1.32	18.00	0.250	250	0.42	99.15	38.5	0.78	2.11	46.7%
A1,A3, A4,A5,A6,A7,A8	MH2	MH3	1.610	7.265		8.875	221	540	0	760	6.00	19.16	1.38	20.55	0.250	250	0.42	97.74	38.5	0.78	2.08	53.4%
A1,A3, A4,A5,A6,A7,A8,A9,A10	MH3	MH4	2.067	7.983		10.050	245	593	0	838	6.00	21.12	1.57	22.68	0.250	250	2.09	87.13	85.9	1.75	0.83	26.4%
A1, A2,A3, A4,A5,A6,A7,A8,A9,A10,A11	MH4	MH5	214.532	9.021	10.085	233.638	10867	670	222	11758	3.72	183.71	36.45	220.16	0.600	600	0.13	81.25	221.2	0.78	1.73	99.5%

Average Flow per Person (l/day) =	362.88	Population Density			Proposed Development Population
Infiltration (l /s/ha) =	0.156	Residential =	50	persons/ha	= 2.34 person/unit x 58 units
Pipe Friction "n" =	0.013	Commercial =	74	persons/ha	= 136 (Residential)
Pipe velocity range (m/s) =	0.75 - 3.00	Institutional=	22	persons/ha	= 2 (Commercial)
Pipe Type =	P.V.C. SDR-35				

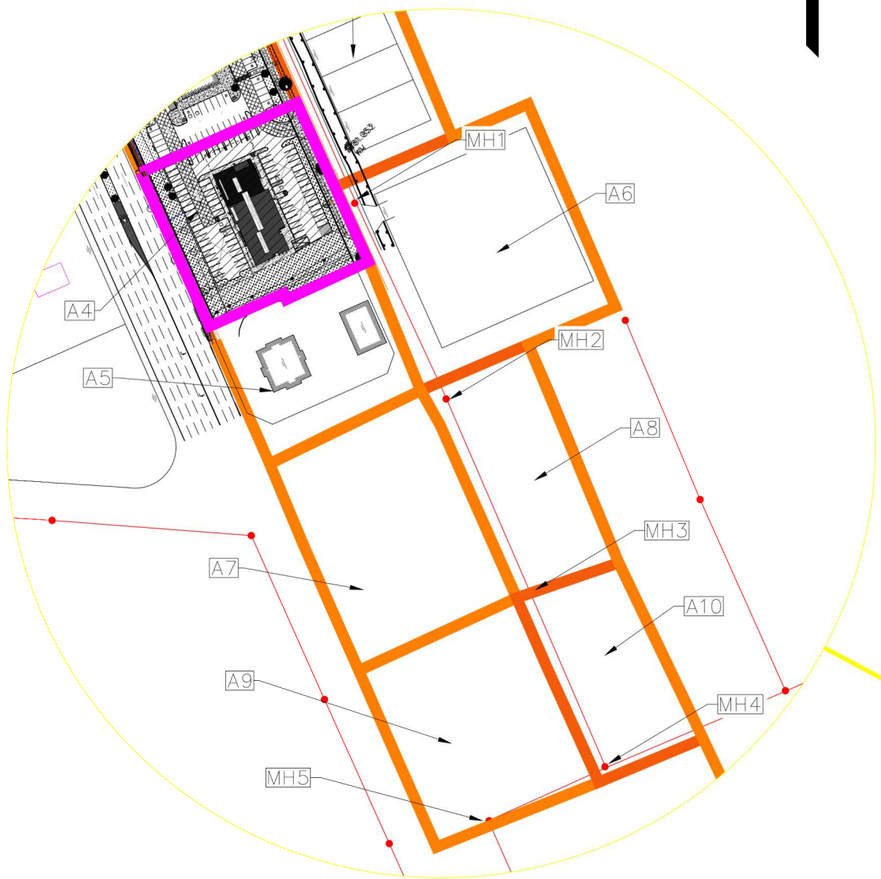
BAIRD|AE architecture + engineering

Date:	May 8, 2023
Design By:	Nii Nartei Nartey
Project No:	22-072
Dwg. Reference:	Fred's Farm Fresh
Reviewed By:	Gowtham Sivakumar

1 Proposed development area excluded and estimated population added
2 Proposed development commercial space added

AREAS	RESIDENTIAL	COMMERCIAL	INSTITUTIONAL	TOTAL
A1		5.9365		5.9365
A2	45.5468			45.5468
A3	0.5045			0.5045
A4	0.567			0.567 1
A5		0.5095		0.5095
A6			0.9696	0.9696
A7		0.8194		0.8194
A8	0.5381			0.5381
A9		0.7176		0.7176
A10	0.4575			0.4575
A11	166.9176	1.0382	9.1152	177.071
				233.6375

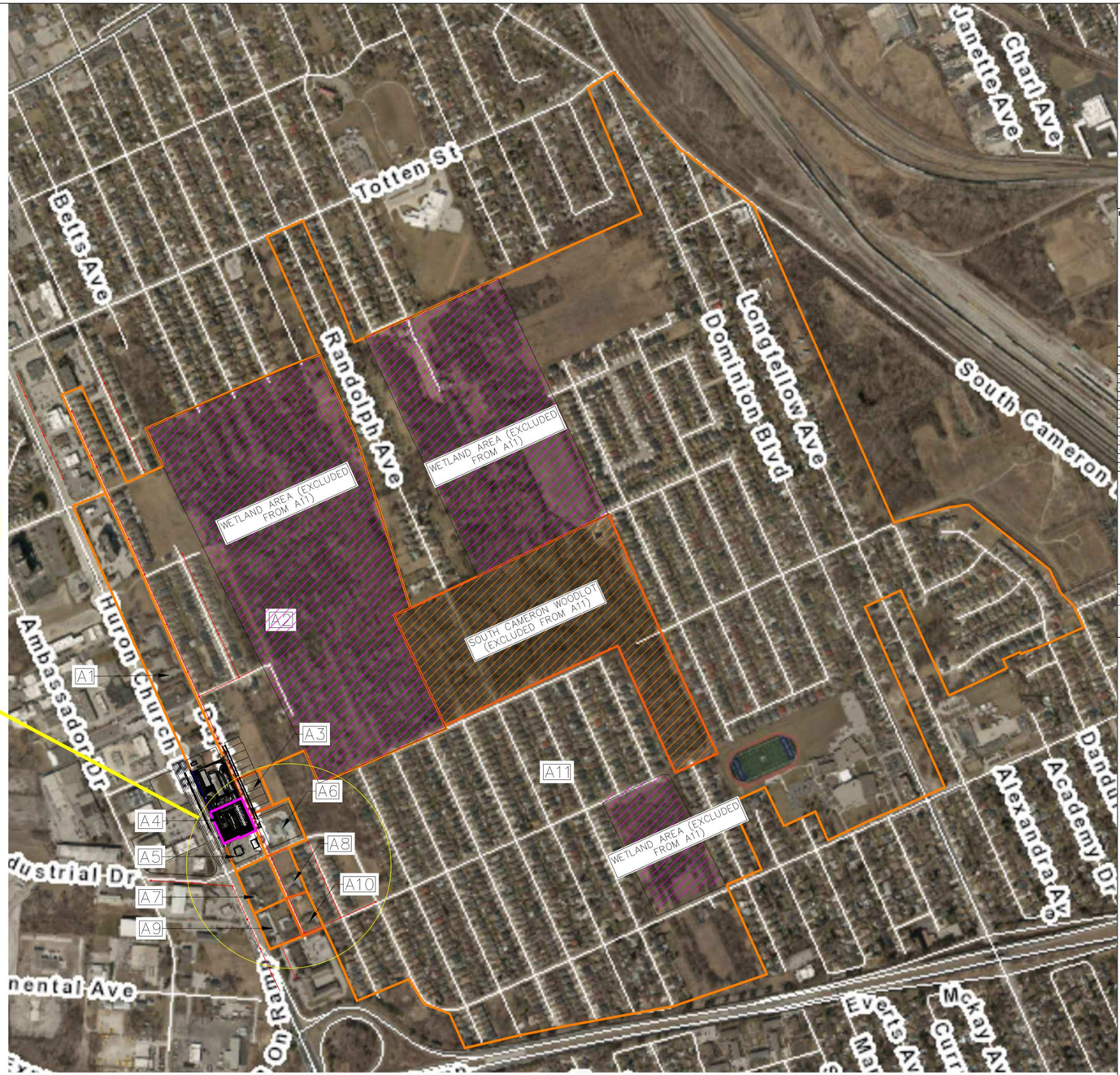
1 This is area of severed lot for proposed development



SANITARY DRAINAGE AREA PLAN
1:2,500

LEGEND

- SANITARY AREA
- PROPOSED DEVELOPMENT
- SANITARY SEWER
- SANITARY MANHOLE



SANITARY DRAINAGE AREA PLAN
1:5,000

BAIRD|AE
architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X8
1350 Provincial Road, Unit 700, Windsor ON N8W 5W1
519 326-6161
www.bairdae.ca
info@bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----

LICENSED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100546565
DEC 21,2023
PROVINCE OF ONTARIO

DATE:	DECEMBER 21, 2023
SCALE:	AS SHOWN
DRAWN BY: NNN	[X] PRELIMINARY
CHECKED BY: BP	[ ] CONSTRUCTION
APPROVED BY: ----	[ ] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

SHEET TITLE
SANITARY DRAINAGE AREA PLAN - CURRENT CONDITIONS

JOB NUMBER 22-072

SHEET NUMBER **02**

FRED'S FARM FRESH CONDOS
SANITARY SEWER DESIGN SHEET (Ultimate D.A Design)
Current Conditions

CATCHMENT AREA			DESIGN AREA				DESIGN POPULATION				Ult. Flow Factor	DESIGN FLOW			SEWER DATA						
Area Included	From Node	To Node	Residential (ha)	Commercial (ha)	Institutional (ha)	Total Area (ha)	Residential 1	Commercial 2	Institutional	Total		Sewage (L/s)	Infiltration Flow (L/s)	Q Total Flow (L/s)	Dia. (m) Actual	Dia. (mm)	Slope (%)	Length (m)	Capacity (L/s)	Velocity (m/s)	Flow Time (min)	Ratio Q/Q full
A1,A3	MH0	MH1	0.505	5.937		6.441	25	439	0	465	6.00	11.71	1.00	12.71	0.250	250	0.32	100.31	33.6	0.68	2.44	37.8%
A1,A3, A4,A5,A6	MH1	MH2	1.072	6.446	0.970	8.487	161	479	21	662	6.00	16.67	1.32	18.00	0.250	250	0.42	99.15	38.5	0.78	2.11	46.7%
A1,A3, A4,A5,A6,A7,A8	MH2	MH3	1.610	7.265		8.875	221	540	0	760	6.00	19.16	1.38	20.55	0.250	250	0.42	97.74	38.5	0.78	2.08	53.4%
A1,A3, A4,A5,A6,A7,A8,A9,A10	MH3	MH4	2.067	7.983		10.050	245	593	0	838	6.00	21.12	1.57	22.68	0.250	250	2.09	87.13	85.9	1.75	0.83	26.4%
A1, A2,A3, A4,A5,A6,A7,A8,A9,A10,A11	MH4	MH5	158.040	9.021	10.085	177.146	8042	670	222	8934	4.03	151.21	27.63	178.85	0.600	600	0.13	81.25	221.2	0.78	1.73	80.8%

Average Flow per Person (l/day) =	362.88	Population Density			Proposed Development Population
Infiltration (l /s/ha) =	0.156	Residential =	50	persons/ha	= 2.34 person/unit x 58 units
Pipe Friction "n" =	0.013	Commercial =	74	persons/ha	= 136 (Residential)
Pipe velocity range (m/s) =	0.75 - 3.00	Institutional=	22	persons/ha	= 2 (Commercial)
Pipe Type =	P.V.C. SDR-35				

1 Proposed development area excluded and estimated population added
2 Proposed development commercial space added

BAIRD|AE architecture + engineering

Date:	May 8, 2023
Design By:	Nii Nartei Nartey
Project No:	22-072
Dwg. Reference:	Fred's Farm Fresh
Reviewed By:	Gowtham Sivakumar

AREAS	RESIDENTIAL	COMMERCIAL	INSTITUTIONAL	TOTAL
A1		5.9365		5.9365
A2	12.503			12.503
A3	0.5045			0.5045
A4	0.567			0.567 1
A5		0.5095		0.5095
A6			0.9696	0.9696
A7		0.8194		0.8194
A8	0.5381			0.5381
A9		0.7176		0.7176
A10	0.4575			0.4575
A11	143.47	1.0382	9.1152	153.6234
1 This is area of severed lot for proposed development				177.1461

Appendix C

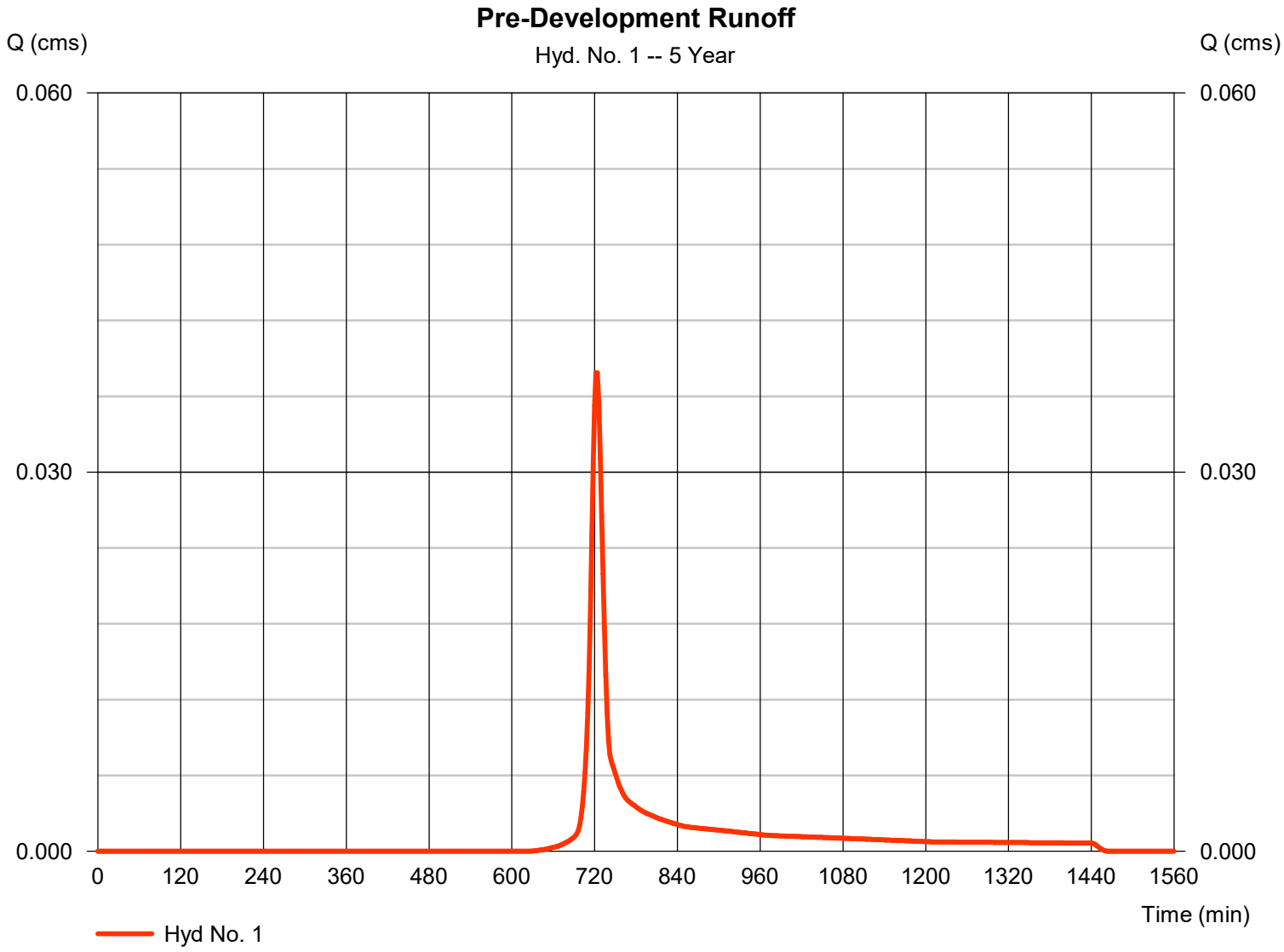
AUTODESK HYDROGRAPHS AND PCSWMM MODEL RESULTS

Hydrograph Report

Hyd. No. 1

Pre-Development Runoff

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.038 cms
Storm frequency	=	5 yrs	Time to peak	=	722 min
Time interval	=	2 min	Hyd. volume	=	109.3 cum
Drainage area	=	0.450 hectare	Curve number	=	79.4
Basin Slope	=	0.0 %	Hydraulic length	=	0 m
Tc method	=	User	Time of conc. (Tc)	=	15.00 min
Total precip.	=	68.00 mm	Distribution	=	Type II
Storm duration	=	24 hrs	Shape factor	=	484



Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cms)								Hydrograph Description
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
1	SCS Runoff	------	-------	-------	-------	0.038	-------	-------	-------	-------	Pre-Development Runoff

Hydraflow Rainfall Report

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	0.0000	0.0000	0.0000	--------
2	123.0355	26.6700	2.2952	--------
3	0.0000	0.0000	0.0000	--------
5	200.3809	32.7660	2.3753	--------
10	268.0860	36.5760	2.4372	--------
25	348.7222	39.6241	2.4776	--------
50	499.0544	44.9581	2.6097	--------
100	471.7757	42.9261	2.5180	--------

File name: Windsor A 2007.IDF

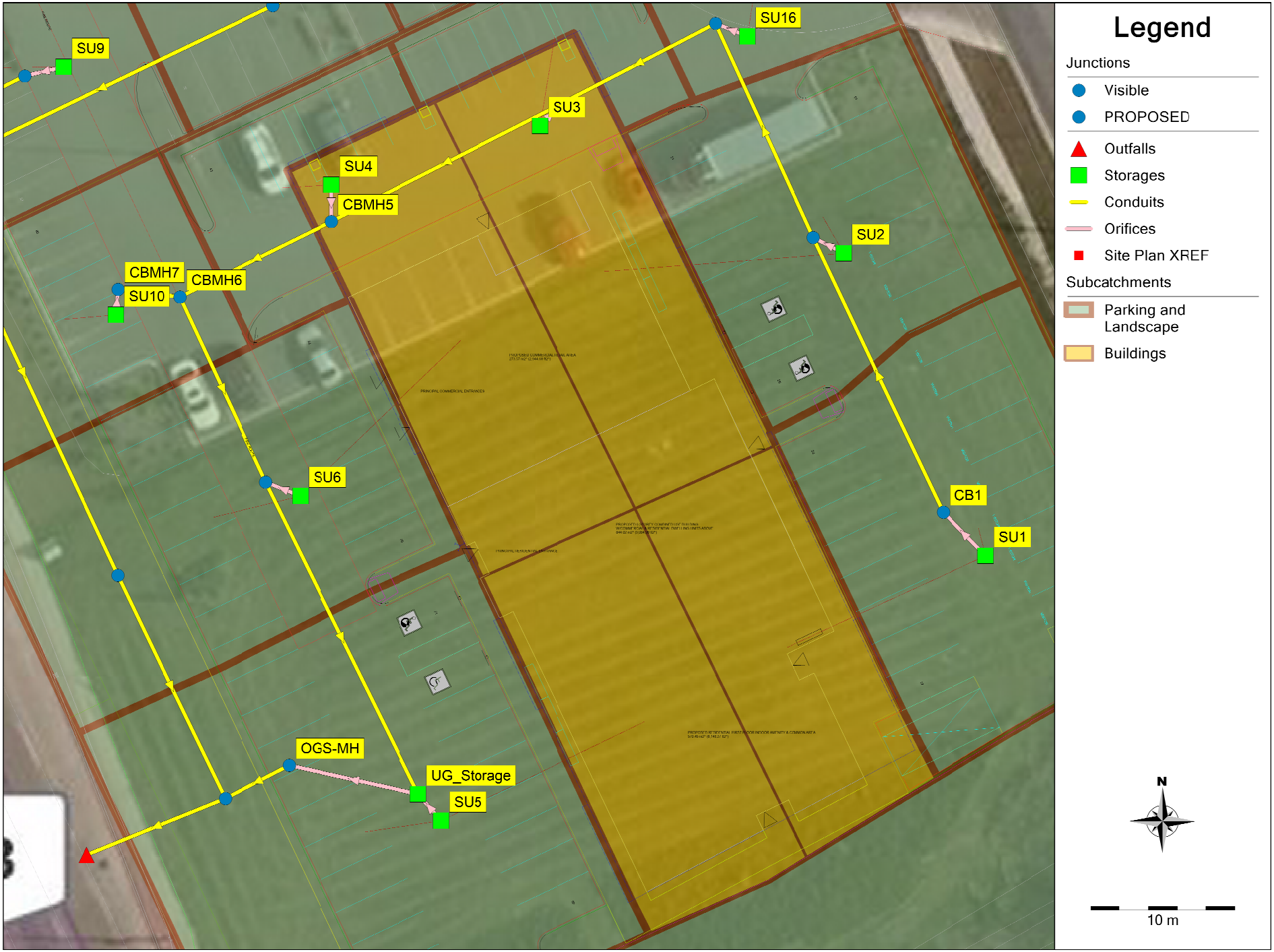
Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (mm/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	0	0	0	0	0	0	0	0	0	0	0	0
2	103	80	66	56	49	43	39	36	33	30	28	26
3	0	0	0	0	0	0	0	0	0	0	0	0
5	135	107	89	76	67	60	54	49	45	42	39	36
10	156	125	105	90	79	70	64	58	53	49	46	43
25	182	148	124	107	94	84	76	69	64	59	55	51
50	202	164	139	120	105	94	85	77	71	66	61	57
100	221	180	152	132	116	104	94	86	79	73	68	64

Tc = time in minutes. Values may exceed 60.

e: Z:\2017\17-156 - Regal Drive Extension\Engineering\REPORT\SWM Report\IDF\IDF Curves 2012 WINDSOR A .pcp

Storm Distribution	Rainfall Precipitation Table (mm)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	0	53	0	68	78	90	99	108
SCS 6-Hr	0	0	0	0	0	0	0	0
Huff-1st	0	0	0	0	0	0	0	0
Huff-2nd	0	0	0	0	0	0	0	0
Huff-3rd	0	0	0	0	0	0	0	0
Huff-4th	0	0	0	0	0	0	0	0
Huff-Indy	0	0	0	0	0	0	0	0
Custom	0	0	0	0	0	0	0	0


SU9
SU16
SU3
SU4
CBMH5
SU2
CBMH7
CBMH6
SU10
SU6
CB1
SU1
OGS-MH
UG_Storage
SU5
Legend
Junctions
Visible
PROPOSED
Outfalls
Storages
Conduits
Orifices
Site Plan XREF
Subcatchments
Parking and Landscape
Buildings
N
10 m

INPUT DATA - WATER QUALITY STORM

```
[TITLE]
;;Project Title/Notes

[OPTIONS]
;;Option             Value
FLOW_UNITS           CMS
INFILTRATION         HORTON
FLOW_ROUTING         DYNWAVE
LINK_OFFSETS         ELEVATION
MIN_SLOPE            0
ALLOW_PONDING        YES
SKIP_STEADY_STATE    NO

START_DATE           03/15/2021
START_TIME           00:00:00
REPORT_START_DATE    03/15/2021
REPORT_START_TIME    00:00:00
END_DATE             03/26/2021
END_TIME             00:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          00:15:00
WET_STEP             00:15:00
DRY_STEP             00:15:00
ROUTING_STEP         5
RULE_STEP            00:00:00

INERTIAL_DAMPING     PARTIAL
NORMAL_FLOW_LIMITED  BOTH
FORCE_MAIN_EQUATION  H-W
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         0
MAX_TRIALS           8
HEAD_TOLERANCE       0.0015
SYS_FLOW_TOL         5
LAT_FLOW_TOL         5
MINIMUM_STEP         0.5
THREADS              4

[EVAPORATION]
;;Data Source    Parameters
;;-------------- ----------------
CONSTANT         0.0
DRY_ONLY         NO

[RAINGAGES]
;;Name           Format    Interval SCF      Source
;;-------------- --------- -------- -------- ----------
Raingage1        INTENSITY 0:15     1.0      TIMESERIES WaterQuality

[SUBCATCHMENTS]
;;Name           Rain Gage        Outlet           Area     %Imperv  Width    %
Slope   CurbLen  SnowPack
;;-------------- ---------------- ---------------- -------- -------- -------- -----
--- -------- ----------------
JANISSE          Raingage1        J1               0.1166   0        16.657   0.5
```

```
Roof1             Raingage1        SU2              0.0338   100      11.267   0.5
0
Roof2             Raingage1        SU6              0.0355   100      11.833   0.5
0
Roof3             Raingage1        SU1              0.0275   100      9.167    0.5
0
Roof4             Raingage1        SU5              0.0322   100      10.733   0.5
0
S1                Raingage1        SU1              0.0537   85       30.686   0.5
0
S1_10             Raingage1        J20              0.0273   90       5.151    0.5
0
S1_12             Raingage1        J7               0.0626   80       27.217   0.5
0
S1_13             Raingage1        J9               0.0629   10       15.725   0.5
0
S1_14             Raingage1        SU15             0.0579   90       25.174   0.5
0
S1_15             Raingage1        SU9              0.0546   50       27.3     0.5
0
S1_16             Raingage1        SU11             0.0311   70       15.55    0.5
0
S1_17             Raingage1        SU7              0.0363   95       21.353   0.5
0
S1_18             Raingage1        SU13             0.0649   80       28.217   0.5
0
S1_19             Raingage1        J13              0.0653   100      13.604   0.5
0
S1_2              Raingage1        J10              0.0349   50       15.864   0.5
0
S1_21             Raingage1        SU12             0.0625   100      10.417   0.5
0
S1_22             Raingage1        SU8              0.0355   95       23.667   0.5
0
S1_23             Raingage1        J15              0.0264   90       4.981    0.5
0
S1_24             Raingage1        J9               0.0088   90       1.692    0.5
0
S1_25             Raingage1        J10              0.0082   90       1.577    0.5
0
S1_8              Raingage1        SU14             0.0715   90       17.875   0.5
0
S2                Raingage1        SU2              0.0429   85       26.812   0.5
0
S3                Raingage1        SU16             0.0205   25       13.667   0.5
0
S4                Raingage1        SU3              0.0127   100      10.583   0.5
0
S5                Raingage1        SU4              0.016    100      12.308   0.5
0
s6                Raingage1        SU10             0.0333   66       18.5     0.5
0
S7                Raingage1        SU6              0.0559   66       27.95    0.5
0
S8                Raingage1        SU5              0.0863   66       34.52    0.5
0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo
PctRouted
```

```
;;-------------- ---------- ---------- ---------- ---------- ---------- ----------
----------
JANISSE          0.013      0.15       2.5        7.5        0          OUTLET
Roof1            0.01       0.1        0.05       0.05       25         OUTLET
Roof2            0.01       0.1        0.05       0.05       25         OUTLET
Roof3            0.01       0.1        0.05       0.05       25         OUTLET
Roof4            0.01       0.1        0.05       0.05       25         OUTLET
S1               0.013      0.15       2.5        7.5        0          OUTLET
S1_10            0.01       0.1        0.05       0.05       25         OUTLET
S1_12            0.01       0.1        0.05       0.05       25         OUTLET
S1_13            0.01       0.1        0.05       0.05       25         OUTLET
S1_14            0.01       0.1        0.05       0.05       25         OUTLET
S1_15            0.01       0.1        0.05       0.05       25         OUTLET
S1_16            0.01       0.1        0.05       0.05       25         OUTLET
S1_17            0.01       0.1        0.05       0.05       25         OUTLET
S1_18            0.01       0.1        0.05       0.05       25         OUTLET
S1_19            0.01       0.1        0.05       0.05       25         OUTLET
S1_2             0.01       0.1        0.05       0.05       25         OUTLET
S1_21            0.01       0.1        0.05       0.05       25         OUTLET
S1_22            0.01       0.1        0.05       0.05       25         OUTLET
S1_23            0.01       0.1        0.05       0.05       25         OUTLET
S1_24            0.01       0.1        0.05       0.05       25         OUTLET
S1_25            0.01       0.1        0.05       0.05       25         OUTLET
S1_8             0.01       0.1        0.05       0.05       25         OUTLET
S2               0.013      0.15       2.5        7.5        0          OUTLET
S3               0.013      0.15       2.5        7.5        0          OUTLET
S4               0.013      0.15       2.5        7.5        0          OUTLET
S5               0.013      0.15       2.5        7.5        0          OUTLET
s6               0.013      0.15       2.5        7.5        0          OUTLET
S7               0.013      0.15       2.5        7.5        0          OUTLET
S8               0.013      0.15       2.5        7.5        0          OUTLET

[INFILTRATION]
;;Subcatchment   Param1     Param2     Param3     Param4     Param5
;;-------------- ---------- ---------- ---------- ---------- ----------
JANISSE          50         3.8        4          7          0
Roof1            50         3.8        4          7          0
Roof2            50         3.8        4          7          0
Roof3            50         3.8        4          7          0
Roof4            50         3.8        4          7          0
S1               50         3.8        4          7          0
S1_10            50         3.8        4          7          0
S1_12            50         3.8        4          7          0
S1_13            50         3.8        4          7          0
S1_14            50         3.8        4          7          0
S1_15            50         3.8        4          7          0
S1_16            50         3.8        4          7          0
S1_17            50         3.8        4          7          0
S1_18            50         3.8        4          7          0
S1_19            50         3.8        4          7          0
S1_2             50         3.8        4          7          0
S1_21            50         3.8        4          7          0
S1_22            50         3.8        4          7          0
S1_23            50         3.8        4          7          0
S1_24            50         3.8        4          7          0
S1_25            50         3.8        4          7          0
S1_8             50         3.8        4          7          0
```

```
S2               50         3.8        4          7          0
S3               50         3.8        4          7          0
S4               50         3.8        4          7          0
S5               50         3.8        4          7          0
s6               50         3.8        4          7          0
S7               50         3.8        4          7          0
S8               50         3.8        4          7          0

[JUNCTIONS]
;;Name           Elevation  MaxDepth   InitDepth  SurDepth   Aponded
;;-------------- ---------- ---------- ---------- ---------- ----------
CB1              180.305    0.935      0          0.3        0
CB2              180.256    1.036      0          0.3        0
CBMH3            180.221    1.129      0          0.3        0
CBMH4            180.19     1.117      0          0.3        0
CBMH5            180.146    1.162      0          0.3        0
CBMH6            180.123    1.194      0          0.3        0
CBMH7            180.156    1.161      0          0.3        0
CBMH8            180.089    1.21       0          0.3        0
EX-CBMH          180.014    1.486      0          0          0
EX-OGS           180.244    1.256      0          0          0
J1               100        2          0          0          0
J10              180.457    2.196      0          0          0
J11              180.406    1.047      0          0          0
J12              180.338    1.162      0          0          0
J13              180.927    1.726      0          0          0
J15              180.869    1.784      0          0          0
J16              180.329    1.171      0          0          0
J17              180.347    1.106      0          0          0
J18              180.389    1.064      0          0          0
J19              181.063    2.69       0          0          0
J2               180.527    0.926      0          0          0
J20              180.938    3.015      0          0          0
J3               180.503    0.95       0          0          0
J4               180.46     1.293      0          0          0
J5               180.475    0.978      0          0          0
J6               180.536    0.917      0          0.3        0
J7               180.594    0.859      0          0.3        0
J8               180.743    0.71       0          0.3        0
J9               180.832    3.121      0          0          0
OGS-MH           180.025    1.244      0          0          0

[OUTFALLS]
;;Name           Elevation  Type       Stage Data       Gated    Route To
;;-------------- ---------- ---------- ---------------- -------- ----------------
OF1              180.008    FREE                        NO
OF2              99         FREE                        NO

[STORAGE]
;;Name           Elev.    MaxDepth   InitDepth  Shape      Curve Name/Params
N/A      Fevap    Psi      Ksat     IMD
;;-------------- -------- ---------- ---------- ---------- ------------------------
---- -------- --------          -------- --------
SU1              181.24   0.211      0          TABULAR    CB1
0        0
SU10             181.317  0.134      0          TABULAR    CBMH6
0        0
SU11             181.453  0.3        0          TABULAR    J4
```

```
SU12             181.453  0.3        0          TABULAR    J7
0        0
SU13             181.453  0.3        0          TABULAR    J8
0        0
SU14             183.453  0.3        0          TABULAR    J19
0        0
SU15             181.453  0.3        0          TABULAR    J6
0        0
SU16             181.35   0.101      0          TABULAR    CBMH3
0        0
SU2              181.292  0.159      0          TABULAR    CB2
0        0
SU3              181.307  0.144      0          TABULAR    CBMH4
0        0
SU4              181.308  0.143      0          TABULAR    CBMH5
0        0
SU5              181.269  0.182      0          TABULAR    CBMH9
0        0
SU6              181.299  0.152      0          TABULAR    CBMH8
0        0
SU7              181.453  0.3        0          TABULAR    J3
0        0
SU8              181.453  0.3        0          TABULAR    J2
0        0
SU9              181.453  0.3        0          TABULAR    J5
0        0
UG_Storage       180.036  0.783      0          TABULAR    UG_Storage
0.75     0

[CONDUITS]
;;Name            From Node        To Node          Length     Roughness  InOffset
OutOffset  InitFlow   MaxFlow
;;--------------- ---------------- ---------------- ---------- ---------- ----------
---------- ---------- ----------
C1               CB1              CB2              21.3       0.013      180.305
180.256    0          0
C10              EX-CBMH          OF1              9.8        0.013      180.014
180.008    0          0
C11              CB2              CBMH3            15.2       0.013      180.256
180.221    0          0
C12              CBMH3            CBMH4            13.48      0.013      180.221
180.19     0          0
C13              J1               OF2              6.583      0.013      100
99         0          0
C14              J16              EX-OGS           30.679     0.013      180.329
180.244    0          0
C15              J5               J12              8.661      0.013      180.475
180.338    0          0
C16              J6               J11              7.145      0.013      180.536
180.406    0          0
C17              J11              J12              22.683     0.013      180.406
180.338    0          0
C18              J10              J11              16.919     0.013      180.457
180.406    0          0
C19              J9               J10              46.127     0.013      180.832
180.457    0          0
C2               CBMH4            CBMH5            17.68      0.013      180.19
180.146    0          0
C20              EX-OGS           EX-CBMH          17.044     0.01       180.244
180.149    0          0
```

```
C21             J15             J10             13.425     0.013      180.869
180.762    0          0
C22             J13             J15             7.157      0.013      180.927
180.869    0          0
C23             J8              J7              19.038     0.013      180.743
180.594    0          0
C24             J7              J4              23.965     0.013      180.594
180.46     0          0
C25             J4              J18             23.679     0.013      180.46
180.389    0          0
C26             J18             J17             13.969     0.013      180.389
180.347    0          0
C27             J17             J16             26.313     0.013      180.347
180.329    0          0
C28             J2              J17             3.207      0.013      180.527
180.347    0          0
C29             J3              J18             4.115      0.013      180.503
180.389    0          0
C3              CBMH5           CBMH6           11.48      0.013      180.149
180.123    0          0
C30             J19             J20             15.335     0.013      181.063
180.938    0          0
C31             J20             J9              14.114     0.013      180.938
180.832    0          0
C32             J12             J16             2.986      0.013      180.338
180.329    0          0
C33             OGS-MH          EX-CBMH         4.95       0.01       180.025
180.014    0          0
C4              CBMH7           CBMH6           4.23       0.013      180.156
180.123    0          0
C5              CBMH6           CBMH8           14.58      0.013      180.123
180.089    0          0
C6              CBMH8           UG_Storage      23.14      0.013      180.089
180.036    0          0

[ORIFICES]
;;Name           From Node       To Node         Type         Offset     Qcoeff
Gated    CloseTime
;;-------------- --------------- --------------- ------------ ---------- --------
-- -------- ----------
C9              UG_Storage      OGS-MH          SIDE         180.036    0.65
NO       0
OR1             SU11            J4              BOTTOM       181.453    0.65
NO       0
OR10            SU6             CBMH8           BOTTOM       181.299    0.65
NO       0
OR11            SU2             CB2             BOTTOM       181.292    0.65
NO       0
OR12            SU1             CB1             BOTTOM       181.24     0.65
NO       0
OR13            SU12            J7              BOTTOM       181.453    0.65
NO       0
OR14            SU14            J19             BOTTOM       183.453    0.65
NO       0
OR15            SU9             J5              BOTTOM       181.453    0.65
NO       0
OR16            SU5             UG_Storage      BOTTOM       181.269    0.65
NO       0
OR2             SU13            J8              BOTTOM       181.453    0.65
NO       0
```

```
OR3              SU15             J6               BOTTOM       181.453    0.65
NO       0
OR4              SU7              J3               BOTTOM       181.453    0.65
NO       0
OR5              SU8              J2               BOTTOM       181.453    0.65
NO       0
OR6              SU16             CBMH3            BOTTOM       181.357    0.65
NO       0
OR7              SU3              CBMH4            BOTTOM       181.307    0.65
NO       0
OR8              SU4              CBMH5            BOTTOM       181.308    0.65
NO       0
OR9              SU10             CBMH7            BOTTOM       181.317    0.65
NO       0

[XSECTIONS]
;;Link            Shape        Geom1            Geom2      Geom3      Geom4
Barrels    Culvert
;;--------------- ------------ ---------------- ---------- ---------- ---
------- ----------
C1               CIRCULAR     0.375            0          0          0          1
C10              CIRCULAR     0.75             0          0          0          1
C11              CIRCULAR     0.375            0          0          0          1
C12              CIRCULAR     0.375            0          0          0          1
C13              CIRCULAR     1                0          0          0          1
C14              CIRCULAR     0.375            0          0          0          1
C15              CIRCULAR     0.15             0          0          0          1
C16              CIRCULAR     0.15             0          0          0          1
C17              CIRCULAR     0.3              0          0          0          1
C18              CIRCULAR     0.3              0          0          0          1
C19              CIRCULAR     0.15             0          0          0          1
C2               CIRCULAR     0.375            0          0          0          1
C20              CIRCULAR     0.3              0          0          0          1
C21              CIRCULAR     0.15             0          0          0          1
C22              CIRCULAR     0.15             0          0          0          1
C23              CIRCULAR     0.15             0          0          0          1
C24              CIRCULAR     0.2              0          0          0          1
C25              CIRCULAR     0.3              0          0          0          1
C26              CIRCULAR     0.3              0          0          0          1
C27              CIRCULAR     0.3              0          0          0          1
C28              CIRCULAR     0.15             0          0          0          1
C29              CIRCULAR     0.15             0          0          0          1
C3               CIRCULAR     0.375            0          0          0          1
C30              CIRCULAR     0.15             0          0          0          1
C31              CIRCULAR     0.15             0          0          0          1
C32              CIRCULAR     0.3              0          0          0          1
C33              CIRCULAR     0.375            0          0          0          1
C4               CIRCULAR     0.15             0          0          0          1
C5               CIRCULAR     0.375            0          0          0          1
C6               CIRCULAR     0.375            0          0          0          1
C9               CIRCULAR     0.125            0          0          0
OR1              CIRCULAR     0.4              0          0          0
OR10             CIRCULAR     0.4              0          0          0
OR11             CIRCULAR     0.4              0          0          0
OR12             CIRCULAR     0.4              0          0          0
OR13             CIRCULAR     0.4              0          0          0
OR14             CIRCULAR     0.4              0          0          0
OR15             CIRCULAR     0.4              0          0          0
```

```
OR16              CIRCULAR     0.4               0          0          0
OR2               CIRCULAR     0.4               0          0          0
OR3               CIRCULAR     0.4               0          0          0
OR4               CIRCULAR     0.4               0          0          0
OR5               CIRCULAR     0.4               0          0          0
OR6               CIRCULAR     0.4               0          0          0
OR7               CIRCULAR     0.4               0          0          0
OR8               CIRCULAR     0.4               0          0          0
OR9               CIRCULAR     0.4               0          0          0

[TRANSECTS]
;;Transect Data in HEC-2 format
;
;Pond spill way for node RJ33
NC 0.01     0.01     0.15
X1 PondSpillway1     3        0.0      0.0      0.0      0.0      0.0      0.0
0.0
GR 176.35   0        176.21   20.1     176.555  78.4
;
;Pond spill way for node RJ31
NC 0.01     0.01     0.15
X1 PondSpillway2     3        0.0      0.0      0.0      0.0      0.0      0.0
0.0
GR 176.555  0        176.43   35.3     176.76   60.7
;
;Pond spill way for node RJ4
NC 0.01     0.01     0.15
X1 PondSpillway3     3        0.0      0.0      0.0      0.0      0.0      0.0
0.0
GR 176.765  0        176.325  103.43   176.515  149.35
;
;Typical Road Cross Section
NC 0.15     0.15     0.013
X1 Road              9        5        13.85    0.0      0.0      0.0      0.0
0.0
GR 0.45     0        0.15     5        0.15     5.15     0        5.15     0.15
9.425
GR 0        13.7     0.15     13.7     0.15     13.85    0.45     18.85
;
;Wider Road Section at Entrance of the development
NC 0.15     0.15     0.013
X1 Road2             9        4.15     17.15    0.0      0.0      0.0      0.0
0.0
GR 0.45     0        0.15     4        0.15     4.15     0        4.15     0.15
10.65
GR 0        17.15    0.15     17.15    0.15     17.3     0.45     21.3

[LOSSES]
;;Link           Kentry     Kexit      Kavg       Flap Gate  Seepage
;;-------------- ---------- ---------- ---------- ---------- ----------

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
PS                Pump4      1          0.34921
PS                           2          0.32415
PS                           3          0.3
PS                           4          0.27813
```

PS		5	0.25535
PS		6	0.23128
PS		7	0.20698
PS		8	0.18195
PS		9	0.15638
PS		10	0.13038
PS		11	0.10339
PS		12	0.07679
PS		13	0.04882
PS		14	0.02168
CB1	Storage	0	0
CB1		0.06	43.802
CB1		0.12	176
CB1		0.189	443.851
CB1		0.211	443.851
CB2	Storage	0	0
CB2		0.05	39.541
CB2		0.1	158.366
CB2		0.137	330.095
CB2		0.159	330.095
CBMH3	Storage	0	0
CBMH3		0.03	8.563
CBMH3		0.06	34.267
CBMH3		0.079	59.405
CBMH3		0.101	82.511
CBMH4	Storage	0	0
CBMH4		0.043	12.615
CBMH4		0.093	59.714
CBMH4		0.122	103.374
CBMH4		0.144	118.286
CBMH5	Storage	0	0
CBMH5		0.042	15.878
CBMH5		0.092	75.718
CBMH5		0.121	130.813
CBMH5		0.143	142.465
CBMH6	Storage	0	0
CBMH6		0.033	9.93
CBMH6		0.083	63.976
CBMH6		0.112	116.892
CBMH6		0.134	127.873
CBMH8	Storage	0	0
CBMH8		0.051	48.898
CBMH8		0.101	190.155
CBMH8		0.13	314.421
CBMH8		0.152	314.421
CBMH9	Storage	0	0
CBMH9		0.081	115.731
CBMH9		0.131	301.802
CBMH9		0.16	450.914
CBMH9		0.182	450.914

```
J19             Storage    0          0
J19                        0.3        394

J2              Storage    0          0
J2                         0.3        249

J3              Storage    0          0
J3                         0.3        218

J4              Storage    0          0
J4                         0.1        187
J4                         0.3        187

J5              Storage    0          0
J5                         0.3        218

J6              Storage    0          0
J6                         0.3        347

J7              Storage    0          0
J7                         0.3        469.5

J8              Storage    0          0
J8                         0.3        325

UG_Storage      Storage    0          122
UG_Storage                 0.647      122

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
;;;
Chicago100yr     FILE "C:\Users\nnartey\Desktop\Reference Docs\100 year Chicago
(1).dat"

Chicago5yr       FILE "C:\Users\nnartey\Desktop\Reference Docs\Chicago 5 year
(1).dat"

;;;
SCS100yr         FILE "C:\Users\nnartey\Desktop\Reference Docs\100 Year Scs
(1).dat"

UrbanStress      FILE "C:\Users\nnartey\Desktop\Reference Docs\ust (2).dat"

WaterQuality               0:00       1.78
WaterQuality               0:15       2.13
WaterQuality               0:30       2.70
WaterQuality               0:45       3.72
WaterQuality               1:00       6.21
WaterQuality               1:15       16.41
WaterQuality               1:30       57.83
WaterQuality               1:45       11.58
WaterQuality               2:00       6.48
WaterQuality               2:15       4.53
WaterQuality               2:30       3.51
WaterQuality               2:45       2.88
WaterQuality               3:00       2.45
WaterQuality               3:15       2.14
```

```
WaterQuality                3:30       1.91
WaterQuality                3:45       1.72
WaterQuality                4:00       0

[REPORT]
;;Reporting Options
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[EVENTS]
;;Start Date         End Date
;  03/15/2021  00:00  03/24/2021  00:00

[TAGS]
Subcatch   Roof1            Buildings
Subcatch   Roof2            Buildings
Subcatch   Roof3            Buildings
Subcatch   Roof4            Buildings
Subcatch   S1_10            Buildings
Subcatch   S1_19            Buildings
Subcatch   S1_21            Buildings
Subcatch   S1_23            Buildings
Subcatch   S1_24            Buildings
Subcatch   S1_25            Buildings
Node       CB1              PROPOSED
Node       CB2              PROPOSED
Node       CBMH3            PROPOSED
Node       CBMH4            PROPOSED
Node       CBMH5            PROPOSED
Node       CBMH6            PROPOSED
Node       CBMH7            PROPOSED
Node       CBMH8            PROPOSED
Node       OGS-MH           PROPOSED

[MAP]
DIMENSIONS       330826.61205     4682436.0185     330979.18095     4682644.6335
UNITS            Meters

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
CB1              330947.527         4682498.865
CB2              330939.024         4682517.966
CBMH3            330932.63          4682532.844
CBMH4            330921.792         4682527.55
CBMH5            330905.821         4682519.86
CBMH6            330895.237         4682514.93
CBMH7            330890.973         4682515.551
CBMH8            330900.825         4682502.064
EX-CBMH          330897.508         4682480.379
EX-OGS           330890.483         4682495.899
J1               330907.186         4682448.439
J10              330861.422         4682563.122
J11              330868.196         4682547.628
```

```
J12              330877.024         4682526.744
J13              330880.472         4682570.901
J15              330873.871         4682568.182
J16              330878.126         4682523.977
J17              330902.106         4682534.823
J18              330914.799         4682540.672
J19              330869.418         4682617.31
J2               330900.865         4682537.753
J20              330855.471         4682610.956
J3               330911.146         4682542.532
J4               330928.192         4682560.161
J5               330884.883         4682530.375
J6               330874.825         4682550.283
J7               330911.905         4682577.73
J8               330903.782         4682594.938
J9               330842.582         4682605.215
OGS-MH           330901.985         4682482.561
OF1              330887.87          4682476.728
OF2              330901.3           4682445.501
SU1              330950.379         4682495.814
SU10             330890.791         4682513.808
SU11             330929.437         4682556.564
SU12             330910.842         4682575.918
SU13             330902.234         4682593.184
SU14             330872.656         4682615.24
SU15             330876.274         4682548.349
SU16             330934.81          4682531.91
SU2              330941.111         4682516.842
SU3              330920.363         4682526.106
SU4              330905.879         4682522.382
SU5              330912.375         4682478.491
SU6              330903.208         4682501.058
SU7              330909.11          4682542.516
SU8              330898.526         4682537.309
SU9              330887.577         4682530.934
UG_Storage       330910.848         4682480.356

[VERTICES]
;;Link            X-Coord            Y-Coord
;;--------------- ------------------ ------------------

[POLYGONS]
;;Subcatchment   X-Coord            Y-Coord
;;--------------- ------------------ ------------------
JANISSE          330964.082         4682490.151
JANISSE          330964.199         4682490.216
JANISSE          330972.246         4682472.155
JANISSE          330940.247         4682457.83
JANISSE          330938.992         4682460.682
JANISSE          330905.116         4682445.579
JANISSE          330899.428         4682458.279
JANISSE          330912.011         4682464.445
JANISSE          330912.795         4682464.79
JANISSE          330914.918         4682465.616
JANISSE          330920.091         4682467.669
JANISSE          330920.981         4682468.034
JANISSE          330924.992         4682469.705
```

JANISSE	330929.594	4682471.651
JANISSE	330934.089	4682473.54
JANISSE	330934.927	4682473.879
JANISSE	330935.563	4682474.254
JANISSE	330937.834	4682475.55
JANISSE	330942.298	4682478.119
JANISSE	330945.873	4682480.171
JANISSE	330951.401	4682483.355
JANISSE	330951.854	4682483.609
JANISSE	330953.758	4682484.633
JANISSE	330956.599	4682486.156
JANISSE	330960.321	4682488.127
JANISSE	330962.249	4682489.158
JANISSE	330964.082	4682490.151
Roof1	330936.102	4682503.739
Roof1	330926.271	4682499.618
Roof1	330913.046	4682528.037
Roof1	330922.878	4682532.434
Roof1	330926.075	4682525.567
Roof1	330935.701	4682504.626
Roof1	330936.102	4682503.739
Roof2	330926.271	4682499.618
Roof2	330915.532	4682495.116
Roof2	330914.62	4682497.167
Roof2	330906.98	4682514.486
Roof2	330902.818	4682523.463
Roof2	330913.046	4682528.037
Roof2	330926.271	4682499.618
Roof3	330926.271	4682499.618
Roof3	330936.102	4682503.739
Roof3	330944.399	4682485.369
Roof3	330946.691	4682480.651
Roof3	330937.564	4682475.35
Roof3	330926.271	4682499.618
Roof4	330915.532	4682495.116
Roof4	330926.271	4682499.618
Roof4	330937.564	4682475.35
Roof4	330934.898	4682473.802
Roof4	330926.533	4682470.365
Roof4	330915.532	4682495.116
S1	330950.55	4682513.445
S1	330953.334	4682514.601
S1	330964.199	4682490.216
S1	330964.082	4682490.151
S1	330962.249	4682489.158
S1	330960.321	4682488.127
S1	330956.599	4682486.156
S1	330953.758	4682484.633
S1	330951.854	4682483.609
S1	330951.401	4682483.355
S1	330946.691	4682480.642
S1	330944.399	4682485.36
S1	330935.701	4682504.617
S1	330940.638	4682507.042
S1	330945.444	4682511.081
S1	330950.55	4682513.445
S1_10	330870.509	4682596.623

S1_10	330859.137	4682592.404
S1_10	330851.707	4682609.229
S1_10	330849.762	4682613.11
S1_10	330856.829	4682616.235
S1_10	330860.602	4682617.903
S1_10	330866.204	4682604.776
S1_10	330866.934	4682605.105
S1_10	330870.509	4682596.623
S1_12	330922.868	4682560.194
S1_12	330910.015	4682556.782
S1_12	330910.154	4682556.845
S1_12	330899.578	4682581.384
S1_12	330919.455	4682590.633
S1_12	330931.233	4682564.209
S1_12	330922.868	4682560.194
S1_13	330864.785	4682570.618
S1_13	330851.714	4682565.234
S1_13	330833.547	4682605.941
S1_13	330846.087	4682611.486
S1_13	330848.119	4682607.715
S1_13	330864.785	4682570.618
S1_14	330891.798	4682548.527
S1_14	330864.929	4682535.621
S1_14	330856.422	4682554.684
S1_14	330883.519	4682565.109
S1_14	330891.798	4682548.527
S1_15	330887.477	4682546.451
S1_15	330896.345	4682526.016
S1_15	330894.047	4682524.986
S1_15	330873.746	4682515.865
S1_15	330864.929	4682535.621
S1_15	330887.477	4682546.451
S1_16	330925.793	4682539.216
S1_16	330917.204	4682558.69
S1_16	330922.868	4682560.194
S1_16	330931.233	4682564.209
S1_16	330939.612	4682545.41
S1_16	330925.793	4682539.216
S1_17	330911.112	4682532.635
S1_17	330901.55	4682552.973
S1_17	330910.015	4682556.782
S1_17	330917.204	4682558.69
S1_17	330925.793	4682539.216
S1_17	330925.762	4682539.202
S1_17	330911.112	4682532.635
S1_18	330919.455	4682590.633
S1_18	330899.578	4682581.384
S1_18	330887.761	4682608.803
S1_18	330907.299	4682617.907
S1_18	330919.455	4682590.633
S1_19	330875.953	4682609.169
S1_19	330901.365	4682552.89
S1_19	330891.914	4682548.638
S1_19	330891.709	4682548.705
S1_19	330883.718	4682564.71
S1_19	330883.739	4682564.762
S1_19	330879.114	4682576.592

S1_19	330878.945	4682576.604
S1_19	330866.934	4682605.105
S1_19	330875.953	4682609.169
S1_2	330883.739	4682564.762
S1_2	330883.718	4682564.71
S1_2	330883.519	4682565.109
S1_2	330856.422	4682554.684
S1_2	330851.714	4682565.234
S1_2	330864.785	4682570.618
S1_2	330864.809	4682570.565
S1_2	330878.997	4682576.481
S1_2	330878.945	4682576.604
S1_2	330879.114	4682576.592
S1_2	330883.739	4682564.762
S1_21	330901.365	4682552.89
S1_21	330875.953	4682609.169
S1_21	330885.137	4682613.308
S1_21	330887.307	4682608.591
S1_21	330887.761	4682608.803
S1_21	330910.154	4682556.845
S1_21	330901.365	4682552.89
S1_22	330901.55	4682552.973
S1_22	330911.112	4682532.635
S1_22	330910.075	4682532.17
S1_22	330896.345	4682526.016
S1_22	330887.477	4682546.451
S1_22	330891.798	4682548.527
S1_22	330891.709	4682548.705
S1_22	330891.914	4682548.638
S1_22	330901.55	4682552.973
S1_23	330859.137	4682592.404
S1_23	330870.509	4682596.623
S1_23	330878.997	4682576.481
S1_23	330875.242	4682574.916
S1_23	330868.163	4682571.964
S1_23	330859.137	4682592.404
S1_24	330859.287	4682592.065
S1_24	330855.649	4682590.954
S1_24	330848.119	4682607.715
S1_24	330846.087	4682611.486
S1_24	330849.762	4682613.11
S1_24	330851.707	4682609.229
S1_24	330859.287	4682592.065
S1_25	330855.649	4682590.954
S1_25	330859.287	4682592.065
S1_25	330868.163	4682571.964
S1_25	330864.809	4682570.565
S1_25	330855.649	4682590.954
S1_8	330866.204	4682604.776
S1_8	330860.602	4682617.903
S1_8	330899.613	4682635.151
S1_8	330907.299	4682617.907
S1_8	330887.307	4682608.591
S1_8	330885.137	4682613.308
S1_8	330866.204	4682604.776
S2	330930.046	4682527.256
S2	330945.416	4682532.372

S2	330953.334	4682514.601
S2	330950.55	4682513.445
S2	330945.444	4682511.081
S2	330940.638	4682507.042
S2	330935.801	4682504.667
S2	330926.075	4682525.558
S2	330930.046	4682527.256
S3	330931.007	4682527.575
S3	330925.762	4682539.193
S3	330939.612	4682545.401
S3	330945.416	4682532.372
S3	330931.007	4682527.575
S4	330912.054	4682527.584
S4	330910.075	4682532.161
S4	330925.762	4682539.193
S4	330931.007	4682527.575
S4	330930.046	4682527.256
S4	330926.075	4682525.558
S4	330922.878	4682532.425
S4	330912.054	4682527.584
S5	330910.075	4682532.161
S5	330912.054	4682527.584
S5	330902.818	4682523.454
S5	330906.923	4682514.454
S5	330905.178	4682513.746
S5	330900.149	4682511.404
S5	330894.046	4682524.977
S5	330910.075	4682532.161
s6	330894.046	4682524.977
s6	330900.149	4682511.404
s6	330879.856	4682502.15
s6	330873.745	4682515.856
s6	330894.046	4682524.977
S7	330906.98	4682514.477
S7	330914.462	4682497.093
S7	330907.912	4682494.365
S7	330897.543	4682489.413
S7	330887.482	4682485.126
S7	330881.161	4682499.194
S7	330879.857	4682502.16
S7	330905.178	4682513.746
S7	330906.98	4682514.477
S8	330925.439	4682472.619
S8	330926.533	4682470.356
S8	330924.992	4682469.705
S8	330920.981	4682468.034
S8	330920.091	4682467.669
S8	330914.918	4682465.616
S8	330912.795	4682464.79
S8	330912.011	4682464.445
S8	330899.428	4682458.279
S8	330899.414	4682458.31
S8	330894.394	4682469.627
S8	330893.452	4682471.82
S8	330889.104	4682481.361
S8	330887.482	4682485.116
S8	330887.466	4682485.118

```
S8               330897.543         4682489.413
S8               330907.912         4682494.365
S8               330914.62          4682497.158
S8               330925.439         4682472.619

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

MODEL OUTPUT DATA - WATER QUALITY STORM

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
  ---------------------------------------------------------------


  *************
  Element Count
  *************
  Number of rain gages ...... 1
  Number of subcatchments ... 29
  Number of nodes ........... 49
  Number of links ........... 47
  Number of pollutants ...... 0
  Number of land uses ....... 0


  ****************
  Raingage Summary
  ****************
                                                          Data       Recording
  Name                 Data Source                        Type       Interval
  ------------------------------------------------------------------------
  Raingage1            WaterQuality                       INTENSITY   15 min.


  ********************
  Subcatchment Summary
  ********************
  Name                         Area     Width    %Imperv    %Slope Rain Gage
Outlet
  ------------------------------------------------------------------------------------
--------------------------
  JANISSE                      0.12     16.66       0.00    0.5000 Raingage1
J1
  Roof1                        0.03     11.27     100.00    0.5000 Raingage1
SU2
  Roof2                        0.04     11.83     100.00    0.5000 Raingage1
SU6
  Roof3                        0.03      9.17     100.00    0.5000 Raingage1
SU1
  Roof4                        0.03     10.73     100.00    0.5000 Raingage1
SU5
  S1                           0.05     30.69      85.00    0.5000 Raingage1
SU1
  S1_10                        0.03      5.15      90.00    0.5000 Raingage1
J20
  S1_12                        0.06     27.22      80.00    0.5000 Raingage1
J7
  S1_13                        0.06     15.72      10.00    0.5000 Raingage1
J9
  S1_14                        0.06     25.17      90.00    0.5000 Raingage1
SU15
  S1_15                        0.05     27.30      50.00    0.5000 Raingage1
SU9
  S1_16                        0.03     15.55      70.00    0.5000 Raingage1
SU11
  S1_17                        0.04     21.35      95.00    0.5000 Raingage1
SU7
  S1_18                        0.06     28.22      80.00    0.5000 Raingage1
```

S1_19	0.07	13.60	100.00	0.5000	Raingage1
J13					
S1_2	0.03	15.86	50.00	0.5000	Raingage1
J10					
S1_21	0.06	10.42	100.00	0.5000	Raingage1
SU12					
S1_22	0.04	23.67	95.00	0.5000	Raingage1
SU8					
S1_23	0.03	4.98	90.00	0.5000	Raingage1
J15					
S1_24	0.01	1.69	90.00	0.5000	Raingage1
J9					
S1_25	0.01	1.58	90.00	0.5000	Raingage1
J10					
S1_8	0.07	17.88	90.00	0.5000	Raingage1
SU14					
S2	0.04	26.81	85.00	0.5000	Raingage1
SU2					
S3	0.02	13.67	25.00	0.5000	Raingage1
SU16					
S4	0.01	10.58	100.00	0.5000	Raingage1
SU3					
S5	0.02	12.31	100.00	0.5000	Raingage1
SU4					
s6	0.03	18.50	66.00	0.5000	Raingage1
SU10					
S7	0.06	27.95	66.00	0.5000	Raingage1
SU6					
S8	0.09	34.52	66.00	0.5000	Raingage1
SU5					

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB1	JUNCTION	180.31	0.94	0.0	
CB2	JUNCTION	180.26	1.04	0.0	
CBMH3	JUNCTION	180.22	1.13	0.0	
CBMH4	JUNCTION	180.19	1.12	0.0	
CBMH5	JUNCTION	180.15	1.16	0.0	
CBMH6	JUNCTION	180.12	1.19	0.0	
CBMH7	JUNCTION	180.16	1.16	0.0	
CBMH8	JUNCTION	180.09	1.21	0.0	
EX-CBMH	JUNCTION	180.01	1.49	0.0	
EX-OGS	JUNCTION	180.24	1.26	0.0	
J1	JUNCTION	100.00	2.00	0.0	
J10	JUNCTION	180.46	2.20	0.0	
J11	JUNCTION	180.41	1.05	0.0	
J12	JUNCTION	180.34	1.16	0.0	
J13	JUNCTION	180.93	1.73	0.0	
J15	JUNCTION	180.87	1.78	0.0	
J16	JUNCTION	180.33	1.17	0.0	
J17	JUNCTION	180.35	1.11	0.0	
J18	JUNCTION	180.39	1.06	0.0	
J19	JUNCTION	181.06	2.69	0.0	

J2	JUNCTION	180.53	0.93	0.0
J20	JUNCTION	180.94	3.02	0.0
J3	JUNCTION	180.50	0.95	0.0
J4	JUNCTION	180.46	1.29	0.0
J5	JUNCTION	180.47	0.98	0.0
J6	JUNCTION	180.54	0.92	0.0
J7	JUNCTION	180.59	0.86	0.0
J8	JUNCTION	180.74	0.71	0.0
J9	JUNCTION	180.83	3.12	0.0
OGS-MH	JUNCTION	180.03	1.24	0.0
OF1	OUTFALL	180.01	0.75	0.0
OF2	OUTFALL	99.00	1.00	0.0
SU1	STORAGE	181.24	0.21	0.0
SU10	STORAGE	181.32	0.13	0.0
SU11	STORAGE	181.45	0.30	0.0
SU12	STORAGE	181.45	0.30	0.0
SU13	STORAGE	181.45	0.30	0.0
SU14	STORAGE	183.45	0.30	0.0
SU15	STORAGE	181.45	0.30	0.0
SU16	STORAGE	181.35	0.10	0.0
SU2	STORAGE	181.29	0.16	0.0
SU3	STORAGE	181.31	0.14	0.0
SU4	STORAGE	181.31	0.14	0.0
SU5	STORAGE	181.27	0.18	0.0
SU6	STORAGE	181.30	0.15	0.0
SU7	STORAGE	181.45	0.30	0.0
SU8	STORAGE	181.45	0.30	0.0
SU9	STORAGE	181.45	0.30	0.0
UG_Storage	STORAGE	180.04	0.78	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	% Slope	Roughness
C1	CB1	CB2	CONDUIT	21.3	0.2300	0.0130
C10	EX-CBMH	OF1	CONDUIT	9.8	0.0612	0.0130
C11	CB2	CBMH3	CONDUIT	15.2	0.2303	0.0130
C12	CBMH3	CBMH4	CONDUIT	13.5	0.2300	0.0130
C13	J1	OF2	CONDUIT	6.6	15.3690	0.0130
C14	J16	EX-OGS	CONDUIT	30.7	0.2771	0.0130
C15	J5	J12	CONDUIT	8.7	1.5820	0.0130
C16	J6	J11	CONDUIT	7.1	1.8198	0.0130
C17	J11	J12	CONDUIT	22.7	0.2998	0.0130
C18	J10	J11	CONDUIT	16.9	0.3014	0.0130

C19		J9	J10	CONDUIT	46.1
0.8130	0.0130				
C2		CBMH4	CBMH5	CONDUIT	17.7
0.2489	0.0130				
C20		EX-OGS	EX-CBMH	CONDUIT	17.0
0.5574	0.0100				
C21		J15	J10	CONDUIT	13.4
0.7970	0.0130				
C22		J13	J15	CONDUIT	7.2
0.8104	0.0130				
C23		J8	J7	CONDUIT	19.0
0.7827	0.0130				
C24		J7	J4	CONDUIT	24.0
0.5592	0.0130				
C25		J4	J18	CONDUIT	23.7
0.2998	0.0130				
C26		J18	J17	CONDUIT	14.0
0.3007	0.0130				
C27		J17	J16	CONDUIT	26.3
0.0684	0.0130				
C28		J2	J17	CONDUIT	3.2
5.6216	0.0130				
C29		J3	J18	CONDUIT	4.1
2.7714	0.0130				
C3		CBMH5	CBMH6	CONDUIT	11.5
0.2265	0.0130				
C30		J19	J20	CONDUIT	15.3
0.8152	0.0130				
C31		J20	J9	CONDUIT	14.1
0.7510	0.0130				
C32		J12	J16	CONDUIT	3.0
0.3014	0.0130				
C33		OGS-MH	EX-CBMH	CONDUIT	5.0
0.2222	0.0100				
C4		CBMH7	CBMH6	CONDUIT	4.2
0.7802	0.0130				
C5		CBMH6	CBMH8	CONDUIT	14.6
0.2332	0.0130				
C6		CBMH8	UG_Storage	CONDUIT	23.1
0.2290	0.0130				
C9		UG_Storage	OGS-MH	ORIFICE	
OR1		SU11	J4	ORIFICE	
OR10		SU6	CBMH8	ORIFICE	
OR11		SU2	CB2	ORIFICE	
OR12		SU1	CB1	ORIFICE	
OR13		SU12	J7	ORIFICE	
OR14		SU14	J19	ORIFICE	
OR15		SU9	J5	ORIFICE	
OR16		SU5	UG_Storage	ORIFICE	
OR2		SU13	J8	ORIFICE	
OR3		SU15	J6	ORIFICE	
OR4		SU7	J3	ORIFICE	
OR5		SU8	J2	ORIFICE	
OR6		SU16	CBMH3	ORIFICE	
OR7		SU3	CBMH4	ORIFICE	
OR8		SU4	CBMH5	ORIFICE	
OR9		SU10	CBMH7	ORIFICE	

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C10	CIRCULAR	0.75	0.44	0.19	0.75	1	0.28
C11	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C12	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C13	CIRCULAR	1.00	0.79	0.25	1.00	1	9.40
C14	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C15	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C16	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C19	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C21	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C22	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C23	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C24	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C25	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.03
C28	CIRCULAR	0.15	0.02	0.04	0.15	1	0.04
C29	CIRCULAR	0.15	0.02	0.04	0.15	1	0.03
C3	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C30	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C31	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	

C33	CIRCULAR	0.38	0.11	0.09	0.38	1
0.11						
C4	CIRCULAR	0.15	0.02	0.04	0.15	1
0.01						
C5	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						
C6	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						

****
Transect Summary
****

Transect PondSpillway1
Area:

0.0005	0.0019	0.0043	0.0076	0.0119
0.0172	0.0234	0.0306	0.0387	0.0477
0.0578	0.0688	0.0807	0.0936	0.1074
0.1222	0.1380	0.1547	0.1724	0.1910
0.2104	0.2304	0.2510	0.2720	0.2935
0.3156	0.3382	0.3613	0.3849	0.4090
0.4337	0.4588	0.4845	0.5107	0.5374
0.5646	0.5924	0.6206	0.6494	0.6787
0.7085	0.7388	0.7697	0.8010	0.8329
0.8653	0.8982	0.9316	0.9655	1.0000

Hrad:

0.0174	0.0348	0.0522	0.0696	0.0870
0.1044	0.1218	0.1392	0.1566	0.1740
0.1914	0.2088	0.2262	0.2436	0.2610
0.2784	0.2958	0.3132	0.3306	0.3480
0.3710	0.3958	0.4203	0.4444	0.4682
0.4917	0.5149	0.5378	0.5605	0.5830
0.6052	0.6273	0.6492	0.6708	0.6924
0.7137	0.7349	0.7560	0.7769	0.7977
0.8184	0.8390	0.8594	0.8798	0.9000
0.9202	0.9403	0.9603	0.9802	1.0000

Width:

0.0275	0.0550	0.0825	0.1100	0.1375
0.1650	0.1926	0.2201	0.2476	0.2751
0.3026	0.3301	0.3576	0.3851	0.4126
0.4401	0.4676	0.4951	0.5227	0.5502
0.5687	0.5836	0.5984	0.6133	0.6282
0.6431	0.6579	0.6728	0.6877	0.7026
0.7174	0.7323	0.7472	0.7620	0.7769
0.7918	0.8067	0.8215	0.8364	0.8513
0.8661	0.8810	0.8959	0.9108	0.9256
0.9405	0.9554	0.9703	0.9851	1.0000

Transect PondSpillway2
Area:

0.0006	0.0023	0.0052	0.0092	0.0144
0.0207	0.0281	0.0367	0.0465	0.0574
0.0695	0.0827	0.0970	0.1125	0.1292
0.1470	0.1659	0.1860	0.2072	0.2291
0.2513	0.2736	0.2963	0.3191	0.3422

```
            0.3656     0.3892     0.4131     0.4372     0.4615
            0.4861     0.5109     0.5360     0.5613     0.5869
            0.6127     0.6388     0.6651     0.6916     0.7185
            0.7455     0.7728     0.8003     0.8281     0.8562
            0.8844     0.9130     0.9417     0.9707     1.0000
Hrad:
            0.0147     0.0295     0.0442     0.0590     0.0737
            0.0885     0.1032     0.1179     0.1327     0.1474
            0.1622     0.1769     0.1916     0.2064     0.2211
            0.2359     0.2506     0.2654     0.2808     0.3069
            0.3328     0.3584     0.3838     0.4090     0.4339
            0.4586     0.4831     0.5074     0.5315     0.5553
            0.5790     0.6026     0.6259     0.6491     0.6721
            0.6949     0.7176     0.7401     0.7625     0.7848
            0.8069     0.8288     0.8506     0.8723     0.8939
            0.9154     0.9367     0.9579     0.9790     1.0000
Width:
            0.0391     0.0781     0.1172     0.1563     0.1954
            0.2344     0.2735     0.3126     0.3517     0.3907
            0.4298     0.4689     0.5080     0.5470     0.5861
            0.6252     0.6643     0.7033     0.7406     0.7489
            0.7573     0.7657     0.7740     0.7824     0.7908
            0.7991     0.8075     0.8159     0.8243     0.8326
            0.8410     0.8494     0.8577     0.8661     0.8745
            0.8828     0.8912     0.8996     0.9079     0.9163
            0.9247     0.9330     0.9414     0.9498     0.9582
            0.9665     0.9749     0.9833     0.9916     1.0000

Transect PondSpillway3
Area:
            0.0005     0.0019     0.0043     0.0077     0.0120
            0.0172     0.0234     0.0306     0.0387     0.0478
            0.0579     0.0689     0.0808     0.0937     0.1076
            0.1224     0.1382     0.1550     0.1727     0.1913
            0.2109     0.2314     0.2525     0.2741     0.2961
            0.3186     0.3416     0.3650     0.3889     0.4133
            0.4382     0.4635     0.4893     0.5155     0.5423
            0.5695     0.5972     0.6253     0.6540     0.6831
            0.7126     0.7427     0.7732     0.8042     0.8356
            0.8676     0.9000     0.9328     0.9662     1.0000
Hrad:
            0.0170     0.0341     0.0511     0.0681     0.0851
            0.1022     0.1192     0.1362     0.1532     0.1703
            0.1873     0.2043     0.2213     0.2384     0.2554
            0.2724     0.2894     0.3065     0.3235     0.3405
            0.3575     0.3781     0.4034     0.4283     0.4529
            0.4772     0.5012     0.5250     0.5484     0.5717
            0.5946     0.6174     0.6400     0.6623     0.6845
            0.7065     0.7283     0.7500     0.7715     0.7929
            0.8141     0.8352     0.8562     0.8771     0.8978
            0.9185     0.9390     0.9594     0.9798     1.0000
Width:
            0.0281     0.0562     0.0843     0.1124     0.1405
            0.1685     0.1966     0.2247     0.2528     0.2809
            0.3090     0.3371     0.3652     0.3933     0.4214
            0.4495     0.4776     0.5056     0.5337     0.5618
            0.5899     0.6122     0.6260     0.6399     0.6537
```

0.6676 0.6814 0.6953 0.7091 0.7230
0.7368 0.7507 0.7645 0.7784 0.7922
0.8061 0.8199 0.8338 0.8476 0.8615
0.8753 0.8892 0.9030 0.9169 0.9307
0.9446 0.9584 0.9723 0.9861 1.0000

Transect Road
Area:
0.0005 0.0019 0.0043 0.0077 0.0120
0.0173 0.0236 0.0308 0.0390 0.0481
0.0582 0.0693 0.0813 0.0943 0.1083
0.1232 0.1393 0.1563 0.1740 0.1922
0.2109 0.2303 0.2502 0.2706 0.2916
0.3132 0.3354 0.3581 0.3813 0.4052
0.4296 0.4545 0.4800 0.5061 0.5328
0.5600 0.5877 0.6161 0.6450 0.6744
0.7045 0.7350 0.7662 0.7979 0.8302
0.8630 0.8964 0.9304 0.9649 1.0000
Hrad:
0.0205 0.0410 0.0615 0.0820 0.1025
0.1230 0.1435 0.1640 0.1845 0.2050
0.2255 0.2460 0.2665 0.2870 0.3075
0.3280 0.3441 0.3834 0.4208 0.4563
0.4899 0.5219 0.5522 0.5811 0.6084
0.6345 0.6592 0.6828 0.7052 0.7266
0.7469 0.7663 0.7848 0.8024 0.8193
0.8354 0.8508 0.8655 0.8795 0.8930
0.9058 0.9181 0.9299 0.9413 0.9521
0.9625 0.9724 0.9820 0.9912 1.0000
Width:
0.0272 0.0544 0.0816 0.1089 0.1361
0.1633 0.1905 0.2177 0.2449 0.2721
0.2994 0.3266 0.3538 0.3810 0.4082
0.4354 0.4748 0.4907 0.5066 0.5225
0.5385 0.5544 0.5703 0.5862 0.6021
0.6180 0.6340 0.6499 0.6658 0.6817
0.6976 0.7135 0.7294 0.7454 0.7613
0.7772 0.7931 0.8090 0.8249 0.8408
0.8568 0.8727 0.8886 0.9045 0.9204
0.9363 0.9523 0.9682 0.9841 1.0000

Transect Road2
Area:
0.0006 0.0023 0.0051 0.0091 0.0142
0.0205 0.0279 0.0364 0.0461 0.0569
0.0689 0.0820 0.0962 0.1116 0.1281
0.1458 0.1646 0.1844 0.2044 0.2248
0.2456 0.2667 0.2881 0.3100 0.3321
0.3546 0.3775 0.4007 0.4243 0.4482
0.4724 0.4971 0.5220 0.5473 0.5730
0.5990 0.6254 0.6521 0.6792 0.7066
0.7343 0.7625 0.7909 0.8197 0.8489
0.8784 0.9083 0.9385 0.9691 1.0000
Hrad:
0.0167 0.0335 0.0502 0.0670 0.0837
0.1004 0.1172 0.1339 0.1507 0.1674
0.1841 0.2009 0.2176 0.2344 0.2511

	0.2678	0.2897	0.3213	0.3521	0.3820
	0.4111	0.4395	0.4671	0.4939	0.5201
	0.5456	0.5704	0.5946	0.6182	0.6411
	0.6635	0.6854	0.7067	0.7274	0.7477
	0.7675	0.7867	0.8056	0.8240	0.8419
	0.8594	0.8765	0.8932	0.9096	0.9255
	0.9411	0.9563	0.9712	0.9858	1.0000
Width:					
	0.0366	0.0732	0.1099	0.1465	0.1831
	0.2197	0.2563	0.2930	0.3296	0.3662
	0.4028	0.4394	0.4761	0.5127	0.5493
	0.5859	0.6282	0.6394	0.6507	0.6620
	0.6732	0.6845	0.6958	0.7070	0.7183
	0.7296	0.7408	0.7521	0.7634	0.7746
	0.7859	0.7972	0.8085	0.8197	0.8310
	0.8423	0.8535	0.8648	0.8761	0.8873
	0.8986	0.9099	0.9211	0.9324	0.9437
	0.9549	0.9662	0.9775	0.9887	1.0000

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
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 ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 03/15/2021 00:00:00
Ending Date 03/26/2021 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:15:00
Wet Time Step 00:15:00
Dry Time Step 00:15:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 4
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------

Total Precipitation	0.041	31.995
Evaporation Loss	0.000	0.000
Infiltration Loss	0.009	7.221
Surface Runoff	0.032	24.714
Final Storage	0.001	0.473
Continuity Error (%)	-1.292	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.032	0.316
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.032	0.316
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 (%)	0.022	

Time-Step Critical Elements

Link C32 (3.65%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	0.50 sec
Average Time Step	:	4.89 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	2.00
Percent Not Converging	:	0.01
Time Step Frequencies	:	
5.000 - 3.155 sec	:	96.50 %
3.155 - 1.991 sec	:	1.93 %
1.991 - 1.256 sec	:	0.83 %
1.256 - 0.792 sec	:	0.53 %
0.792 - 0.500 sec	:	0.21 %

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
JANISSE	31.99	0.00	0.00	29.55	0.00	2.63	2.63	0.00	0.00	0.082
Roof1	32.00	0.00	0.00	0.00	32.21	0.00	32.21	0.01	0.01	1.007
Roof2	32.00	0.00	0.00	0.00	32.21	0.00	32.21	0.01	0.01	1.007
Roof3	32.00	0.00	0.00	0.00	32.21	0.00	32.21	0.01	0.00	1.007
Roof4	32.00	0.00	0.00	0.00	32.21	0.00	32.21	0.01	0.01	1.007
S1	31.99	0.00	0.00	4.13	25.20	1.29	26.49	0.01	0.01	0.828
S1_10	32.00	0.00	0.00	2.02	29.03	1.28	30.31	0.01	0.00	0.947
S1_12	32.00	0.00	0.00	4.03	25.66	2.54	28.20	0.02	0.01	0.881
S1_13	31.99	0.00	0.00	19.14	3.20	10.45	13.65	0.01	0.00	0.427
S1_14	32.00	0.00	0.00	2.00	28.87	1.24	30.11	0.02	0.01	0.941
S1_15	32.00	0.00	0.00	10.17	16.02	6.45	22.47	0.01	0.01	0.702
S1_16	32.00	0.00	0.00	6.06	22.44	3.85	26.29	0.01	0.00	0.822
S1_17	32.00	0.00	0.00	1.00	30.46	0.61	31.07	0.01	0.01	0.971
S1_18	31.99	0.00	0.00	4.03	25.66	2.54	28.20	0.02	0.01	0.881
S1_19	32.00	0.00	0.00	0.00	32.26	0.00	32.26	0.02	0.01	1.008
S1_2	32.00	0.00	0.00	10.19	16.02	6.44	22.46	0.01	0.00	0.702
S1_21	31.99	0.00	0.00	0.00	32.33	0.00	32.33	0.02	0.01	1.010
S1_22	32.00	0.00	0.00	1.00	30.45	0.61	31.06	0.01	0.01	0.971
S1_23	31.99	0.00	0.00	2.02	29.03	1.28	30.31	0.01	0.00	0.947
S1_24	32.00	0.00	0.00	2.02	29.02	1.28	30.30	0.00	0.00	0.947
S1_25	32.00	0.00	0.00	2.02	29.02	1.28	30.30	0.00	0.00	0.947
S1_8	32.00	0.00	0.00	2.01	28.96	1.26	30.22	0.02	0.01	0.945
S2	32.00	0.00	0.00	4.13	25.19	1.33	26.52	0.01	0.01	0.829
S3	32.00	0.00	0.00	21.01	7.41	3.85	11.25	0.00	0.00	0.352
S4	32.00	0.00	0.00	0.00	29.62					

```
  S5                        32.00       0.00       0.00       0.00       29.63
0.00       29.63        0.00     0.00   0.926
  s6                        32.00       0.00       0.00       9.43       19.55
2.15       21.69        0.01     0.00   0.678
  S7                        32.00       0.00       0.00       9.45       19.56
2.07       21.62        0.01     0.01   0.676
  S8                        32.00       0.00       0.00       9.48       19.58
1.91       21.49        0.02     0.01   0.672
```

****
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
CB1	JUNCTION	0.00	0.17	180.47	0 01:58	0.16
CB2	JUNCTION	0.00	0.22	180.47	0 01:58	0.21
CBMH3	JUNCTION	0.00	0.25	180.47	0 01:58	0.25
CBMH4	JUNCTION	0.00	0.28	180.47	0 01:58	0.28
CBMH5	JUNCTION	0.01	0.33	180.47	0 01:58	0.32
CBMH6	JUNCTION	0.01	0.35	180.47	0 01:58	0.35
CBMH7	JUNCTION	0.00	0.32	180.47	0 01:58	0.31
CBMH8	JUNCTION	0.01	0.38	180.47	0 01:58	0.38
EX-CBMH	JUNCTION	0.00	0.22	180.24	0 01:47	0.21
EX-OGS	JUNCTION	0.00	0.25	180.49	0 01:47	0.23
J1	JUNCTION	0.00	0.01	100.01	0 02:00	0.01
J10	JUNCTION	0.00	0.24	180.70	0 01:46	0.23
J11	JUNCTION	0.00	0.27	180.67	0 01:46	0.25
J12	JUNCTION	0.00	0.29	180.63	0 01:47	0.27
J13	JUNCTION	0.00	0.10	181.03	0 01:45	0.10
J15	JUNCTION	0.00	0.13	181.00	0 01:45	0.13
J16	JUNCTION	0.00	0.29	180.62	0 01:47	0.28
J17	JUNCTION	0.00	0.32	180.67	0 01:47	0.29
J18	JUNCTION	0.00	0.30	180.68	0 01:47	0.27
J19	JUNCTION	0.00	0.70	181.76	0 01:45	0.66
J2	JUNCTION	0.00	0.14	180.67	0 01:47	0.12
J20	JUNCTION	0.00	0.74	181.68	0 01:45	0.71
J3	JUNCTION	0.00	0.19	180.69	0 01:47	0.16
J4	JUNCTION	0.00	0.24	180.70	0 01:47	0.21
J5	JUNCTION	0.00	0.17	180.65	0 01:46	0.16
J6	JUNCTION	0.00	0.16	180.70	0 01:46	0.14
J7	JUNCTION	0.00	0.27	180.87	0 01:46	0.24
J8	JUNCTION	0.00	0.19	180.94	0 01:46	0.14
J9	JUNCTION	0.00	0.72	181.55	0 01:45	0.69
OGS-MH	JUNCTION	0.00	0.21	180.24	0 01:47	0.20
OF1	OUTFALL	0.00	0.20	180.20	0 01:47	0.19
OF2	OUTFALL	0.00	0.01	99.01	0 02:00	0.01
SU1	STORAGE	0.00	0.03	181.27	0 01:45	0.03
SU10	STORAGE	0.00	0.01	181.33	0 01:45	0.01
SU11	STORAGE	0.00	0.02	181.47	0 01:45	0.02
SU12	STORAGE	0.00	0.03	181.48	0 01:45	0.03
SU13	STORAGE	0.00	0.03	181.48	0 01:45	0.03
SU14	STORAGE	0.00	0.03	183.48	0 01:45	0.03

SU15	STORAGE	0.00	0.02	181.48	0	01:45	0.02
SU16	STORAGE	0.01	0.01	181.36	0	01:45	0.01
SU2	STORAGE	0.00	0.03	181.32	0	01:45	0.03
SU3	STORAGE	0.00	0.01	181.32	0	01:45	0.01
SU4	STORAGE	0.00	0.01	181.32	0	01:45	0.01
SU5	STORAGE	0.00	0.03	181.30	0	01:45	0.03
SU6	STORAGE	0.00	0.03	181.33	0	01:45	0.03
SU7	STORAGE	0.00	0.02	181.47	0	01:45	0.02
SU8	STORAGE	0.00	0.02	181.47	0	01:45	0.02
SU9	STORAGE	0.00	0.02	181.47	0	01:45	0.02
UG_Storage	STORAGE	0.01	0.43	180.47	0	01:58	0.43

****
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
CB1	JUNCTION	0.000	0.012	0	01:45	0	0.0231	-0.038
CB2	JUNCTION	0.000	0.023	0	01:45	0	0.0453	-0.004
CBMH3	JUNCTION	0.000	0.024	0	01:45	0	0.0476	0.002
CBMH4	JUNCTION	0.000	0.025	0	01:45	0	0.0514	-0.008
CBMH5	JUNCTION	0.000	0.026	0	01:46	0	0.0562	0.016
CBMH6	JUNCTION	0.000	0.029	0	01:46	0	0.0634	0.001
CBMH7	JUNCTION	0.000	0.004	0	01:45	0	0.00722	0.008
CBMH8	JUNCTION	0.000	0.039	0	01:45	0	0.0869	-0.030
EX-CBMH	JUNCTION	0.000	0.109	0	01:47	0	0.315	-0.002
EX-OGS	JUNCTION	0.000	0.096	0	01:47	0	0.197	0.002
J1	JUNCTION	0.001	0.001	0	02:00	0.00307	0.00307	0.004
J10	JUNCTION	0.006	0.041	0	01:45	0.0103	0.0806	0.010
J11	JUNCTION	0.000	0.049	0	01:45	0	0.098	0.001
J12	JUNCTION	0.000	0.055	0	01:45	0	0.11	-0.001
J13	JUNCTION	0.010	0.010	0	01:45	0.0211	0.0211	0.000

J15	JUNCTION	0.004	0.014	0	01:45	0.008	0.0291	0.003
J16	JUNCTION	0.000	0.096	0	01:46	0	0.197	0.000
J17	JUNCTION	0.000	0.043	0	01:43	0	0.0867	-0.006
J18	JUNCTION	0.000	0.036	0	01:47	0	0.0756	-0.001
J19	JUNCTION	0.000	0.011	0	01:45	0	0.0216	-0.154
J2	JUNCTION	0.000	0.007	0	01:41	0	0.0111	0.036
J20	JUNCTION	0.004	0.015	0	01:45	0.00827	0.0299	-0.007
J3	JUNCTION	0.000	0.006	0	01:39	0	0.0113	0.034
J4	JUNCTION	0.000	0.032	0	01:46	0	0.0643	-0.016
J5	JUNCTION	0.000	0.007	0	01:45	0	0.0123	0.003
J6	JUNCTION	0.000	0.009	0	01:45	0	0.0174	0.006
J7	JUNCTION	0.010	0.028	0	01:45	0.0177	0.0562	0.018
J8	JUNCTION	0.000	0.010	0	01:45	0	0.0183	0.006
J9	JUNCTION	0.006	0.021	0	01:45	0.0113	0.0412	-0.015
OGS-MH	JUNCTION	0.000	0.019	0	02:03	0	0.12	0.083
OF1	OUTFALL	0.000	0.109	0	01:47	0	0.313	0.000
OF2	OUTFALL	0.000	0.001	0	02:00	0	0.00307	0.000
SU1	STORAGE	0.012	0.012	0	01:45	0.0231	0.0231	-0.003
SU10	STORAGE	0.004	0.004	0	01:45	0.00722	0.00722	-0.004
SU11	STORAGE	0.005	0.005	0	01:45	0.00817	0.00817	-0.003
SU12	STORAGE	0.010	0.010	0	01:45	0.0202	0.0202	-0.005
SU13	STORAGE	0.010	0.010	0	01:45	0.0183	0.0183	-0.003
SU14	STORAGE	0.011	0.011	0	01:45	0.0216	0.0216	-0.004
SU15	STORAGE	0.009	0.009	0	01:45	0.0174	0.0174	-0.003
SU16	STORAGE	0.001	0.001	0	01:45	0.00231	0.00231	0.101
SU2	STORAGE	0.012	0.012	0	01:45	0.0223	0.0223	-0.003
SU3	STORAGE	0.002	0.002	0	01:45	0.00376	0.00376	-0.006
SU4	STORAGE	0.003	0.003	0	01:45	0.00474	0.00474	-0.005
SU5	STORAGE	0.015	0.015	0	01:45	0.0289	0.0289	-0.002
SU6	STORAGE	0.012	0.012	0	01:45	0.0235	0.0235	-0.003

```
  SU7                   STORAGE      0.006     0.006      0  01:45       0.0113
0.0113       -0.004
  SU8                   STORAGE      0.006     0.006      0  01:45        0.011
0.011        -0.004
  SU9                   STORAGE      0.007     0.007      0  01:45       0.0123
0.0123       -0.002
  UG_Storage            STORAGE      0.000     0.052      0  01:45            0
0.118         0.035


  ***********************
  Node Surcharge Summary
  ***********************

  Surcharging occurs when water rises above the top of the highest conduit.
  -------------------------------------------------------------------------
                                            Max. Height   Min. Depth
                                   Hours    Above Crown    Below Rim
  Node                  Type      Surcharged     Meters       Meters
  -------------------------------------------------------------------------
  J17                   JUNCTION        0.07          0.018        0.788
  J19                   JUNCTION        0.09          0.296        1.994
  J20                   JUNCTION        0.21          0.594        2.271
  J9                    JUNCTION        0.24          0.565        2.406
  UG_Storage            STORAGE         0.32          0.035        0.348


  **********************
  Node Flooding Summary
  **********************

  No nodes were flooded.


  ***********************
  Storage Volume Summary
  ***********************

  ------------------------------------------------------------------------------
-----------------
                         Average     Avg  Evap Exfil       Maximum     Max    Time
of Max    Maximum
                          Volume    Pcnt  Pcnt  Pcnt        Volume    Pcnt
Occurrence    Outflow
  Storage Unit           1000 m3    Full  Loss  Loss       1000 m3    Full    days
hr:min        CMS
  ------------------------------------------------------------------------------
-----------------
  SU1                      0.000       0     0     0         0.000       1       0
01:45      0.012
  SU10                     0.000       0     0     0         0.000       0       0
01:45      0.004
  SU11                     0.000       0     0     0         0.000       0       0
01:45      0.004
  SU12                     0.000       0     0     0         0.001       1       0
01:45      0.010
  SU13                     0.000       0     0     0         0.000       1       0
01:45      0.010
```

SU14		0.000	0	0	0	0.001	1	0
01:45	0.011							
SU15		0.000	0	0	0	0.000	1	0
01:45	0.009							
SU16		0.000	0	0	0	0.000	1	0
01:45	0.001							
SU2		0.000	0	0	0	0.000	2	0
01:45	0.012							
SU3		0.000	0	0	0	0.000	0	0
01:45	0.002							
SU4		0.000	0	0	0	0.000	0	0
01:45	0.003							
SU5		0.000	0	0	0	0.001	2	0
01:45	0.015							
SU6		0.000	0	0	0	0.000	2	0
01:45	0.012							
SU7		0.000	0	0	0	0.000	0	0
01:45	0.006							
SU8		0.000	0	0	0	0.000	0	0
01:45	0.006							
SU9		0.000	0	0	0	0.000	1	0
01:45	0.007							
UG_Storage		0.001	1	0	0	0.053	55	0
01:58	0.019							

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	5.90	0.020	0.109	0.313
OF2	2.37	0.000	0.001	0.003
System	4.13	0.020	0.110	0.316

****
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
C1	CONDUIT	0.012	0	01:45	0.39	0.14	0.51
C10	CONDUIT	0.109	0	01:47	1.08	0.40	0.28
C11	CONDUIT	0.023	0	01:45	0.60	0.27	0.62
C12	CONDUIT	0.023	0	01:45	0.59	0.28	0.71
C13	CONDUIT	0.001	0	02:00	0.97	0.00	0.01
C14	CONDUIT	0.096	0	01:47	1.13	1.04	0.72
C15	CONDUIT	0.007	0	01:45	0.40	0.37	1.00
C16	CONDUIT	0.009	0	01:46	0.50	0.42	1.00

C17	CONDUIT	0.048	0	01:45	0.71	0.91	0.93
C18	CONDUIT	0.040	0	01:45	0.66	0.76	0.84
C19	CONDUIT	0.021	0	01:45	1.17	1.51	1.00
C2	CONDUIT	0.024	0	01:46	0.55	0.27	0.81
C20	CONDUIT	0.096	0	01:47	1.56	1.02	0.81
C21	CONDUIT	0.014	0	01:45	0.95	1.06	0.80
C22	CONDUIT	0.010	0	01:45	0.71	0.76	0.77
C23	CONDUIT	0.009	0	01:46	0.58	0.68	1.00
C24	CONDUIT	0.027	0	01:46	0.87	1.11	1.00
C25	CONDUIT	0.031	0	01:47	0.54	0.59	0.90
C26	CONDUIT	0.037	0	01:47	0.52	0.69	0.99
C27	CONDUIT	0.042	0	01:47	0.59	1.65	0.98
C28	CONDUIT	0.010	0	01:42	0.73	0.28	0.97
C29	CONDUIT	0.009	0	01:39	0.60	0.34	1.00
C3	CONDUIT	0.025	0	01:46	0.53	0.30	0.89
C30	CONDUIT	0.011	0	01:46	0.69	0.79	1.00
C31	CONDUIT	0.015	0	01:45	0.84	1.13	1.00
C32	CONDUIT	0.055	0	01:46	0.79	1.04	0.97
C33	CONDUIT	0.019	0	02:02	0.59	0.18	0.58
C4	CONDUIT	0.004	0	01:45	0.21	0.27	1.00
C5	CONDUIT	0.027	0	01:46	0.50	0.32	0.96
C6	CONDUIT	0.037	0	01:45	0.54	0.45	1.00
C9	ORIFICE	0.019	0	02:03			1.00
OR1	ORIFICE	0.004	0	01:45			
OR10	ORIFICE	0.012	0	01:45			
OR11	ORIFICE	0.012	0	01:45			
OR12	ORIFICE	0.012	0	01:45			
OR13	ORIFICE	0.010	0	01:45			
OR14	ORIFICE	0.011	0	01:45			
OR15	ORIFICE	0.007	0	01:45			
OR16	ORIFICE	0.015	0	01:45			
OR2	ORIFICE	0.010	0	01:45			
OR3	ORIFICE	0.009	0	01:45			
OR4	ORIFICE	0.006	0	01:45			
OR5	ORIFICE	0.006	0	01:45			
OR6	ORIFICE	0.001	0	01:45			
OR7	ORIFICE	0.002	0	01:45			
OR8	ORIFICE	0.003	0	01:45			
OR9	ORIFICE	0.004	0	01:45			

****
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
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00

C10	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
0.00									
C11	1.00	0.00	0.03	0.00	0.97	0.00	0.00	0.00	0.99
0.00									
C12	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03
0.00									
C13	1.00	0.01	0.00	0.00	0.96	0.02	0.00	0.00	0.00
0.00									
C14	1.00	0.00	0.86	0.00	0.14	0.00	0.00	0.00	0.97
0.00									
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C16	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.17
0.00									
C17	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99
0.00									
C18	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09
0.00									
C19	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.85
0.00									
C2	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.99
0.00									
C20	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
0.00									
C21	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
0.00									
C22	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C23	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.86
0.00									
C24	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96
0.00									
C25	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.11
0.00									
C26	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C27	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03
0.00									
C28	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C29	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.07
0.00									
C3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.08
0.00									
C30	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.87
0.00									
C31	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99
0.00									
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.05
0.00									
C33	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.20
0.00									
C4	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.05
0.00									
C5	1.00	0.00	0.49	0.00	0.51	0.00	0.00	0.00	0.93
0.00									
C6	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09
0.00									

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C14	0.01	0.01	0.01	0.06	0.01
C15	0.08	0.08	0.43	0.01	0.01
C16	0.04	0.04	0.34	0.01	0.01
C19	0.24	0.24	0.29	0.27	0.24
C20	0.01	0.01	0.01	0.04	0.01
C21	0.01	0.01	0.01	0.04	0.01
C23	0.06	0.06	0.17	0.01	0.01
C24	0.10	0.10	0.12	0.12	0.09
C26	0.01	0.01	0.07	0.01	0.01
C27	0.01	0.07	0.01	0.29	0.01
C28	0.01	0.01	0.46	0.01	0.01
C29	0.10	0.10	0.37	0.01	0.01
C30	0.19	0.19	0.21	0.01	0.01
C31	0.21	0.21	0.24	0.08	0.08
C32	0.01	0.01	0.01	0.05	0.01
C4	0.99	0.99	1.17	0.01	0.01
C5	0.01	0.01	0.12	0.01	0.01
C6	0.12	0.12	0.46	0.01	0.01

Analysis begun on: Wed Apr 26 11:42:02 2023
Analysis ended on: Wed Apr 26 11:42:08 2023
Total elapsed time: 00:00:06

MODEL OUTPUT DATA - CHICAGO 5-YEAR

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
  ---------------------------------------------------------------


  *************
  Element Count
  *************
  Number of rain gages ...... 1
  Number of subcatchments ... 29
  Number of nodes ........... 49
  Number of links ........... 47
  Number of pollutants ...... 0
  Number of land uses ....... 0


  ****************
  Raingage Summary
  ****************
                                                    Data       Recording
  Name                 Data Source                  Type       Interval
  ------------------------------------------------------------------------
  Raingage1            Chicago5yr                   INTENSITY   15 min.


  ********************
  Subcatchment Summary
  ********************
  Name                        Area     Width    %Imperv    %Slope Rain Gage
Outlet
  ------------------------------------------------------------------------------------
--------------------------
  JANISSE                     0.12     16.66      0.00    0.5000 Raingage1
J1
  Roof1                       0.03     11.27    100.00    0.5000 Raingage1
SU2
  Roof2                       0.04     11.83    100.00    0.5000 Raingage1
SU6
  Roof3                       0.03      9.17    100.00    0.5000 Raingage1
SU1
  Roof4                       0.03     10.73    100.00    0.5000 Raingage1
SU5
  S1                          0.05     30.69     85.00    0.5000 Raingage1
SU1
  S1_10                       0.03      5.15     90.00    0.5000 Raingage1
J20
  S1_12                       0.06     27.22     80.00    0.5000 Raingage1
J7
  S1_13                       0.06     15.72     10.00    0.5000 Raingage1
J9
  S1_14                       0.06     25.17     90.00    0.5000 Raingage1
SU15
  S1_15                       0.05     27.30     50.00    0.5000 Raingage1
SU9
  S1_16                       0.03     15.55     70.00    0.5000 Raingage1
SU11
  S1_17                       0.04     21.35     95.00    0.5000 Raingage1
SU7
  S1_18                       0.06     28.22     80.00    0.5000 Raingage1
```

S1_19	0.07	13.60	100.00	0.5000	Raingage1
J13					
S1_2	0.03	15.86	50.00	0.5000	Raingage1
J10					
S1_21	0.06	10.42	100.00	0.5000	Raingage1
SU12					
S1_22	0.04	23.67	95.00	0.5000	Raingage1
SU8					
S1_23	0.03	4.98	90.00	0.5000	Raingage1
J15					
S1_24	0.01	1.69	90.00	0.5000	Raingage1
J9					
S1_25	0.01	1.58	90.00	0.5000	Raingage1
J10					
S1_8	0.07	17.88	90.00	0.5000	Raingage1
SU14					
S2	0.04	26.81	85.00	0.5000	Raingage1
SU2					
S3	0.02	13.67	25.00	0.5000	Raingage1
SU16					
S4	0.01	10.58	100.00	0.5000	Raingage1
SU3					
S5	0.02	12.31	100.00	0.5000	Raingage1
SU4					
s6	0.03	18.50	66.00	0.5000	Raingage1
SU10					
S7	0.06	27.95	66.00	0.5000	Raingage1
SU6					
S8	0.09	34.52	66.00	0.5000	Raingage1
SU5					

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB1	JUNCTION	180.31	0.94	0.0	
CB2	JUNCTION	180.26	1.04	0.0	
CBMH3	JUNCTION	180.22	1.13	0.0	
CBMH4	JUNCTION	180.19	1.12	0.0	
CBMH5	JUNCTION	180.15	1.16	0.0	
CBMH6	JUNCTION	180.12	1.19	0.0	
CBMH7	JUNCTION	180.16	1.16	0.0	
CBMH8	JUNCTION	180.09	1.21	0.0	
EX-CBMH	JUNCTION	180.01	1.49	0.0	
EX-OGS	JUNCTION	180.24	1.26	0.0	
J1	JUNCTION	100.00	2.00	0.0	
J10	JUNCTION	180.46	2.20	0.0	
J11	JUNCTION	180.41	1.05	0.0	
J12	JUNCTION	180.34	1.16	0.0	
J13	JUNCTION	180.93	1.73	0.0	
J15	JUNCTION	180.87	1.78	0.0	
J16	JUNCTION	180.33	1.17	0.0	
J17	JUNCTION	180.35	1.11	0.0	
J18	JUNCTION	180.39	1.06	0.0	
J19	JUNCTION	181.06	2.69	0.0	

J2	JUNCTION	180.53	0.93	0.0
J20	JUNCTION	180.94	3.02	0.0
J3	JUNCTION	180.50	0.95	0.0
J4	JUNCTION	180.46	1.29	0.0
J5	JUNCTION	180.47	0.98	0.0
J6	JUNCTION	180.54	0.92	0.0
J7	JUNCTION	180.59	0.86	0.0
J8	JUNCTION	180.74	0.71	0.0
J9	JUNCTION	180.83	3.12	0.0
OGS-MH	JUNCTION	180.03	1.24	0.0
OF1	OUTFALL	180.01	0.75	0.0
OF2	OUTFALL	99.00	1.00	0.0
SU1	STORAGE	181.24	0.21	0.0
SU10	STORAGE	181.32	0.13	0.0
SU11	STORAGE	181.45	0.30	0.0
SU12	STORAGE	181.45	0.30	0.0
SU13	STORAGE	181.45	0.30	0.0
SU14	STORAGE	183.45	0.30	0.0
SU15	STORAGE	181.45	0.30	0.0
SU16	STORAGE	181.35	0.10	0.0
SU2	STORAGE	181.29	0.16	0.0
SU3	STORAGE	181.31	0.14	0.0
SU4	STORAGE	181.31	0.14	0.0
SU5	STORAGE	181.27	0.18	0.0
SU6	STORAGE	181.30	0.15	0.0
SU7	STORAGE	181.45	0.30	0.0
SU8	STORAGE	181.45	0.30	0.0
SU9	STORAGE	181.45	0.30	0.0
UG_Storage	STORAGE	180.04	0.78	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	% Slope	Roughness
C1	CB1	CB2	CONDUIT	21.3	0.2300	0.0130
C10	EX-CBMH	OF1	CONDUIT	9.8	0.0612	0.0130
C11	CB2	CBMH3	CONDUIT	15.2	0.2303	0.0130
C12	CBMH3	CBMH4	CONDUIT	13.5	0.2300	0.0130
C13	J1	OF2	CONDUIT	6.6	15.3690	0.0130
C14	J16	EX-OGS	CONDUIT	30.7	0.2771	0.0130
C15	J5	J12	CONDUIT	8.7	1.5820	0.0130
C16	J6	J11	CONDUIT	7.1	1.8198	0.0130
C17	J11	J12	CONDUIT	22.7	0.2998	0.0130
C18	J10	J11	CONDUIT	16.9	0.3014	0.0130

C19		J9	J10	CONDUIT	46.1
0.8130	0.0130				
C2		CBMH4	CBMH5	CONDUIT	17.7
0.2489	0.0130				
C20		EX-OGS	EX-CBMH	CONDUIT	17.0
0.5574	0.0100				
C21		J15	J10	CONDUIT	13.4
0.7970	0.0130				
C22		J13	J15	CONDUIT	7.2
0.8104	0.0130				
C23		J8	J7	CONDUIT	19.0
0.7827	0.0130				
C24		J7	J4	CONDUIT	24.0
0.5592	0.0130				
C25		J4	J18	CONDUIT	23.7
0.2998	0.0130				
C26		J18	J17	CONDUIT	14.0
0.3007	0.0130				
C27		J17	J16	CONDUIT	26.3
0.0684	0.0130				
C28		J2	J17	CONDUIT	3.2
5.6216	0.0130				
C29		J3	J18	CONDUIT	4.1
2.7714	0.0130				
C3		CBMH5	CBMH6	CONDUIT	11.5
0.2265	0.0130				
C30		J19	J20	CONDUIT	15.3
0.8152	0.0130				
C31		J20	J9	CONDUIT	14.1
0.7510	0.0130				
C32		J12	J16	CONDUIT	3.0
0.3014	0.0130				
C33		OGS-MH	EX-CBMH	CONDUIT	5.0
0.2222	0.0100				
C4		CBMH7	CBMH6	CONDUIT	4.2
0.7802	0.0130				
C5		CBMH6	CBMH8	CONDUIT	14.6
0.2332	0.0130				
C6		CBMH8	UG_Storage	CONDUIT	23.1
0.2290	0.0130				
C9		UG_Storage	OGS-MH	ORIFICE	
OR1		SU11	J4	ORIFICE	
OR10		SU6	CBMH8	ORIFICE	
OR11		SU2	CB2	ORIFICE	
OR12		SU1	CB1	ORIFICE	
OR13		SU12	J7	ORIFICE	
OR14		SU14	J19	ORIFICE	
OR15		SU9	J5	ORIFICE	
OR16		SU5	UG_Storage	ORIFICE	
OR2		SU13	J8	ORIFICE	
OR3		SU15	J6	ORIFICE	
OR4		SU7	J3	ORIFICE	
OR5		SU8	J2	ORIFICE	
OR6		SU16	CBMH3	ORIFICE	
OR7		SU3	CBMH4	ORIFICE	
OR8		SU4	CBMH5	ORIFICE	
OR9		SU10	CBMH7	ORIFICE	

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C10	CIRCULAR	0.75	0.44	0.19	0.75	1	0.28
C11	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C12	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C13	CIRCULAR	1.00	0.79	0.25	1.00	1	9.40
C14	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C15	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C16	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C19	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C21	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C22	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C23	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C24	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C25	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.03
C28	CIRCULAR	0.15	0.02	0.04	0.15	1	0.04
C29	CIRCULAR	0.15	0.02	0.04	0.15	1	0.03
C3	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C30	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C31	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	

C33	CIRCULAR	0.38	0.11	0.09	0.38	1
0.11						
C4	CIRCULAR	0.15	0.02	0.04	0.15	1
0.01						
C5	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						
C6	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						

****
Transect Summary
****

Transect PondSpillway1
Area:

0.0005	0.0019	0.0043	0.0076	0.0119
0.0172	0.0234	0.0306	0.0387	0.0477
0.0578	0.0688	0.0807	0.0936	0.1074
0.1222	0.1380	0.1547	0.1724	0.1910
0.2104	0.2304	0.2510	0.2720	0.2935
0.3156	0.3382	0.3613	0.3849	0.4090
0.4337	0.4588	0.4845	0.5107	0.5374
0.5646	0.5924	0.6206	0.6494	0.6787
0.7085	0.7388	0.7697	0.8010	0.8329
0.8653	0.8982	0.9316	0.9655	1.0000

Hrad:

0.0174	0.0348	0.0522	0.0696	0.0870
0.1044	0.1218	0.1392	0.1566	0.1740
0.1914	0.2088	0.2262	0.2436	0.2610
0.2784	0.2958	0.3132	0.3306	0.3480
0.3710	0.3958	0.4203	0.4444	0.4682
0.4917	0.5149	0.5378	0.5605	0.5830
0.6052	0.6273	0.6492	0.6708	0.6924
0.7137	0.7349	0.7560	0.7769	0.7977
0.8184	0.8390	0.8594	0.8798	0.9000
0.9202	0.9403	0.9603	0.9802	1.0000

Width:

0.0275	0.0550	0.0825	0.1100	0.1375
0.1650	0.1926	0.2201	0.2476	0.2751
0.3026	0.3301	0.3576	0.3851	0.4126
0.4401	0.4676	0.4951	0.5227	0.5502
0.5687	0.5836	0.5984	0.6133	0.6282
0.6431	0.6579	0.6728	0.6877	0.7026
0.7174	0.7323	0.7472	0.7620	0.7769
0.7918	0.8067	0.8215	0.8364	0.8513
0.8661	0.8810	0.8959	0.9108	0.9256
0.9405	0.9554	0.9703	0.9851	1.0000

Transect PondSpillway2
Area:

0.0006	0.0023	0.0052	0.0092	0.0144
0.0207	0.0281	0.0367	0.0465	0.0574
0.0695	0.0827	0.0970	0.1125	0.1292
0.1470	0.1659	0.1860	0.2072	0.2291
0.2513	0.2736	0.2963	0.3191	0.3422

```
            0.3656     0.3892     0.4131     0.4372     0.4615
            0.4861     0.5109     0.5360     0.5613     0.5869
            0.6127     0.6388     0.6651     0.6916     0.7185
            0.7455     0.7728     0.8003     0.8281     0.8562
            0.8844     0.9130     0.9417     0.9707     1.0000
Hrad:
            0.0147     0.0295     0.0442     0.0590     0.0737
            0.0885     0.1032     0.1179     0.1327     0.1474
            0.1622     0.1769     0.1916     0.2064     0.2211
            0.2359     0.2506     0.2654     0.2808     0.3069
            0.3328     0.3584     0.3838     0.4090     0.4339
            0.4586     0.4831     0.5074     0.5315     0.5553
            0.5790     0.6026     0.6259     0.6491     0.6721
            0.6949     0.7176     0.7401     0.7625     0.7848
            0.8069     0.8288     0.8506     0.8723     0.8939
            0.9154     0.9367     0.9579     0.9790     1.0000
Width:
            0.0391     0.0781     0.1172     0.1563     0.1954
            0.2344     0.2735     0.3126     0.3517     0.3907
            0.4298     0.4689     0.5080     0.5470     0.5861
            0.6252     0.6643     0.7033     0.7406     0.7489
            0.7573     0.7657     0.7740     0.7824     0.7908
            0.7991     0.8075     0.8159     0.8243     0.8326
            0.8410     0.8494     0.8577     0.8661     0.8745
            0.8828     0.8912     0.8996     0.9079     0.9163
            0.9247     0.9330     0.9414     0.9498     0.9582
            0.9665     0.9749     0.9833     0.9916     1.0000

Transect PondSpillway3
Area:
            0.0005     0.0019     0.0043     0.0077     0.0120
            0.0172     0.0234     0.0306     0.0387     0.0478
            0.0579     0.0689     0.0808     0.0937     0.1076
            0.1224     0.1382     0.1550     0.1727     0.1913
            0.2109     0.2314     0.2525     0.2741     0.2961
            0.3186     0.3416     0.3650     0.3889     0.4133
            0.4382     0.4635     0.4893     0.5155     0.5423
            0.5695     0.5972     0.6253     0.6540     0.6831
            0.7126     0.7427     0.7732     0.8042     0.8356
            0.8676     0.9000     0.9328     0.9662     1.0000
Hrad:
            0.0170     0.0341     0.0511     0.0681     0.0851
            0.1022     0.1192     0.1362     0.1532     0.1703
            0.1873     0.2043     0.2213     0.2384     0.2554
            0.2724     0.2894     0.3065     0.3235     0.3405
            0.3575     0.3781     0.4034     0.4283     0.4529
            0.4772     0.5012     0.5250     0.5484     0.5717
            0.5946     0.6174     0.6400     0.6623     0.6845
            0.7065     0.7283     0.7500     0.7715     0.7929
            0.8141     0.8352     0.8562     0.8771     0.8978
            0.9185     0.9390     0.9594     0.9798     1.0000
Width:
            0.0281     0.0562     0.0843     0.1124     0.1405
            0.1685     0.1966     0.2247     0.2528     0.2809
            0.3090     0.3371     0.3652     0.3933     0.4214
            0.4495     0.4776     0.5056     0.5337     0.5618
            0.5899     0.6122     0.6260     0.6399     0.6537
```

0.6676 0.6814 0.6953 0.7091 0.7230
0.7368 0.7507 0.7645 0.7784 0.7922
0.8061 0.8199 0.8338 0.8476 0.8615
0.8753 0.8892 0.9030 0.9169 0.9307
0.9446 0.9584 0.9723 0.9861 1.0000

Transect Road
Area:
0.0005 0.0019 0.0043 0.0077 0.0120
0.0173 0.0236 0.0308 0.0390 0.0481
0.0582 0.0693 0.0813 0.0943 0.1083
0.1232 0.1393 0.1563 0.1740 0.1922
0.2109 0.2303 0.2502 0.2706 0.2916
0.3132 0.3354 0.3581 0.3813 0.4052
0.4296 0.4545 0.4800 0.5061 0.5328
0.5600 0.5877 0.6161 0.6450 0.6744
0.7045 0.7350 0.7662 0.7979 0.8302
0.8630 0.8964 0.9304 0.9649 1.0000
Hrad:
0.0205 0.0410 0.0615 0.0820 0.1025
0.1230 0.1435 0.1640 0.1845 0.2050
0.2255 0.2460 0.2665 0.2870 0.3075
0.3280 0.3441 0.3834 0.4208 0.4563
0.4899 0.5219 0.5522 0.5811 0.6084
0.6345 0.6592 0.6828 0.7052 0.7266
0.7469 0.7663 0.7848 0.8024 0.8193
0.8354 0.8508 0.8655 0.8795 0.8930
0.9058 0.9181 0.9299 0.9413 0.9521
0.9625 0.9724 0.9820 0.9912 1.0000
Width:
0.0272 0.0544 0.0816 0.1089 0.1361
0.1633 0.1905 0.2177 0.2449 0.2721
0.2994 0.3266 0.3538 0.3810 0.4082
0.4354 0.4748 0.4907 0.5066 0.5225
0.5385 0.5544 0.5703 0.5862 0.6021
0.6180 0.6340 0.6499 0.6658 0.6817
0.6976 0.7135 0.7294 0.7454 0.7613
0.7772 0.7931 0.8090 0.8249 0.8408
0.8568 0.8727 0.8886 0.9045 0.9204
0.9363 0.9523 0.9682 0.9841 1.0000

Transect Road2
Area:
0.0006 0.0023 0.0051 0.0091 0.0142
0.0205 0.0279 0.0364 0.0461 0.0569
0.0689 0.0820 0.0962 0.1116 0.1281
0.1458 0.1646 0.1844 0.2044 0.2248
0.2456 0.2667 0.2881 0.3100 0.3321
0.3546 0.3775 0.4007 0.4243 0.4482
0.4724 0.4971 0.5220 0.5473 0.5730
0.5990 0.6254 0.6521 0.6792 0.7066
0.7343 0.7625 0.7909 0.8197 0.8489
0.8784 0.9083 0.9385 0.9691 1.0000
Hrad:
0.0167 0.0335 0.0502 0.0670 0.0837
0.1004 0.1172 0.1339 0.1507 0.1674
0.1841 0.2009 0.2176 0.2344 0.2511

	0.2678	0.2897	0.3213	0.3521	0.3820
	0.4111	0.4395	0.4671	0.4939	0.5201
	0.5456	0.5704	0.5946	0.6182	0.6411
	0.6635	0.6854	0.7067	0.7274	0.7477
	0.7675	0.7867	0.8056	0.8240	0.8419
	0.8594	0.8765	0.8932	0.9096	0.9255
	0.9411	0.9563	0.9712	0.9858	1.0000
Width:					
	0.0366	0.0732	0.1099	0.1465	0.1831
	0.2197	0.2563	0.2930	0.3296	0.3662
	0.4028	0.4394	0.4761	0.5127	0.5493
	0.5859	0.6282	0.6394	0.6507	0.6620
	0.6732	0.6845	0.6958	0.7070	0.7183
	0.7296	0.7408	0.7521	0.7634	0.7746
	0.7859	0.7972	0.8085	0.8197	0.8310
	0.8423	0.8535	0.8648	0.8761	0.8873
	0.8986	0.9099	0.9211	0.9324	0.9437
	0.9549	0.9662	0.9775	0.9887	1.0000

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
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 ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 03/15/2021 00:00:00
Ending Date 03/26/2021 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:15:00
Wet Time Step 00:15:00
Dry Time Step 00:15:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 4
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------

Total Precipitation	0.063	49.475
Evaporation Loss	0.000	0.000
Infiltration Loss	0.010	7.852
Surface Runoff	0.054	41.921
Final Storage	0.001	0.473
Continuity Error (%)	-1.560	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.054	0.536
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.054	0.536
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 (%)	-0.035	

Time-Step Critical Elements

Link C32 (3.53%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	0.50 sec
Average Time Step	:	4.88 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	2.01
Percent Not Converging	:	0.11
Time Step Frequencies	:	
5.000 - 3.155 sec	:	96.21 %
3.155 - 1.991 sec	:	2.02 %
1.991 - 1.256 sec	:	1.30 %
1.256 - 0.792 sec	:	0.35 %
0.792 - 0.500 sec	:	0.13 %

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
JANISSE	49.48	0.00	0.00	32.40	0.00	18.21	18.21	0.02	0.01	0.368
Roof1	49.48	0.00	0.00	0.00	49.63	0.00	49.63	0.02	0.01	1.003
Roof2	49.48	0.00	0.00	0.00	49.63	0.00	49.63	0.02	0.01	1.003
Roof3	49.48	0.00	0.00	0.00	49.63	0.00	49.63	0.01	0.01	1.003
Roof4	49.48	0.00	0.00	0.00	49.63	0.00	49.63	0.02	0.01	1.003
S1	49.48	0.00	0.00	4.43	40.11	3.90	44.01	0.02	0.01	0.889
S1_10	49.48	0.00	0.00	2.21	44.78	2.81	47.59	0.01	0.01	0.962
S1_12	49.48	0.00	0.00	4.42	39.69	5.60	45.29	0.03	0.02	0.915
S1_13	49.47	0.00	0.00	20.74	4.95	25.17	30.12	0.02	0.01	0.609
S1_14	49.48	0.00	0.00	2.20	44.62	2.78	47.40	0.03	0.01	0.958
S1_15	49.48	0.00	0.00	11.13	24.77	14.21	38.98	0.02	0.01	0.788
S1_16	49.47	0.00	0.00	6.64	34.69	8.44	43.12	0.01	0.01	0.872
S1_17	49.48	0.00	0.00	1.10	47.08	1.38	48.46	0.02	0.01	0.980
S1_18	49.48	0.00	0.00	4.42	39.69	5.60	45.29	0.03	0.02	0.915
S1_19	49.48	0.00	0.00	0.00	49.76	0.00	49.76	0.03	0.02	1.006
S1_2	49.47	0.00	0.00	11.15	24.77	14.24	39.01	0.01	0.01	0.788
S1_21	49.48	0.00	0.00	0.00	49.85	0.00	49.85	0.03	0.02	1.008
S1_22	49.48	0.00	0.00	1.10	47.07	1.38	48.46	0.02	0.01	0.979
S1_23	49.48	0.00	0.00	2.21	44.78	2.81	47.59	0.01	0.01	0.962
S1_24	49.48	0.00	0.00	2.21	44.77	2.80	47.58	0.00	0.00	0.962
S1_25	49.47	0.00	0.00	2.21	44.77	2.80	47.58	0.00	0.00	0.962
S1_8	49.48	0.00	0.00	2.21	44.70	2.79	47.49	0.03	0.02	0.960
S2	49.48	0.00	0.00	4.43	40.10	3.89	43.99	0.02	0.01	0.889
S3	49.48	0.00	0.00	22.44	11.77	18.14	29.91	0.01	0.00	0.605
S4	49.48	0.00	0.00	0.00	47.17					

```
  S5                       49.48       0.00       0.00       0.00      47.17
0.00      47.17        0.01     0.00   0.953
  s6                       49.48       0.00       0.00      10.09      31.13
8.67      39.80        0.01     0.01   0.805
  S7                       49.48       0.00       0.00      10.10      31.14
8.62      39.75        0.02     0.01   0.803
  S8                       49.48       0.00       0.00      10.13      31.15
8.47      39.62        0.03     0.02   0.801
```

****
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
CB1	JUNCTION	0.01	0.51	180.82	0 02:00	0.51
CB2	JUNCTION	0.01	0.56	180.82	0 02:00	0.56
CBMH3	JUNCTION	0.01	0.60	180.82	0 02:00	0.59
CBMH4	JUNCTION	0.01	0.63	180.82	0 02:00	0.62
CBMH5	JUNCTION	0.01	0.67	180.82	0 02:00	0.67
CBMH6	JUNCTION	0.01	0.69	180.82	0 01:59	0.69
CBMH7	JUNCTION	0.01	0.66	180.82	0 01:59	0.66
CBMH8	JUNCTION	0.01	0.73	180.82	0 01:59	0.73
EX-CBMH	JUNCTION	0.01	0.27	180.29	0 01:45	0.27
EX-OGS	JUNCTION	0.00	0.43	180.67	0 01:45	0.42
J1	JUNCTION	0.00	0.02	100.02	0 01:45	0.02
J10	JUNCTION	0.00	0.68	181.14	0 01:45	0.68
J11	JUNCTION	0.00	0.66	181.07	0 01:45	0.65
J12	JUNCTION	0.01	0.59	180.92	0 01:45	0.58
J13	JUNCTION	0.00	0.58	181.51	0 01:45	0.57
J15	JUNCTION	0.00	0.56	181.43	0 01:45	0.55
J16	JUNCTION	0.01	0.57	180.90	0 01:45	0.56
J17	JUNCTION	0.01	0.66	181.01	0 01:45	0.65
J18	JUNCTION	0.00	0.66	181.05	0 01:45	0.65
J19	JUNCTION	0.01	2.40	183.47	0 01:47	2.40
J2	JUNCTION	0.00	0.49	181.02	0 01:45	0.48
J20	JUNCTION	0.01	2.42	183.36	0 01:45	2.42
J3	JUNCTION	0.00	0.56	181.06	0 01:45	0.55
J4	JUNCTION	0.00	0.64	181.10	0 01:45	0.63
J5	JUNCTION	0.00	0.50	180.98	0 01:45	0.49
J6	JUNCTION	0.00	0.59	181.12	0 01:45	0.58
J7	JUNCTION	0.00	0.82	181.42	0 01:45	0.81
J8	JUNCTION	0.00	0.74	181.48	0 01:47	0.73
J9	JUNCTION	0.01	2.31	183.14	0 01:45	2.31
OGS-MH	JUNCTION	0.01	0.26	180.29	0 01:45	0.26
OF1	OUTFALL	0.00	0.25	180.25	0 01:45	0.24
OF2	OUTFALL	0.00	0.02	99.02	0 01:45	0.02
SU1	STORAGE	0.00	0.04	181.28	0 01:45	0.04
SU10	STORAGE	0.00	0.02	181.34	0 01:45	0.02
SU11	STORAGE	0.00	0.02	181.47	0 01:45	0.02
SU12	STORAGE	0.00	0.03	181.49	0 01:45	0.03
SU13	STORAGE	0.00	0.06	181.51	0 01:48	0.04
SU14	STORAGE	0.00	0.05	183.50	0 01:47	0.04

SU15	STORAGE	0.00	0.03	181.49	0	01:45	0.03
SU16	STORAGE	0.01	0.02	181.37	0	01:45	0.02
SU2	STORAGE	0.00	0.04	181.33	0	01:45	0.04
SU3	STORAGE	0.00	0.01	181.32	0	01:45	0.01
SU4	STORAGE	0.00	0.01	181.32	0	01:45	0.01
SU5	STORAGE	0.00	0.05	181.32	0	01:46	0.05
SU6	STORAGE	0.00	0.04	181.34	0	01:45	0.04
SU7	STORAGE	0.00	0.02	181.48	0	01:45	0.02
SU8	STORAGE	0.00	0.02	181.48	0	01:45	0.02
SU9	STORAGE	0.00	0.03	181.48	0	01:45	0.03
UG_Storage	STORAGE	0.01	0.78	180.81	0	01:59	0.78

****
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
CB1	JUNCTION	0.000	0.019	0	01:45	0	0.0373	-0.049
CB2	JUNCTION	0.000	0.036	0	01:46	0	0.073	0.023
CBMH3	JUNCTION	0.000	0.038	0	01:46	0	0.0791	0.012
CBMH4	JUNCTION	0.000	0.040	0	01:47	0	0.085	0.015
CBMH5	JUNCTION	0.000	0.043	0	01:46	0	0.0926	0.038
CBMH6	JUNCTION	0.000	0.050	0	01:46	0	0.106	-0.017
CBMH7	JUNCTION	0.000	0.008	0	01:45	0	0.0133	0.241
CBMH8	JUNCTION	0.000	0.070	0	01:46	0	0.146	0.030
EX-CBMH	JUNCTION	0.000	0.168	0	01:46	0	0.517	-0.002
EX-OGS	JUNCTION	0.000	0.151	0	01:45	0	0.319	-0.011
J1	JUNCTION	0.006	0.006	0	01:45	0.0212	0.0212	0.002
J10	JUNCTION	0.010	0.064	0	01:45	0.0175	0.133	-0.007
J11	JUNCTION	0.000	0.077	0	01:45	0	0.16	-0.009
J12	JUNCTION	0.000	0.089	0	01:45	0	0.182	-0.024
J13	JUNCTION	0.016	0.016	0	01:45	0.0325	0.0325	-0.038

J15	JUNCTION	0.006	0.022	0	01:45	0.0126	0.0451	-0.020
J16	JUNCTION	0.000	0.151	0	01:45	0	0.319	-0.008
J17	JUNCTION	0.000	0.062	0	01:46	0	0.137	-0.013
J18	JUNCTION	0.000	0.054	0	01:46	0	0.12	-0.005
J19	JUNCTION	0.000	0.018	0	01:51	0	0.034	-0.009
J2	JUNCTION	0.000	0.008	0	01:45	0	0.0172	-0.125
J20	JUNCTION	0.007	0.022	0	01:51	0.013	0.047	-0.009
J3	JUNCTION	0.000	0.009	0	01:45	0	0.0176	-0.281
J4	JUNCTION	0.000	0.045	0	01:43	0	0.102	-0.063
J5	JUNCTION	0.000	0.012	0	01:45	0	0.0213	-0.130
J6	JUNCTION	0.000	0.014	0	01:45	0	0.0274	-0.242
J7	JUNCTION	0.015	0.039	0	01:43	0.0284	0.0889	-0.038
J8	JUNCTION	0.000	0.019	0	01:52	0	0.0294	0.101
J9	JUNCTION	0.013	0.032	0	01:45	0.0231	0.0701	-0.022
OGS-MH	JUNCTION	0.000	0.028	0	02:03	0	0.2	0.051
OF1	OUTFALL	0.000	0.168	0	01:45	0	0.515	0.000
OF2	OUTFALL	0.000	0.006	0	01:45	0	0.0212	0.000
SU1	STORAGE	0.020	0.020	0	01:45	0.0373	0.0373	0.000
SU10	STORAGE	0.008	0.008	0	01:45	0.0133	0.0133	0.000
SU11	STORAGE	0.007	0.007	0	01:45	0.0134	0.0134	0.000
SU12	STORAGE	0.015	0.015	0	01:45	0.0312	0.0312	-0.001
SU13	STORAGE	0.016	0.016	0	01:45	0.0294	0.0294	0.004
SU14	STORAGE	0.017	0.017	0	01:45	0.034	0.034	-0.003
SU15	STORAGE	0.014	0.014	0	01:45	0.0274	0.0274	-0.000
SU16	STORAGE	0.004	0.004	0	01:45	0.00613	0.00613	0.041
SU2	STORAGE	0.019	0.019	0	01:45	0.0357	0.0357	0.000
SU3	STORAGE	0.003	0.003	0	01:45	0.00599	0.00599	-0.002
SU4	STORAGE	0.004	0.004	0	01:45	0.00755	0.00755	-0.001
SU5	STORAGE	0.027	0.027	0	01:45	0.0502	0.0502	0.001
SU6	STORAGE	0.021	0.021	0	01:45	0.0398	0.0398	0.001

SU7	STORAGE	0.009	0.009	0	01:45	0.0176
0.0176	-0.001					
SU8	STORAGE	0.009	0.009	0	01:45	0.0172
0.0172	-0.000					
SU9	STORAGE	0.013	0.013	0	01:45	0.0213
0.0213	0.001					
UG_Storage	STORAGE	0.000	0.095	0	01:46	0
0.198	0.019					

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB1	JUNCTION	0.53	0.112	0.423
CB2	JUNCTION	0.67	0.161	0.475
CBMH3	JUNCTION	0.75	0.189	0.533
CBMH4	JUNCTION	0.85	0.227	0.490
CBMH5	JUNCTION	0.97	0.270	0.492
CBMH6	JUNCTION	1.11	0.318	0.501
CBMH7	JUNCTION	0.95	0.260	0.501
CBMH8	JUNCTION	1.14	0.326	0.484
EX-OGS	JUNCTION	0.12	0.052	0.829
J10	JUNCTION	0.16	0.227	1.514
J11	JUNCTION	0.26	0.360	0.387
J12	JUNCTION	0.27	0.285	0.577
J13	JUNCTION	0.19	0.428	1.148
J15	JUNCTION	0.22	0.407	1.227
J16	JUNCTION	0.19	0.194	0.602
J17	JUNCTION	0.30	0.359	0.447
J18	JUNCTION	0.28	0.360	0.404
J19	JUNCTION	0.31	2.003	0.287
J2	JUNCTION	0.10	0.089	0.437
J20	JUNCTION	0.40	2.274	0.591
J3	JUNCTION	0.14	0.159	0.391
J4	JUNCTION	0.19	0.240	0.653
J5	JUNCTION	0.11	0.105	0.473
J6	JUNCTION	0.14	0.187	0.330
J7	JUNCTION	0.23	0.422	0.037
J8	JUNCTION	0.21	0.339	0.000
J9	JUNCTION	0.42	2.160	0.811
UG_Storage	STORAGE	1.31	0.377	0.006

****
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	0.000	0	0	0	0.001	2	0 01:45	0.019
SU10	0.000	0	0	0	0.000	1	0 01:45	0.008
SU11	0.000	0	0	0	0.000	1	0 01:45	0.007
SU12	0.000	0	0	0	0.001	1	0 01:45	0.015
SU13	0.000	0	0	0	0.002	4	0 01:48	0.019
SU14	0.000	0	0	0	0.002	3	0 01:47	0.018
SU15	0.000	0	0	0	0.001	1	0 01:45	0.014
SU16	0.000	0	0	0	0.000	2	0 01:45	0.004
SU2	0.000	0	0	0	0.001	3	0 01:45	0.018
SU3	0.000	0	0	0	0.000	0	0 01:45	0.003
SU4	0.000	0	0	0	0.000	0	0 01:45	0.004
SU5	0.000	0	0	0	0.002	5	0 01:46	0.026
SU6	0.000	0	0	0	0.001	4	0 01:45	0.021
SU7	0.000	0	0	0	0.000	1	0 01:45	0.009
SU8	0.000	0	0	0	0.000	1	0 01:45	0.008
SU9	0.000	0	0	0	0.000	1	0 01:45	0.012
UG_Storage	0.002	2	0	0	0.095	99	0 01:59	0.028

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr

OF1	6.25	0.025	0.168	0.515
OF2	2.84	0.002	0.006	0.021
System	4.54	0.028	0.174	0.536

****
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
C1	CONDUIT	0.019	0 01:47	0.40	0.23	1.00
C10	CONDUIT	0.168	0 01:45	1.23	0.61	0.35
C11	CONDUIT	0.034	0 01:47	0.60	0.41	1.00
C12	CONDUIT	0.037	0 01:47	0.59	0.44	1.00
C13	CONDUIT	0.006	0 01:45	1.64	0.00	0.02
C14	CONDUIT	0.151	0 01:45	1.37	1.63	1.00
C15	CONDUIT	0.012	0 01:45	0.70	0.64	1.00
C16	CONDUIT	0.014	0 01:45	0.79	0.68	1.00
C17	CONDUIT	0.077	0 01:45	1.09	1.46	1.00
C18	CONDUIT	0.064	0 01:45	0.91	1.21	1.00
C19	CONDUIT	0.032	0 01:45	1.80	2.31	1.00
C2	CONDUIT	0.040	0 01:46	0.53	0.45	1.00
C20	CONDUIT	0.151	0 01:45	2.16	1.61	0.97
C21	CONDUIT	0.022	0 01:45	1.27	1.64	1.00
C22	CONDUIT	0.016	0 01:45	0.90	1.16	1.00
C23	CONDUIT	0.018	0 01:53	1.04	1.36	1.00
C24	CONDUIT	0.039	0 01:43	1.24	1.58	1.00
C25	CONDUIT	0.045	0 01:46	0.64	0.85	1.00
C26	CONDUIT	0.054	0 01:46	0.76	1.01	1.00
C27	CONDUIT	0.062	0 01:45	0.88	2.46	1.00
C28	CONDUIT	0.010	0 01:36	0.70	0.28	1.00
C29	CONDUIT	0.009	0 01:46	0.52	0.34	1.00
C3	CONDUIT	0.043	0 01:46	0.49	0.52	1.00
C30	CONDUIT	0.018	0 01:51	1.01	1.29	1.00
C31	CONDUIT	0.022	0 01:51	1.26	1.69	1.00
C32	CONDUIT	0.089	0 01:45	1.26	1.68	1.00
C33	CONDUIT	0.028	0 02:02	0.67	0.26	0.72
C4	CONDUIT	0.008	0 01:45	0.44	0.58	1.00
C5	CONDUIT	0.049	0 01:46	0.46	0.58	1.00
C6	CONDUIT	0.069	0 01:46	0.63	0.82	1.00
C9	ORIFICE	0.028	0 02:03			1.00
OR1	ORIFICE	0.007	0 01:45			
OR10	ORIFICE	0.021	0 01:45			
OR11	ORIFICE	0.018	0 01:45			
OR12	ORIFICE	0.019	0 01:45			
OR13	ORIFICE	0.015	0 01:45			
OR14	ORIFICE	0.018	0 01:51			
OR15	ORIFICE	0.012	0 01:45			
OR16	ORIFICE	0.026	0 01:46			
OR2	ORIFICE	0.019	0 01:52			
OR3	ORIFICE	0.014	0 01:45			
OR4	ORIFICE	0.009	0 01:45			

OR5	ORIFICE	0.008	0	01:45
OR6	ORIFICE	0.004	0	01:45
OR7	ORIFICE	0.003	0	01:45
OR8	ORIFICE	0.004	0	01:45
OR9	ORIFICE	0.008	0	01:45

****
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
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C10	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.09	0.00	0.91	0.00	0.00	0.00	0.99	0.00
C12	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C13	1.00	0.01	0.00	0.00	0.96	0.03	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.85	0.00	0.14	0.00	0.00	0.00	0.97	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C16	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.05	0.00
C17	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C18	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.10	0.00
C19	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.77	0.00
C2	1.00	0.00	0.88	0.00	0.12	0.00	0.00	0.00	0.99	0.00
C20	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C21	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C22	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C23	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.90	0.00
C24	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
C25	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.06	0.00
C26	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.99	0.00

C27	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03
0.00									
C28	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C29	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.15
0.00									
C3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.08
0.00									
C30	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.92
0.00									
C31	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99
0.00									
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.06
0.00									
C33	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.12
0.00									
C4	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04
0.00									
C5	1.00	0.00	0.49	0.00	0.51	0.00	0.00	0.00	0.93
0.00									
C6	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09
0.00									

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	0.61	0.61	0.75	0.01	0.01
C11	0.75	0.75	0.84	0.01	0.01
C12	0.84	0.84	0.92	0.01	0.01
C14	0.12	0.19	0.12	0.30	0.12
C15	0.31	0.31	0.61	0.01	0.01
C16	0.29	0.29	0.48	0.01	0.01
C17	0.26	0.26	0.27	0.23	0.23
C18	0.24	0.24	0.26	0.16	0.17
C19	0.41	0.42	0.44	0.44	0.41
C2	0.92	0.92	1.05	0.01	0.01
C20	0.01	0.22	0.01	0.29	0.01
C21	0.16	0.22	0.16	0.27	0.16
C22	0.19	0.19	0.22	0.10	0.11
C23	0.30	0.30	0.37	0.07	0.07
C24	0.32	0.32	0.32	0.33	0.31
C25	0.24	0.24	0.28	0.01	0.01
C26	0.28	0.28	0.30	0.05	0.07
C27	0.27	0.30	0.27	0.43	0.27
C28	0.27	0.27	0.69	0.01	0.01
C29	0.32	0.32	0.50	0.01	0.01
C3	1.04	1.04	1.11	0.01	0.01
C30	0.38	0.38	0.40	0.11	0.11
C31	0.40	0.40	0.42	0.29	0.29
C32	0.27	0.27	0.27	0.30	0.24
C4	1.86	1.86	2.02	0.01	0.01

C5	1.11	1.11	1.22	0.01	0.01
C6	1.22	1.22	1.40	0.01	0.01

Analysis begun on: Wed Apr 26 11:44:01 2023
Analysis ended on: Wed Apr 26 11:44:07 2023
Total elapsed time: 00:00:06

MODEL OUTPUT DATA - CHICAGO 100-YEAR

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)

****
Element Count
****
Number of rain gages 1
Number of subcatchments ... 29
Number of nodes 49
Number of links 47
Number of pollutants 0
Number of land uses 0

****
Raingage Summary
****

Name	Data Source	Data Type	Recording Interval
Raingage1	Chicago100yr	INTENSITY	15 min.

****
Subcatchment Summary
****

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
JANISSE	0.12	16.66	0.00	0.5000	Raingage1	J1
Roof1	0.03	11.27	100.00	0.5000	Raingage1	SU2
Roof2	0.04	11.83	100.00	0.5000	Raingage1	SU6
Roof3	0.03	9.17	100.00	0.5000	Raingage1	SU1
Roof4	0.03	10.73	100.00	0.5000	Raingage1	SU5
S1	0.05	30.69	85.00	0.5000	Raingage1	SU1
S1_10	0.03	5.15	90.00	0.5000	Raingage1	J20
S1_12	0.06	27.22	80.00	0.5000	Raingage1	J7
S1_13	0.06	15.72	10.00	0.5000	Raingage1	J9
S1_14	0.06	25.17	90.00	0.5000	Raingage1	SU15
S1_15	0.05	27.30	50.00	0.5000	Raingage1	SU9
S1_16	0.03	15.55	70.00	0.5000	Raingage1	SU11
S1_17	0.04	21.35	95.00	0.5000	Raingage1	SU7
S1_18	0.06	28.22	80.00	0.5000	Raingage1	

S1_19	0.07	13.60	100.00	0.5000	Raingage1
J13					
S1_2	0.03	15.86	50.00	0.5000	Raingage1
J10					
S1_21	0.06	10.42	100.00	0.5000	Raingage1
SU12					
S1_22	0.04	23.67	95.00	0.5000	Raingage1
SU8					
S1_23	0.03	4.98	90.00	0.5000	Raingage1
J15					
S1_24	0.01	1.69	90.00	0.5000	Raingage1
J9					
S1_25	0.01	1.58	90.00	0.5000	Raingage1
J10					
S1_8	0.07	17.88	90.00	0.5000	Raingage1
SU14					
S2	0.04	26.81	85.00	0.5000	Raingage1
SU2					
S3	0.02	13.67	25.00	0.5000	Raingage1
SU16					
S4	0.01	10.58	100.00	0.5000	Raingage1
SU3					
S5	0.02	12.31	100.00	0.5000	Raingage1
SU4					
s6	0.03	18.50	66.00	0.5000	Raingage1
SU10					
S7	0.06	27.95	66.00	0.5000	Raingage1
SU6					
S8	0.09	34.52	66.00	0.5000	Raingage1
SU5					

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB1	JUNCTION	180.31	0.94	0.0	
CB2	JUNCTION	180.26	1.04	0.0	
CBMH3	JUNCTION	180.22	1.13	0.0	
CBMH4	JUNCTION	180.19	1.12	0.0	
CBMH5	JUNCTION	180.15	1.16	0.0	
CBMH6	JUNCTION	180.12	1.19	0.0	
CBMH7	JUNCTION	180.16	1.16	0.0	
CBMH8	JUNCTION	180.09	1.21	0.0	
EX-CBMH	JUNCTION	180.01	1.49	0.0	
EX-OGS	JUNCTION	180.24	1.26	0.0	
J1	JUNCTION	100.00	2.00	0.0	
J10	JUNCTION	180.46	2.20	0.0	
J11	JUNCTION	180.41	1.05	0.0	
J12	JUNCTION	180.34	1.16	0.0	
J13	JUNCTION	180.93	1.73	0.0	
J15	JUNCTION	180.87	1.78	0.0	
J16	JUNCTION	180.33	1.17	0.0	
J17	JUNCTION	180.35	1.11	0.0	
J18	JUNCTION	180.39	1.06	0.0	
J19	JUNCTION	181.06	2.69	0.0	

J2	JUNCTION	180.53	0.93	0.0
J20	JUNCTION	180.94	3.02	0.0
J3	JUNCTION	180.50	0.95	0.0
J4	JUNCTION	180.46	1.29	0.0
J5	JUNCTION	180.47	0.98	0.0
J6	JUNCTION	180.54	0.92	0.0
J7	JUNCTION	180.59	0.86	0.0
J8	JUNCTION	180.74	0.71	0.0
J9	JUNCTION	180.83	3.12	0.0
OGS-MH	JUNCTION	180.03	1.24	0.0
OF1	OUTFALL	180.01	0.75	0.0
OF2	OUTFALL	99.00	1.00	0.0
SU1	STORAGE	181.24	0.21	0.0
SU10	STORAGE	181.32	0.13	0.0
SU11	STORAGE	181.45	0.30	0.0
SU12	STORAGE	181.45	0.30	0.0
SU13	STORAGE	181.45	0.30	0.0
SU14	STORAGE	183.45	0.30	0.0
SU15	STORAGE	181.45	0.30	0.0
SU16	STORAGE	181.35	0.10	0.0
SU2	STORAGE	181.29	0.16	0.0
SU3	STORAGE	181.31	0.14	0.0
SU4	STORAGE	181.31	0.14	0.0
SU5	STORAGE	181.27	0.18	0.0
SU6	STORAGE	181.30	0.15	0.0
SU7	STORAGE	181.45	0.30	0.0
SU8	STORAGE	181.45	0.30	0.0
SU9	STORAGE	181.45	0.30	0.0
UG_Storage	STORAGE	180.04	0.78	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	% Slope	Roughness
C1	CB1	CB2	CONDUIT	21.3	0.2300	0.0130
C10	EX-CBMH	OF1	CONDUIT	9.8	0.0612	0.0130
C11	CB2	CBMH3	CONDUIT	15.2	0.2303	0.0130
C12	CBMH3	CBMH4	CONDUIT	13.5	0.2300	0.0130
C13	J1	OF2	CONDUIT	6.6	15.3690	0.0130
C14	J16	EX-OGS	CONDUIT	30.7	0.2771	0.0130
C15	J5	J12	CONDUIT	8.7	1.5820	0.0130
C16	J6	J11	CONDUIT	7.1	1.8198	0.0130
C17	J11	J12	CONDUIT	22.7	0.2998	0.0130
C18	J10	J11	CONDUIT	16.9	0.3014	0.0130

C19		J9	J10	CONDUIT	46.1
0.8130	0.0130				
C2		CBMH4	CBMH5	CONDUIT	17.7
0.2489	0.0130				
C20		EX-OGS	EX-CBMH	CONDUIT	17.0
0.5574	0.0100				
C21		J15	J10	CONDUIT	13.4
0.7970	0.0130				
C22		J13	J15	CONDUIT	7.2
0.8104	0.0130				
C23		J8	J7	CONDUIT	19.0
0.7827	0.0130				
C24		J7	J4	CONDUIT	24.0
0.5592	0.0130				
C25		J4	J18	CONDUIT	23.7
0.2998	0.0130				
C26		J18	J17	CONDUIT	14.0
0.3007	0.0130				
C27		J17	J16	CONDUIT	26.3
0.0684	0.0130				
C28		J2	J17	CONDUIT	3.2
5.6216	0.0130				
C29		J3	J18	CONDUIT	4.1
2.7714	0.0130				
C3		CBMH5	CBMH6	CONDUIT	11.5
0.2265	0.0130				
C30		J19	J20	CONDUIT	15.3
0.8152	0.0130				
C31		J20	J9	CONDUIT	14.1
0.7510	0.0130				
C32		J12	J16	CONDUIT	3.0
0.3014	0.0130				
C33		OGS-MH	EX-CBMH	CONDUIT	5.0
0.2222	0.0100				
C4		CBMH7	CBMH6	CONDUIT	4.2
0.7802	0.0130				
C5		CBMH6	CBMH8	CONDUIT	14.6
0.2332	0.0130				
C6		CBMH8	UG_Storage	CONDUIT	23.1
0.2290	0.0130				
C9		UG_Storage	OGS-MH	ORIFICE	
OR1		SU11	J4	ORIFICE	
OR10		SU6	CBMH8	ORIFICE	
OR11		SU2	CB2	ORIFICE	
OR12		SU1	CB1	ORIFICE	
OR13		SU12	J7	ORIFICE	
OR14		SU14	J19	ORIFICE	
OR15		SU9	J5	ORIFICE	
OR16		SU5	UG_Storage	ORIFICE	
OR2		SU13	J8	ORIFICE	
OR3		SU15	J6	ORIFICE	
OR4		SU7	J3	ORIFICE	
OR5		SU8	J2	ORIFICE	
OR6		SU16	CBMH3	ORIFICE	
OR7		SU3	CBMH4	ORIFICE	
OR8		SU4	CBMH5	ORIFICE	
OR9		SU10	CBMH7	ORIFICE	

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C10	CIRCULAR	0.75	0.44	0.19	0.75	1	0.28
C11	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C12	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C13	CIRCULAR	1.00	0.79	0.25	1.00	1	9.40
C14	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C15	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C16	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C19	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C21	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C22	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C23	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C24	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C25	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.03
C28	CIRCULAR	0.15	0.02	0.04	0.15	1	0.04
C29	CIRCULAR	0.15	0.02	0.04	0.15	1	0.03
C3	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C30	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C31	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	

C33	CIRCULAR	0.38	0.11	0.09	0.38	1
0.11						
C4	CIRCULAR	0.15	0.02	0.04	0.15	1
0.01						
C5	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						
C6	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						

****
Transect Summary
****

Transect PondSpillway1
Area:

0.0005	0.0019	0.0043	0.0076	0.0119
0.0172	0.0234	0.0306	0.0387	0.0477
0.0578	0.0688	0.0807	0.0936	0.1074
0.1222	0.1380	0.1547	0.1724	0.1910
0.2104	0.2304	0.2510	0.2720	0.2935
0.3156	0.3382	0.3613	0.3849	0.4090
0.4337	0.4588	0.4845	0.5107	0.5374
0.5646	0.5924	0.6206	0.6494	0.6787
0.7085	0.7388	0.7697	0.8010	0.8329
0.8653	0.8982	0.9316	0.9655	1.0000

Hrad:

0.0174	0.0348	0.0522	0.0696	0.0870
0.1044	0.1218	0.1392	0.1566	0.1740
0.1914	0.2088	0.2262	0.2436	0.2610
0.2784	0.2958	0.3132	0.3306	0.3480
0.3710	0.3958	0.4203	0.4444	0.4682
0.4917	0.5149	0.5378	0.5605	0.5830
0.6052	0.6273	0.6492	0.6708	0.6924
0.7137	0.7349	0.7560	0.7769	0.7977
0.8184	0.8390	0.8594	0.8798	0.9000
0.9202	0.9403	0.9603	0.9802	1.0000

Width:

0.0275	0.0550	0.0825	0.1100	0.1375
0.1650	0.1926	0.2201	0.2476	0.2751
0.3026	0.3301	0.3576	0.3851	0.4126
0.4401	0.4676	0.4951	0.5227	0.5502
0.5687	0.5836	0.5984	0.6133	0.6282
0.6431	0.6579	0.6728	0.6877	0.7026
0.7174	0.7323	0.7472	0.7620	0.7769
0.7918	0.8067	0.8215	0.8364	0.8513
0.8661	0.8810	0.8959	0.9108	0.9256
0.9405	0.9554	0.9703	0.9851	1.0000

Transect PondSpillway2
Area:

0.0006	0.0023	0.0052	0.0092	0.0144
0.0207	0.0281	0.0367	0.0465	0.0574
0.0695	0.0827	0.0970	0.1125	0.1292
0.1470	0.1659	0.1860	0.2072	0.2291
0.2513	0.2736	0.2963	0.3191	0.3422

```
            0.3656     0.3892     0.4131     0.4372     0.4615
            0.4861     0.5109     0.5360     0.5613     0.5869
            0.6127     0.6388     0.6651     0.6916     0.7185
            0.7455     0.7728     0.8003     0.8281     0.8562
            0.8844     0.9130     0.9417     0.9707     1.0000
Hrad:
            0.0147     0.0295     0.0442     0.0590     0.0737
            0.0885     0.1032     0.1179     0.1327     0.1474
            0.1622     0.1769     0.1916     0.2064     0.2211
            0.2359     0.2506     0.2654     0.2808     0.3069
            0.3328     0.3584     0.3838     0.4090     0.4339
            0.4586     0.4831     0.5074     0.5315     0.5553
            0.5790     0.6026     0.6259     0.6491     0.6721
            0.6949     0.7176     0.7401     0.7625     0.7848
            0.8069     0.8288     0.8506     0.8723     0.8939
            0.9154     0.9367     0.9579     0.9790     1.0000
Width:
            0.0391     0.0781     0.1172     0.1563     0.1954
            0.2344     0.2735     0.3126     0.3517     0.3907
            0.4298     0.4689     0.5080     0.5470     0.5861
            0.6252     0.6643     0.7033     0.7406     0.7489
            0.7573     0.7657     0.7740     0.7824     0.7908
            0.7991     0.8075     0.8159     0.8243     0.8326
            0.8410     0.8494     0.8577     0.8661     0.8745
            0.8828     0.8912     0.8996     0.9079     0.9163
            0.9247     0.9330     0.9414     0.9498     0.9582
            0.9665     0.9749     0.9833     0.9916     1.0000

Transect PondSpillway3
Area:
            0.0005     0.0019     0.0043     0.0077     0.0120
            0.0172     0.0234     0.0306     0.0387     0.0478
            0.0579     0.0689     0.0808     0.0937     0.1076
            0.1224     0.1382     0.1550     0.1727     0.1913
            0.2109     0.2314     0.2525     0.2741     0.2961
            0.3186     0.3416     0.3650     0.3889     0.4133
            0.4382     0.4635     0.4893     0.5155     0.5423
            0.5695     0.5972     0.6253     0.6540     0.6831
            0.7126     0.7427     0.7732     0.8042     0.8356
            0.8676     0.9000     0.9328     0.9662     1.0000
Hrad:
            0.0170     0.0341     0.0511     0.0681     0.0851
            0.1022     0.1192     0.1362     0.1532     0.1703
            0.1873     0.2043     0.2213     0.2384     0.2554
            0.2724     0.2894     0.3065     0.3235     0.3405
            0.3575     0.3781     0.4034     0.4283     0.4529
            0.4772     0.5012     0.5250     0.5484     0.5717
            0.5946     0.6174     0.6400     0.6623     0.6845
            0.7065     0.7283     0.7500     0.7715     0.7929
            0.8141     0.8352     0.8562     0.8771     0.8978
            0.9185     0.9390     0.9594     0.9798     1.0000
Width:
            0.0281     0.0562     0.0843     0.1124     0.1405
            0.1685     0.1966     0.2247     0.2528     0.2809
            0.3090     0.3371     0.3652     0.3933     0.4214
            0.4495     0.4776     0.5056     0.5337     0.5618
            0.5899     0.6122     0.6260     0.6399     0.6537
```

0.6676 0.6814 0.6953 0.7091 0.7230
0.7368 0.7507 0.7645 0.7784 0.7922
0.8061 0.8199 0.8338 0.8476 0.8615
0.8753 0.8892 0.9030 0.9169 0.9307
0.9446 0.9584 0.9723 0.9861 1.0000

Transect Road
Area:
0.0005 0.0019 0.0043 0.0077 0.0120
0.0173 0.0236 0.0308 0.0390 0.0481
0.0582 0.0693 0.0813 0.0943 0.1083
0.1232 0.1393 0.1563 0.1740 0.1922
0.2109 0.2303 0.2502 0.2706 0.2916
0.3132 0.3354 0.3581 0.3813 0.4052
0.4296 0.4545 0.4800 0.5061 0.5328
0.5600 0.5877 0.6161 0.6450 0.6744
0.7045 0.7350 0.7662 0.7979 0.8302
0.8630 0.8964 0.9304 0.9649 1.0000
Hrad:
0.0205 0.0410 0.0615 0.0820 0.1025
0.1230 0.1435 0.1640 0.1845 0.2050
0.2255 0.2460 0.2665 0.2870 0.3075
0.3280 0.3441 0.3834 0.4208 0.4563
0.4899 0.5219 0.5522 0.5811 0.6084
0.6345 0.6592 0.6828 0.7052 0.7266
0.7469 0.7663 0.7848 0.8024 0.8193
0.8354 0.8508 0.8655 0.8795 0.8930
0.9058 0.9181 0.9299 0.9413 0.9521
0.9625 0.9724 0.9820 0.9912 1.0000
Width:
0.0272 0.0544 0.0816 0.1089 0.1361
0.1633 0.1905 0.2177 0.2449 0.2721
0.2994 0.3266 0.3538 0.3810 0.4082
0.4354 0.4748 0.4907 0.5066 0.5225
0.5385 0.5544 0.5703 0.5862 0.6021
0.6180 0.6340 0.6499 0.6658 0.6817
0.6976 0.7135 0.7294 0.7454 0.7613
0.7772 0.7931 0.8090 0.8249 0.8408
0.8568 0.8727 0.8886 0.9045 0.9204
0.9363 0.9523 0.9682 0.9841 1.0000

Transect Road2
Area:
0.0006 0.0023 0.0051 0.0091 0.0142
0.0205 0.0279 0.0364 0.0461 0.0569
0.0689 0.0820 0.0962 0.1116 0.1281
0.1458 0.1646 0.1844 0.2044 0.2248
0.2456 0.2667 0.2881 0.3100 0.3321
0.3546 0.3775 0.4007 0.4243 0.4482
0.4724 0.4971 0.5220 0.5473 0.5730
0.5990 0.6254 0.6521 0.6792 0.7066
0.7343 0.7625 0.7909 0.8197 0.8489
0.8784 0.9083 0.9385 0.9691 1.0000
Hrad:
0.0167 0.0335 0.0502 0.0670 0.0837
0.1004 0.1172 0.1339 0.1507 0.1674
0.1841 0.2009 0.2176 0.2344 0.2511

	0.2678	0.2897	0.3213	0.3521	0.3820
	0.4111	0.4395	0.4671	0.4939	0.5201
	0.5456	0.5704	0.5946	0.6182	0.6411
	0.6635	0.6854	0.7067	0.7274	0.7477
	0.7675	0.7867	0.8056	0.8240	0.8419
	0.8594	0.8765	0.8932	0.9096	0.9255
	0.9411	0.9563	0.9712	0.9858	1.0000
Width:					
	0.0366	0.0732	0.1099	0.1465	0.1831
	0.2197	0.2563	0.2930	0.3296	0.3662
	0.4028	0.4394	0.4761	0.5127	0.5493
	0.5859	0.6282	0.6394	0.6507	0.6620
	0.6732	0.6845	0.6958	0.7070	0.7183
	0.7296	0.7408	0.7521	0.7634	0.7746
	0.7859	0.7972	0.8085	0.8197	0.8310
	0.8423	0.8535	0.8648	0.8761	0.8873
	0.8986	0.9099	0.9211	0.9324	0.9437
	0.9549	0.9662	0.9775	0.9887	1.0000

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
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 ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 03/15/2021 00:00:00
Ending Date 03/26/2021 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:15:00
Wet Time Step 00:15:00
Dry Time Step 00:15:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 4
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------

Total Precipitation	0.104	81.588
Evaporation Loss	0.000	0.000
Infiltration Loss	0.011	8.341
Surface Runoff	0.094	73.506
Final Storage	0.001	0.473
Continuity Error (%)	-0.898	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.094	0.939
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.094	0.939
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 (%)	0.053	

Time-Step Critical Elements

Link C32 (3.65%)
Link C33 (1.31%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	0.50 sec
Average Time Step	:	4.85 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	2.01
Percent Not Converging	:	0.14
Time Step Frequencies	:	
5.000 - 3.155 sec	:	95.28 %
3.155 - 1.991 sec	:	1.81 %
1.991 - 1.256 sec	:	2.10 %
1.256 - 0.792 sec	:	0.61 %
0.792 - 0.500 sec	:	0.21 %

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
JANISSE	81.59	0.00	0.00	34.40	0.00	49.21	49.21	0.06	0.02	0.603
Roof1	81.59	0.00	0.00	0.00	81.76	0.00	81.76	0.03	0.01	1.002
Roof2	81.59	0.00	0.00	0.00	81.76	0.00	81.76	0.03	0.01	1.002
Roof3	81.59	0.00	0.00	0.00	81.76	0.00	81.76	0.02	0.01	1.002
Roof4	81.59	0.00	0.00	0.00	81.76	0.00	81.76	0.03	0.01	1.002
S1	81.59	0.00	0.00	4.65	67.56	7.85	75.40	0.04	0.02	0.924
S1_10	81.59	0.00	0.00	2.36	73.70	5.89	79.59	0.02	0.01	0.975
S1_12	81.59	0.00	0.00	4.72	65.37	11.76	77.12	0.05	0.02	0.945
S1_13	81.59	0.00	0.00	22.22	8.16	53.34	61.50	0.04	0.02	0.754
S1_14	81.59	0.00	0.00	2.35	73.55	5.84	79.39	0.05	0.02	0.973
S1_15	81.59	0.00	0.00	11.91	40.83	29.67	70.50	0.04	0.02	0.864
S1_16	81.59	0.00	0.00	7.10	57.18	17.69	74.87	0.02	0.01	0.918
S1_17	81.59	0.00	0.00	1.17	77.62	2.91	80.53	0.03	0.01	0.987
S1_18	81.59	0.00	0.00	4.72	65.37	11.76	77.12	0.05	0.03	0.945
S1_19	81.59	0.00	0.00	0.00	81.89	0.00	81.89	0.05	0.03	1.004
S1_2	81.59	0.00	0.00	11.93	40.84	29.70	70.54	0.02	0.01	0.865
S1_21	81.59	0.00	0.00	0.00	81.99	0.00	81.99	0.05	0.02	1.005
S1_22	81.59	0.00	0.00	1.17	77.61	2.91	80.52	0.03	0.01	0.987
S1_23	81.59	0.00	0.00	2.36	73.70	5.89	79.59	0.02	0.01	0.975
S1_24	81.59	0.00	0.00	2.36	73.69	5.89	79.58	0.01	0.00	0.975
S1_25	81.59	0.00	0.00	2.36	73.69	5.89	79.58	0.01	0.00	0.975
S1_8	81.59	0.00	0.00	2.36	73.62	5.87	79.49	0.06	0.03	0.974
S2	81.59	0.00	0.00	4.65	67.55	7.86	75.42	0.03	0.02	0.924
S3	81.59	0.00	0.00	23.64	19.86	39.68	59.53	0.01	0.01	0.730

S4		81.59	0.00	0.00	0.00	79.47	
0.00	79.47	0.01	0.01	0.974			
S5		81.59	0.00	0.00	0.00	79.47	
0.00	79.47	0.01	0.01	0.974			
s6		81.59	0.00	0.00	10.62	52.45	
17.78	70.23	0.02	0.01	0.861			
S7		81.59	0.00	0.00	10.63	52.45	
17.82	70.27	0.04	0.02	0.861			
S8		81.59	0.00	0.00	10.67	52.46	
17.90	70.35	0.06	0.03	0.862			

****
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
CB1	JUNCTION	0.02	1.09	181.40	0 02:14	1.09
CB2	JUNCTION	0.02	1.14	181.40	0 02:14	1.14
CBMH3	JUNCTION	0.02	1.18	181.40	0 02:14	1.17
CBMH4	JUNCTION	0.03	1.21	181.40	0 02:14	1.20
CBMH5	JUNCTION	0.03	1.25	181.39	0 02:14	1.25
CBMH6	JUNCTION	0.03	1.27	181.39	0 02:14	1.27
CBMH7	JUNCTION	0.03	1.24	181.40	0 02:14	1.24
CBMH8	JUNCTION	0.03	1.31	181.40	0 01:53	1.30
EX-CBMH	JUNCTION	0.01	0.32	180.33	0 01:44	0.31
EX-OGS	JUNCTION	0.01	0.57	180.82	0 01:45	0.57
J1	JUNCTION	0.00	0.04	100.04	0 01:45	0.03
J10	JUNCTION	0.01	1.11	181.56	0 01:45	1.11
J11	JUNCTION	0.01	1.03	181.43	0 01:45	1.03
J12	JUNCTION	0.01	0.87	181.20	0 01:45	0.86
J13	JUNCTION	0.01	1.62	182.54	0 01:45	1.61
J15	JUNCTION	0.01	1.47	182.33	0 01:45	1.46
J16	JUNCTION	0.01	0.83	181.16	0 01:45	0.83
J17	JUNCTION	0.01	0.94	181.29	0 01:45	0.94
J18	JUNCTION	0.01	0.94	181.33	0 01:45	0.94
J19	JUNCTION	0.02	2.54	183.61	0 01:46	2.54
J2	JUNCTION	0.00	0.79	181.32	0 01:45	0.78
J20	JUNCTION	0.02	2.67	183.61	0 01:45	2.67
J3	JUNCTION	0.01	0.87	181.37	0 01:45	0.86
J4	JUNCTION	0.01	0.91	181.37	0 01:45	0.91
J5	JUNCTION	0.00	0.89	181.36	0 01:45	0.88
J6	JUNCTION	0.01	0.95	181.49	0 01:47	0.94
J7	JUNCTION	0.01	0.96	181.55	0 01:47	0.95
J8	JUNCTION	0.01	0.85	181.59	0 01:53	0.84
J9	JUNCTION	0.02	2.75	183.58	0 01:45	2.75
OGS-MH	JUNCTION	0.01	0.32	180.34	0 01:44	0.30
OF1	OUTFALL	0.01	0.28	180.29	0 01:44	0.28
OF2	OUTFALL	0.00	0.03	99.03	0 01:45	0.03
SU1	STORAGE	0.00	0.17	181.41	0 02:13	0.17
SU10	STORAGE	0.00	0.10	181.42	0 01:57	0.10
SU11	STORAGE	0.00	0.03	181.48	0 01:45	0.03
SU12	STORAGE	0.00	0.13	181.59	0 01:52	0.10

SU13	STORAGE	0.00	0.17	181.63	0	01:57	0.17
SU14	STORAGE	0.00	0.18	183.63	0	01:55	0.17
SU15	STORAGE	0.00	0.08	181.53	0	01:48	0.06
SU16	STORAGE	0.01	0.06	181.41	0	01:58	0.06
SU2	STORAGE	0.00	0.13	181.42	0	02:00	0.13
SU3	STORAGE	0.00	0.10	181.40	0	02:02	0.10
SU4	STORAGE	0.00	0.10	181.40	0	02:02	0.10
SU5	STORAGE	0.00	0.15	181.42	0	02:00	0.15
SU6	STORAGE	0.00	0.13	181.43	0	01:59	0.13
SU7	STORAGE	0.00	0.03	181.49	0	01:45	0.03
SU8	STORAGE	0.00	0.03	181.49	0	01:45	0.03
SU9	STORAGE	0.00	0.04	181.50	0	01:45	0.04
UG_Storage	STORAGE	0.03	1.42	181.45	0	01:44	1.35

****
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
CB1	JUNCTION	0.000	0.030	0	01:44	0	0.0638	-0.012
CB2	JUNCTION	0.000	0.057	0	01:44	0	0.123	0.102
CBMH3	JUNCTION	0.000	0.063	0	01:44	0	0.135	0.067
CBMH4	JUNCTION	0.000	0.067	0	01:44	0	0.145	0.028
CBMH5	JUNCTION	0.000	0.072	0	01:44	0	0.158	0.031
CBMH6	JUNCTION	0.000	0.083	0	01:44	0	0.181	-0.037
CBMH7	JUNCTION	0.000	0.012	0	01:44	0	0.0234	0.372
CBMH8	JUNCTION	0.000	0.115	0	01:44	0	0.249	0.033
EX-CBMH	JUNCTION	0.000	0.224	0	01:44	0	0.883	-0.001
EX-OGS	JUNCTION	0.000	0.185	0	01:45	0	0.546	-0.009
J1	JUNCTION	0.021	0.021	0	01:45	0.0574	0.0574	0.002
J10	JUNCTION	0.017	0.085	0	01:45	0.0311	0.23	-0.027
J11	JUNCTION	0.000	0.098	0	01:45	0	0.276	-0.013
J12	JUNCTION	0.000	0.118	0	01:45	0	0.314	-0.029

J13	JUNCTION	0.026	0.026	0	01:45	0.0535	0.0535
-0.036							
J15	JUNCTION	0.010	0.036	0	01:45	0.021	0.0745
0.042							
J16	JUNCTION	0.000	0.185	0	01:45	0	0.546
-0.011							
J17	JUNCTION	0.000	0.068	0	01:46	0	0.231
-0.027							
J18	JUNCTION	0.000	0.058	0	01:56	0	0.202
-0.025							
J19	JUNCTION	0.000	0.027	0	02:14	0	0.0578
0.188							
J2	JUNCTION	0.000	0.014	0	01:45	0	0.0286
-0.095							
J20	JUNCTION	0.011	0.027	0	02:14	0.0217	0.0789
0.008							
J3	JUNCTION	0.000	0.014	0	01:45	0	0.0293
-0.169							
J4	JUNCTION	0.000	0.053	0	02:01	0	0.173
-0.050							
J5	JUNCTION	0.000	0.021	0	01:45	0	0.0385
-0.095							
J6	JUNCTION	0.000	0.026	0	01:53	0	0.046
-0.094							
J7	JUNCTION	0.025	0.050	0	02:01	0.0483	0.15
-0.087							
J8	JUNCTION	0.000	0.026	0	02:11	0	0.05
0.055							
J9	JUNCTION	0.025	0.033	0	01:56	0.0457	0.124
-0.013							
OGS-MH	JUNCTION	0.000	0.038	0	02:23	0	0.34
0.028							
OF1	OUTFALL	0.000	0.221	0	01:44	0	0.881
0.000							
OF2	OUTFALL	0.000	0.021	0	01:45	0	0.0574
0.000							
SU1	STORAGE	0.032	0.034	0	01:45	0.063	0.0634
0.046							
SU10	STORAGE	0.013	0.013	0	01:45	0.0234	0.0234
0.036							
SU11	STORAGE	0.012	0.012	0	01:45	0.0233	0.0233
0.003							
SU12	STORAGE	0.025	0.025	0	01:45	0.0512	0.0512
0.031							
SU13	STORAGE	0.026	0.026	0	01:45	0.0501	0.0501
0.017							
SU14	STORAGE	0.028	0.032	0	01:45	0.0568	0.0573
0.024							
SU15	STORAGE	0.023	0.023	0	01:45	0.046	0.046
0.006							
SU16	STORAGE	0.008	0.008	0	01:45	0.0122	0.0122
0.025							
SU2	STORAGE	0.030	0.030	0	01:45	0.06	0.06
0.012							
SU3	STORAGE	0.005	0.006	0	01:44	0.0101	0.0101
0.028							
SU4	STORAGE	0.006	0.007	0	01:44	0.0127	0.0127
0.023							
SU5	STORAGE	0.047	0.083	0	01:44	0.087	0.0873
0.047							

SU6	STORAGE	0.036	0.036	0	01:45	0.0683
0.0683	0.011					
SU7	STORAGE	0.014	0.014	0	01:45	0.0292
0.0292	0.002					
SU8	STORAGE	0.014	0.014	0	01:45	0.0286
0.0286	0.002					
SU9	STORAGE	0.021	0.021	0	01:45	0.0385
0.0385	0.003					
UG_Storage	STORAGE	0.000	0.154	0	01:44	0
0.338	0.154					

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB1	JUNCTION	1.60	0.695	0.000
CB2	JUNCTION	1.69	0.744	0.000
CBMH3	JUNCTION	1.75	0.771	0.000
CBMH4	JUNCTION	1.84	0.807	0.000
CBMH5	JUNCTION	1.94	0.849	0.000
CBMH6	JUNCTION	2.08	0.895	0.000
CBMH7	JUNCTION	1.92	0.841	0.000
CBMH8	JUNCTION	2.10	0.906	0.000
EX-OGS	JUNCTION	0.36	0.199	0.682
J10	JUNCTION	0.39	0.652	1.089
J11	JUNCTION	0.53	0.726	0.021
J12	JUNCTION	0.55	0.566	0.296
J13	JUNCTION	0.40	1.467	0.109
J15	JUNCTION	0.42	1.316	0.318
J16	JUNCTION	0.42	0.456	0.340
J17	JUNCTION	0.63	0.643	0.163
J18	JUNCTION	0.57	0.644	0.120
J19	JUNCTION	0.73	2.143	0.147
J2	JUNCTION	0.35	0.389	0.137
J20	JUNCTION	0.80	2.524	0.341
J3	JUNCTION	0.39	0.466	0.084
J4	JUNCTION	0.47	0.513	0.380
J5	JUNCTION	0.34	0.490	0.088
J6	JUNCTION	0.36	0.550	0.000
J7	JUNCTION	0.56	0.557	0.000
J8	JUNCTION	0.66	0.451	0.000
J9	JUNCTION	0.82	2.601	0.370
UG_Storage	STORAGE	2.26	1.015	0.000

****
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	0.000	1	0	0	0.023	59	0 02:13	0.030
SU10	0.000	0	0	0	0.003	45	0 01:57	0.012
SU11	0.000	0	0	0	0.001	2	0 01:45	0.012
SU12	0.000	0	0	0	0.014	19	0 01:52	0.033
SU13	0.000	0	0	0	0.016	33	0 01:57	0.026
SU14	0.000	0	0	0	0.020	34	0 01:55	0.027
SU15	0.000	0	0	0	0.003	6	0 01:48	0.026
SU16	0.000	0	0	0	0.001	22	0 01:58	0.008
SU2	0.000	1	0	0	0.013	59	0 02:00	0.028
SU3	0.000	0	0	0	0.002	34	0 02:02	0.005
SU4	0.000	0	0	0	0.003	34	0 02:02	0.006
SU5	0.000	1	0	0	0.023	65	0 02:00	0.040
SU6	0.000	1	0	0	0.014	63	0 01:59	0.032
SU7	0.000	0	0	0	0.000	1	0 01:45	0.014
SU8	0.000	0	0	0	0.000	1	0 01:45	0.014
SU9	0.000	0	0	0	0.001	2	0 01:45	0.021
UG_Storage	0.003	3	0	0	0.096	100	0 01:44	0.075

****
Outfall Loading Summary
****

	Flow Freq	Avg Flow	Max Flow	Total Volume

Outfall Node	Pcnt	CMS	CMS	10^6 ltr
OF1	7.09	0.041	0.221	0.881
OF2	3.70	0.005	0.021	0.057
System	5.39	0.046	0.241	0.939

****
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
C1	CONDUIT	0.029	0	01:44	0.38	0.34	1.00
C10	CONDUIT	0.221	0	01:44	1.35	0.80	0.40
C11	CONDUIT	0.056	0	01:44	0.57	0.66	1.00
C12	CONDUIT	0.062	0	01:44	0.56	0.74	1.00
C13	CONDUIT	0.021	0	01:45	2.43	0.00	0.03
C14	CONDUIT	0.185	0	01:45	1.68	2.01	1.00
C15	CONDUIT	0.021	0	01:45	1.17	1.08	1.00
C16	CONDUIT	0.026	0	01:53	1.50	1.29	1.00
C17	CONDUIT	0.098	0	01:45	1.38	1.84	1.00
C18	CONDUIT	0.085	0	01:45	1.20	1.60	1.00
C19	CONDUIT	0.033	0	01:56	1.85	2.38	1.00
C2	CONDUIT	0.066	0	01:44	0.60	0.76	1.00
C20	CONDUIT	0.185	0	01:45	2.62	1.97	1.00
C21	CONDUIT	0.036	0	01:45	2.06	2.68	1.00
C22	CONDUIT	0.026	0	01:45	1.47	1.90	1.00
C23	CONDUIT	0.026	0	02:11	1.47	1.93	1.00
C24	CONDUIT	0.050	0	02:02	1.60	2.05	1.00
C25	CONDUIT	0.053	0	02:00	0.75	1.00	1.00
C26	CONDUIT	0.058	0	01:56	0.82	1.09	1.00
C27	CONDUIT	0.068	0	01:46	0.96	2.68	1.00
C28	CONDUIT	0.014	0	01:45	0.78	0.38	1.00
C29	CONDUIT	0.014	0	01:45	0.80	0.56	1.00
C3	CONDUIT	0.071	0	01:44	0.65	0.85	1.00
C30	CONDUIT	0.026	0	02:14	1.45	1.86	1.00
C31	CONDUIT	0.027	0	02:14	1.52	2.04	1.00
C32	CONDUIT	0.118	0	01:45	1.67	2.22	1.00
C33	CONDUIT	0.042	0	01:44	0.85	0.39	0.83
C4	CONDUIT	0.012	0	01:44	0.66	0.86	1.00
C5	CONDUIT	0.083	0	01:44	0.75	0.98	1.00
C6	CONDUIT	0.114	0	01:44	1.03	1.36	1.00
C9	ORIFICE	0.038	0	02:23			1.00
OR1	ORIFICE	0.012	0	01:45			
OR10	ORIFICE	0.032	0	01:44			
OR11	ORIFICE	0.028	0	01:44			
OR12	ORIFICE	0.030	0	01:44			
OR13	ORIFICE	0.033	0	02:01			
OR14	ORIFICE	0.027	0	02:14			
OR15	ORIFICE	0.021	0	01:45			
OR16	ORIFICE	0.040	0	01:44			
OR2	ORIFICE	0.026	0	02:11			

OR3	ORIFICE	0.026	0	01:53
OR4	ORIFICE	0.014	0	01:45
OR5	ORIFICE	0.014	0	01:45
OR6	ORIFICE	0.008	0	01:45
OR7	ORIFICE	0.005	0	01:44
OR8	ORIFICE	0.006	0	01:44
OR9	ORIFICE	0.012	0	01:44

****
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
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C10	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.99	0.00
C12	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C13	1.00	0.01	0.00	0.00	0.95	0.04	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.85	0.00	0.15	0.00	0.00	0.00	0.97	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C16	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.07	0.00
C17	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C18	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.10	0.00
C19	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.64	0.00
C2	1.00	0.00	0.87	0.00	0.12	0.00	0.00	0.00	0.99	0.00
C20	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C21	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C22	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C23	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.91	0.00
C24	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
C25	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.07	0.00

C26	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99
0.00									
C27	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04
0.00									
C28	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C29	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.14
0.00									
C3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.09
0.00									
C30	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.94
0.00									
C31	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99
0.00									
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.05
0.00									
C33	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.12
0.00									
C4	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04
0.00									
C5	1.00	0.00	0.51	0.00	0.49	0.00	0.00	0.00	0.92
0.00									
C6	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.08
0.00									

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	1.65	1.65	1.75	0.01	0.01
C11	1.75	1.75	1.82	0.01	0.01
C12	1.82	1.82	1.90	0.01	0.01
C14	0.36	0.42	0.36	0.60	0.36
C15	0.60	0.60	1.01	0.06	0.07
C16	0.57	0.57	0.91	0.07	0.07
C17	0.53	0.53	0.55	0.45	0.44
C18	0.51	0.51	0.53	0.38	0.37
C19	0.80	0.82	0.85	0.85	0.80
C2	1.90	1.90	2.01	0.01	0.01
C20	0.21	0.48	0.21	0.59	0.21
C21	0.38	0.42	0.39	0.43	0.36
C22	0.40	0.40	0.42	0.33	0.33
C23	0.72	0.72	0.76	0.21	0.21
C24	0.71	0.72	0.71	0.74	0.71
C25	0.53	0.53	0.57	0.04	0.04
C26	0.57	0.57	0.63	0.38	0.39
C27	0.55	0.63	0.55	0.86	0.55
C28	0.56	0.56	1.05	0.01	0.01
C29	0.68	0.68	0.94	0.01	0.01
C3	2.00	2.00	2.08	0.01	0.01
C30	0.78	0.78	0.80	0.34	0.34
C31	0.80	0.80	0.82	0.57	0.57

C32	0.55	0.55	0.55	0.54	0.50
C4	2.79	2.79	2.94	0.01	0.01
C5	2.08	2.08	2.18	0.01	0.01
C6	2.18	2.18	2.35	0.08	0.09

Analysis begun on: Wed Apr 26 11:45:05 2023
Analysis ended on: Wed Apr 26 11:45:12 2023
Total elapsed time: 00:00:07

MODEL OUTPUT DATA - SCS 100-YEAR

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
  ---------------------------------------------------------------


  *************
  Element Count
  *************
  Number of rain gages ...... 1
  Number of subcatchments ... 29
  Number of nodes ........... 49
  Number of links ........... 47
  Number of pollutants ...... 0
  Number of land uses ....... 0


  ****************
  Raingage Summary
  ****************
                                                        Data       Recording
  Name                 Data Source                      Type       Interval
  ------------------------------------------------------------------------
  Raingage1            SCS100yr                         INTENSITY  120 min.


  ********************
  Subcatchment Summary
  ********************
  Name                         Area     Width    %Imperv    %Slope Rain Gage
Outlet
  ------------------------------------------------------------------------------------
--------------------------
  JANISSE                     0.12     16.66       0.00    0.5000 Raingage1
J1
  Roof1                       0.03     11.27     100.00    0.5000 Raingage1
SU2
  Roof2                       0.04     11.83     100.00    0.5000 Raingage1
SU6
  Roof3                       0.03      9.17     100.00    0.5000 Raingage1
SU1
  Roof4                       0.03     10.73     100.00    0.5000 Raingage1
SU5
  S1                          0.05     30.69      85.00    0.5000 Raingage1
SU1
  S1_10                       0.03      5.15      90.00    0.5000 Raingage1
J20
  S1_12                       0.06     27.22      80.00    0.5000 Raingage1
J7
  S1_13                       0.06     15.72      10.00    0.5000 Raingage1
J9
  S1_14                       0.06     25.17      90.00    0.5000 Raingage1
SU15
  S1_15                       0.05     27.30      50.00    0.5000 Raingage1
SU9
  S1_16                       0.03     15.55      70.00    0.5000 Raingage1
SU11
  S1_17                       0.04     21.35      95.00    0.5000 Raingage1
SU7
  S1_18                       0.06     28.22      80.00    0.5000 Raingage1
```

S1_19	0.07	13.60	100.00	0.5000	Raingage1
J13					
S1_2	0.03	15.86	50.00	0.5000	Raingage1
J10					
S1_21	0.06	10.42	100.00	0.5000	Raingage1
SU12					
S1_22	0.04	23.67	95.00	0.5000	Raingage1
SU8					
S1_23	0.03	4.98	90.00	0.5000	Raingage1
J15					
S1_24	0.01	1.69	90.00	0.5000	Raingage1
J9					
S1_25	0.01	1.58	90.00	0.5000	Raingage1
J10					
S1_8	0.07	17.88	90.00	0.5000	Raingage1
SU14					
S2	0.04	26.81	85.00	0.5000	Raingage1
SU2					
S3	0.02	13.67	25.00	0.5000	Raingage1
SU16					
S4	0.01	10.58	100.00	0.5000	Raingage1
SU3					
S5	0.02	12.31	100.00	0.5000	Raingage1
SU4					
s6	0.03	18.50	66.00	0.5000	Raingage1
SU10					
S7	0.06	27.95	66.00	0.5000	Raingage1
SU6					
S8	0.09	34.52	66.00	0.5000	Raingage1
SU5					

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB1	JUNCTION	180.31	0.94	0.0	
CB2	JUNCTION	180.26	1.04	0.0	
CBMH3	JUNCTION	180.22	1.13	0.0	
CBMH4	JUNCTION	180.19	1.12	0.0	
CBMH5	JUNCTION	180.15	1.16	0.0	
CBMH6	JUNCTION	180.12	1.19	0.0	
CBMH7	JUNCTION	180.16	1.16	0.0	
CBMH8	JUNCTION	180.09	1.21	0.0	
EX-CBMH	JUNCTION	180.01	1.49	0.0	
EX-OGS	JUNCTION	180.24	1.26	0.0	
J1	JUNCTION	100.00	2.00	0.0	
J10	JUNCTION	180.46	2.20	0.0	
J11	JUNCTION	180.41	1.05	0.0	
J12	JUNCTION	180.34	1.16	0.0	
J13	JUNCTION	180.93	1.73	0.0	
J15	JUNCTION	180.87	1.78	0.0	
J16	JUNCTION	180.33	1.17	0.0	
J17	JUNCTION	180.35	1.11	0.0	
J18	JUNCTION	180.39	1.06	0.0	
J19	JUNCTION	181.06	2.69	0.0	

J2	JUNCTION	180.53	0.93	0.0
J20	JUNCTION	180.94	3.02	0.0
J3	JUNCTION	180.50	0.95	0.0
J4	JUNCTION	180.46	1.29	0.0
J5	JUNCTION	180.47	0.98	0.0
J6	JUNCTION	180.54	0.92	0.0
J7	JUNCTION	180.59	0.86	0.0
J8	JUNCTION	180.74	0.71	0.0
J9	JUNCTION	180.83	3.12	0.0
OGS-MH	JUNCTION	180.03	1.24	0.0
OF1	OUTFALL	180.01	0.75	0.0
OF2	OUTFALL	99.00	1.00	0.0
SU1	STORAGE	181.24	0.21	0.0
SU10	STORAGE	181.32	0.13	0.0
SU11	STORAGE	181.45	0.30	0.0
SU12	STORAGE	181.45	0.30	0.0
SU13	STORAGE	181.45	0.30	0.0
SU14	STORAGE	183.45	0.30	0.0
SU15	STORAGE	181.45	0.30	0.0
SU16	STORAGE	181.35	0.10	0.0
SU2	STORAGE	181.29	0.16	0.0
SU3	STORAGE	181.31	0.14	0.0
SU4	STORAGE	181.31	0.14	0.0
SU5	STORAGE	181.27	0.18	0.0
SU6	STORAGE	181.30	0.15	0.0
SU7	STORAGE	181.45	0.30	0.0
SU8	STORAGE	181.45	0.30	0.0
SU9	STORAGE	181.45	0.30	0.0
UG_Storage	STORAGE	180.04	0.78	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	% Slope	Roughness
C1	CB1	CB2	CONDUIT	21.3	0.2300	0.0130
C10	EX-CBMH	OF1	CONDUIT	9.8	0.0612	0.0130
C11	CB2	CBMH3	CONDUIT	15.2	0.2303	0.0130
C12	CBMH3	CBMH4	CONDUIT	13.5	0.2300	0.0130
C13	J1	OF2	CONDUIT	6.6	15.3690	0.0130
C14	J16	EX-OGS	CONDUIT	30.7	0.2771	0.0130
C15	J5	J12	CONDUIT	8.7	1.5820	0.0130
C16	J6	J11	CONDUIT	7.1	1.8198	0.0130
C17	J11	J12	CONDUIT	22.7	0.2998	0.0130
C18	J10	J11	CONDUIT	16.9	0.3014	0.0130

C19		J9	J10	CONDUIT	46.1
0.8130	0.0130				
C2		CBMH4	CBMH5	CONDUIT	17.7
0.2489	0.0130				
C20		EX-OGS	EX-CBMH	CONDUIT	17.0
0.5574	0.0100				
C21		J15	J10	CONDUIT	13.4
0.7970	0.0130				
C22		J13	J15	CONDUIT	7.2
0.8104	0.0130				
C23		J8	J7	CONDUIT	19.0
0.7827	0.0130				
C24		J7	J4	CONDUIT	24.0
0.5592	0.0130				
C25		J4	J18	CONDUIT	23.7
0.2998	0.0130				
C26		J18	J17	CONDUIT	14.0
0.3007	0.0130				
C27		J17	J16	CONDUIT	26.3
0.0684	0.0130				
C28		J2	J17	CONDUIT	3.2
5.6216	0.0130				
C29		J3	J18	CONDUIT	4.1
2.7714	0.0130				
C3		CBMH5	CBMH6	CONDUIT	11.5
0.2265	0.0130				
C30		J19	J20	CONDUIT	15.3
0.8152	0.0130				
C31		J20	J9	CONDUIT	14.1
0.7510	0.0130				
C32		J12	J16	CONDUIT	3.0
0.3014	0.0130				
C33		OGS-MH	EX-CBMH	CONDUIT	5.0
0.2222	0.0100				
C4		CBMH7	CBMH6	CONDUIT	4.2
0.7802	0.0130				
C5		CBMH6	CBMH8	CONDUIT	14.6
0.2332	0.0130				
C6		CBMH8	UG_Storage	CONDUIT	23.1
0.2290	0.0130				
C9		UG_Storage	OGS-MH	ORIFICE	
OR1		SU11	J4	ORIFICE	
OR10		SU6	CBMH8	ORIFICE	
OR11		SU2	CB2	ORIFICE	
OR12		SU1	CB1	ORIFICE	
OR13		SU12	J7	ORIFICE	
OR14		SU14	J19	ORIFICE	
OR15		SU9	J5	ORIFICE	
OR16		SU5	UG_Storage	ORIFICE	
OR2		SU13	J8	ORIFICE	
OR3		SU15	J6	ORIFICE	
OR4		SU7	J3	ORIFICE	
OR5		SU8	J2	ORIFICE	
OR6		SU16	CBMH3	ORIFICE	
OR7		SU3	CBMH4	ORIFICE	
OR8		SU4	CBMH5	ORIFICE	
OR9		SU10	CBMH7	ORIFICE	

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C10	CIRCULAR	0.75	0.44	0.19	0.75	1	0.28
C11	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C12	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C13	CIRCULAR	1.00	0.79	0.25	1.00	1	9.40
C14	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C15	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C16	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C19	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C21	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C22	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C23	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C24	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C25	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.03
C28	CIRCULAR	0.15	0.02	0.04	0.15	1	0.04
C29	CIRCULAR	0.15	0.02	0.04	0.15	1	0.03
C3	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C30	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C31	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	

C33	CIRCULAR	0.38	0.11	0.09	0.38	1
0.11						
C4	CIRCULAR	0.15	0.02	0.04	0.15	1
0.01						
C5	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						
C6	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						

****
Transect Summary
****

Transect PondSpillway1
Area:

0.0005	0.0019	0.0043	0.0076	0.0119
0.0172	0.0234	0.0306	0.0387	0.0477
0.0578	0.0688	0.0807	0.0936	0.1074
0.1222	0.1380	0.1547	0.1724	0.1910
0.2104	0.2304	0.2510	0.2720	0.2935
0.3156	0.3382	0.3613	0.3849	0.4090
0.4337	0.4588	0.4845	0.5107	0.5374
0.5646	0.5924	0.6206	0.6494	0.6787
0.7085	0.7388	0.7697	0.8010	0.8329
0.8653	0.8982	0.9316	0.9655	1.0000

Hrad:

0.0174	0.0348	0.0522	0.0696	0.0870
0.1044	0.1218	0.1392	0.1566	0.1740
0.1914	0.2088	0.2262	0.2436	0.2610
0.2784	0.2958	0.3132	0.3306	0.3480
0.3710	0.3958	0.4203	0.4444	0.4682
0.4917	0.5149	0.5378	0.5605	0.5830
0.6052	0.6273	0.6492	0.6708	0.6924
0.7137	0.7349	0.7560	0.7769	0.7977
0.8184	0.8390	0.8594	0.8798	0.9000
0.9202	0.9403	0.9603	0.9802	1.0000

Width:

0.0275	0.0550	0.0825	0.1100	0.1375
0.1650	0.1926	0.2201	0.2476	0.2751
0.3026	0.3301	0.3576	0.3851	0.4126
0.4401	0.4676	0.4951	0.5227	0.5502
0.5687	0.5836	0.5984	0.6133	0.6282
0.6431	0.6579	0.6728	0.6877	0.7026
0.7174	0.7323	0.7472	0.7620	0.7769
0.7918	0.8067	0.8215	0.8364	0.8513
0.8661	0.8810	0.8959	0.9108	0.9256
0.9405	0.9554	0.9703	0.9851	1.0000

Transect PondSpillway2
Area:

0.0006	0.0023	0.0052	0.0092	0.0144
0.0207	0.0281	0.0367	0.0465	0.0574
0.0695	0.0827	0.0970	0.1125	0.1292
0.1470	0.1659	0.1860	0.2072	0.2291
0.2513	0.2736	0.2963	0.3191	0.3422

```
            0.3656     0.3892     0.4131     0.4372     0.4615
            0.4861     0.5109     0.5360     0.5613     0.5869
            0.6127     0.6388     0.6651     0.6916     0.7185
            0.7455     0.7728     0.8003     0.8281     0.8562
            0.8844     0.9130     0.9417     0.9707     1.0000
Hrad:
            0.0147     0.0295     0.0442     0.0590     0.0737
            0.0885     0.1032     0.1179     0.1327     0.1474
            0.1622     0.1769     0.1916     0.2064     0.2211
            0.2359     0.2506     0.2654     0.2808     0.3069
            0.3328     0.3584     0.3838     0.4090     0.4339
            0.4586     0.4831     0.5074     0.5315     0.5553
            0.5790     0.6026     0.6259     0.6491     0.6721
            0.6949     0.7176     0.7401     0.7625     0.7848
            0.8069     0.8288     0.8506     0.8723     0.8939
            0.9154     0.9367     0.9579     0.9790     1.0000
Width:
            0.0391     0.0781     0.1172     0.1563     0.1954
            0.2344     0.2735     0.3126     0.3517     0.3907
            0.4298     0.4689     0.5080     0.5470     0.5861
            0.6252     0.6643     0.7033     0.7406     0.7489
            0.7573     0.7657     0.7740     0.7824     0.7908
            0.7991     0.8075     0.8159     0.8243     0.8326
            0.8410     0.8494     0.8577     0.8661     0.8745
            0.8828     0.8912     0.8996     0.9079     0.9163
            0.9247     0.9330     0.9414     0.9498     0.9582
            0.9665     0.9749     0.9833     0.9916     1.0000

Transect PondSpillway3
Area:
            0.0005     0.0019     0.0043     0.0077     0.0120
            0.0172     0.0234     0.0306     0.0387     0.0478
            0.0579     0.0689     0.0808     0.0937     0.1076
            0.1224     0.1382     0.1550     0.1727     0.1913
            0.2109     0.2314     0.2525     0.2741     0.2961
            0.3186     0.3416     0.3650     0.3889     0.4133
            0.4382     0.4635     0.4893     0.5155     0.5423
            0.5695     0.5972     0.6253     0.6540     0.6831
            0.7126     0.7427     0.7732     0.8042     0.8356
            0.8676     0.9000     0.9328     0.9662     1.0000
Hrad:
            0.0170     0.0341     0.0511     0.0681     0.0851
            0.1022     0.1192     0.1362     0.1532     0.1703
            0.1873     0.2043     0.2213     0.2384     0.2554
            0.2724     0.2894     0.3065     0.3235     0.3405
            0.3575     0.3781     0.4034     0.4283     0.4529
            0.4772     0.5012     0.5250     0.5484     0.5717
            0.5946     0.6174     0.6400     0.6623     0.6845
            0.7065     0.7283     0.7500     0.7715     0.7929
            0.8141     0.8352     0.8562     0.8771     0.8978
            0.9185     0.9390     0.9594     0.9798     1.0000
Width:
            0.0281     0.0562     0.0843     0.1124     0.1405
            0.1685     0.1966     0.2247     0.2528     0.2809
            0.3090     0.3371     0.3652     0.3933     0.4214
            0.4495     0.4776     0.5056     0.5337     0.5618
            0.5899     0.6122     0.6260     0.6399     0.6537
```

0.6676 0.6814 0.6953 0.7091 0.7230
0.7368 0.7507 0.7645 0.7784 0.7922
0.8061 0.8199 0.8338 0.8476 0.8615
0.8753 0.8892 0.9030 0.9169 0.9307
0.9446 0.9584 0.9723 0.9861 1.0000

Transect Road
Area:
0.0005 0.0019 0.0043 0.0077 0.0120
0.0173 0.0236 0.0308 0.0390 0.0481
0.0582 0.0693 0.0813 0.0943 0.1083
0.1232 0.1393 0.1563 0.1740 0.1922
0.2109 0.2303 0.2502 0.2706 0.2916
0.3132 0.3354 0.3581 0.3813 0.4052
0.4296 0.4545 0.4800 0.5061 0.5328
0.5600 0.5877 0.6161 0.6450 0.6744
0.7045 0.7350 0.7662 0.7979 0.8302
0.8630 0.8964 0.9304 0.9649 1.0000
Hrad:
0.0205 0.0410 0.0615 0.0820 0.1025
0.1230 0.1435 0.1640 0.1845 0.2050
0.2255 0.2460 0.2665 0.2870 0.3075
0.3280 0.3441 0.3834 0.4208 0.4563
0.4899 0.5219 0.5522 0.5811 0.6084
0.6345 0.6592 0.6828 0.7052 0.7266
0.7469 0.7663 0.7848 0.8024 0.8193
0.8354 0.8508 0.8655 0.8795 0.8930
0.9058 0.9181 0.9299 0.9413 0.9521
0.9625 0.9724 0.9820 0.9912 1.0000
Width:
0.0272 0.0544 0.0816 0.1089 0.1361
0.1633 0.1905 0.2177 0.2449 0.2721
0.2994 0.3266 0.3538 0.3810 0.4082
0.4354 0.4748 0.4907 0.5066 0.5225
0.5385 0.5544 0.5703 0.5862 0.6021
0.6180 0.6340 0.6499 0.6658 0.6817
0.6976 0.7135 0.7294 0.7454 0.7613
0.7772 0.7931 0.8090 0.8249 0.8408
0.8568 0.8727 0.8886 0.9045 0.9204
0.9363 0.9523 0.9682 0.9841 1.0000

Transect Road2
Area:
0.0006 0.0023 0.0051 0.0091 0.0142
0.0205 0.0279 0.0364 0.0461 0.0569
0.0689 0.0820 0.0962 0.1116 0.1281
0.1458 0.1646 0.1844 0.2044 0.2248
0.2456 0.2667 0.2881 0.3100 0.3321
0.3546 0.3775 0.4007 0.4243 0.4482
0.4724 0.4971 0.5220 0.5473 0.5730
0.5990 0.6254 0.6521 0.6792 0.7066
0.7343 0.7625 0.7909 0.8197 0.8489
0.8784 0.9083 0.9385 0.9691 1.0000
Hrad:
0.0167 0.0335 0.0502 0.0670 0.0837
0.1004 0.1172 0.1339 0.1507 0.1674
0.1841 0.2009 0.2176 0.2344 0.2511

	0.2678	0.2897	0.3213	0.3521	0.3820
	0.4111	0.4395	0.4671	0.4939	0.5201
	0.5456	0.5704	0.5946	0.6182	0.6411
	0.6635	0.6854	0.7067	0.7274	0.7477
	0.7675	0.7867	0.8056	0.8240	0.8419
	0.8594	0.8765	0.8932	0.9096	0.9255
	0.9411	0.9563	0.9712	0.9858	1.0000
Width:					
	0.0366	0.0732	0.1099	0.1465	0.1831
	0.2197	0.2563	0.2930	0.3296	0.3662
	0.4028	0.4394	0.4761	0.5127	0.5493
	0.5859	0.6282	0.6394	0.6507	0.6620
	0.6732	0.6845	0.6958	0.7070	0.7183
	0.7296	0.7408	0.7521	0.7634	0.7746
	0.7859	0.7972	0.8085	0.8197	0.8310
	0.8423	0.8535	0.8648	0.8761	0.8873
	0.8986	0.9099	0.9211	0.9324	0.9437
	0.9549	0.9662	0.9775	0.9887	1.0000

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
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 ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 03/15/2021 00:00:00
Ending Date 03/26/2021 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:15:00
Wet Time Step 00:15:00
Dry Time Step 00:15:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 4
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------

Total Precipitation	0.138	108.000
Evaporation Loss	0.000	0.000
Infiltration Loss	0.022	17.061
Surface Runoff	0.116	90.744
Final Storage	0.001	0.473
Continuity Error (%)	-0.258	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.116	1.159
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.116	1.159
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 (%)	0.004	

Time-Step Critical Elements

Link C32 (16.91%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	0.50 sec
Average Time Step	:	4.57 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	2.00
Percent Not Converging	:	0.00
Time Step Frequencies	:	
5.000 - 3.155 sec	:	85.06 %
3.155 - 1.991 sec	:	9.96 %
1.991 - 1.256 sec	:	2.35 %
1.256 - 0.792 sec	:	2.62 %
0.792 - 0.500 sec	:	0.01 %

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
JANISSE	108.00	0.00	0.00	64.06	0.00	44.21	44.21	0.05	0.01	0.409
Roof1	108.00	0.00	0.00	0.00	108.12	0.00	108.12	0.04	0.00	1.001
Roof2	108.00	0.00	0.00	0.00	108.12	0.00	108.12	0.04	0.00	1.001
Roof3	108.00	0.00	0.00	0.00	108.12	0.00	108.12	0.03	0.00	1.001
Roof4	108.00	0.00	0.00	0.00	108.12	0.00	108.12	0.03	0.00	1.001
S1	108.00	0.00	0.00	9.28	89.75	7.19	96.94	0.05	0.00	0.898
S1_10	108.00	0.00	0.00	5.45	97.38	5.41	102.79	0.03	0.00	0.952
S1_12	108.00	0.00	0.00	10.90	86.45	10.82	97.27	0.06	0.00	0.901
S1_13	108.00	0.00	0.00	49.79	10.80	47.79	58.60	0.04	0.00	0.543
S1_14	108.00	0.00	0.00	5.44	97.26	5.40	102.66	0.06	0.00	0.951
S1_15	108.00	0.00	0.00	27.35	54.01	26.99	81.00	0.04	0.00	0.750
S1_16	108.00	0.00	0.00	16.37	75.63	16.23	91.86	0.03	0.00	0.851
S1_17	108.00	0.00	0.00	2.71	102.65	2.70	105.34	0.04	0.00	0.975
S1_18	108.00	0.00	0.00	10.90	86.45	10.82	97.27	0.06	0.00	0.901
S1_19	108.00	0.00	0.00	0.00	108.20	0.00	108.20	0.07	0.00	1.002
S1_2	108.00	0.00	0.00	27.36	54.02	26.97	80.98	0.03	0.00	0.750
S1_21	108.00	0.00	0.00	0.00	108.24	0.00	108.24	0.07	0.00	1.002
S1_22	108.00	0.00	0.00	2.71	102.64	2.70	105.34	0.04	0.00	0.975
S1_23	108.00	0.00	0.00	5.45	97.38	5.41	102.79	0.03	0.00	0.952
S1_24	108.00	0.00	0.00	5.45	97.38	5.41	102.79	0.01	0.00	0.952
S1_25	108.00	0.00	0.00	5.45	97.38	5.41	102.79	0.01	0.00	0.952
S1_8	108.00	0.00	0.00	5.45	97.34	5.41	102.75	0.07	0.01	0.951
S2	108.00	0.00	0.00	9.28	89.75	7.20	96.95	0.04	0.00	0.898
S3	108.00	0.00	0.00	46.75	26.39	34.90	61.29	0.01	0.00	0.568
S4	108.00	0.00	0.00	0.00	105.59					

```
  S5                       108.00       0.00       0.00       0.00     105.59
0.00     105.59        0.02     0.00   0.978
  s6                       108.00       0.00       0.00      21.12      69.69
16.03      85.72        0.03     0.00   0.794
  S7                       108.00       0.00       0.00      21.13      69.69
15.99      85.68        0.05     0.00   0.793
  S8                       108.00       0.00       0.00      21.16      69.71
15.92      85.62        0.07     0.01   0.793
```

****
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
CB1	JUNCTION	0.01	0.42	180.72	0 14:03	0.41
CB2	JUNCTION	0.01	0.47	180.72	0 14:03	0.46
CBMH3	JUNCTION	0.02	0.50	180.72	0 14:04	0.50
CBMH4	JUNCTION	0.02	0.53	180.72	0 14:04	0.53
CBMH5	JUNCTION	0.02	0.58	180.72	0 14:04	0.57
CBMH6	JUNCTION	0.02	0.60	180.72	0 14:04	0.59
CBMH7	JUNCTION	0.02	0.57	180.72	0 14:04	0.56
CBMH8	JUNCTION	0.02	0.63	180.72	0 14:04	0.63
EX-CBMH	JUNCTION	0.02	0.19	180.20	0 14:00	0.19
EX-OGS	JUNCTION	0.01	0.15	180.40	0 13:59	0.15
J1	JUNCTION	0.00	0.02	100.02	0 14:00	0.02
J10	JUNCTION	0.01	0.13	180.59	0 13:59	0.13
J11	JUNCTION	0.01	0.15	180.56	0 13:59	0.15
J12	JUNCTION	0.01	0.18	180.52	0 13:59	0.18
J13	JUNCTION	0.00	0.06	180.99	0 12:45	0.06
J15	JUNCTION	0.01	0.07	180.94	0 12:45	0.07
J16	JUNCTION	0.01	0.19	180.52	0 13:59	0.19
J17	JUNCTION	0.01	0.19	180.54	0 13:59	0.19
J18	JUNCTION	0.01	0.16	180.55	0 13:58	0.16
J19	JUNCTION	0.01	0.06	181.13	0 13:16	0.06
J2	JUNCTION	0.00	0.03	180.55	0 13:16	0.03
J20	JUNCTION	0.01	0.08	181.02	0 12:45	0.08
J3	JUNCTION	0.00	0.05	180.56	0 13:56	0.05
J4	JUNCTION	0.01	0.11	180.57	0 13:58	0.11
J5	JUNCTION	0.00	0.05	180.52	0 14:00	0.05
J6	JUNCTION	0.00	0.05	180.58	0 13:30	0.05
J7	JUNCTION	0.01	0.11	180.70	0 13:47	0.11
J8	JUNCTION	0.00	0.06	180.80	0 13:47	0.06
J9	JUNCTION	0.01	0.11	180.94	0 14:00	0.11
OGS-MH	JUNCTION	0.01	0.18	180.20	0 14:00	0.18
OF1	OUTFALL	0.01	0.16	180.17	0 14:01	0.16
OF2	OUTFALL	0.00	0.02	99.02	0 14:00	0.02
SU1	STORAGE	0.00	0.02	181.26	0 13:00	0.02
SU10	STORAGE	0.00	0.01	181.33	0 14:00	0.01
SU11	STORAGE	0.00	0.01	181.46	0 14:00	0.01
SU12	STORAGE	0.00	0.02	181.47	0 14:00	0.02
SU13	STORAGE	0.00	0.02	181.47	0 13:46	0.02
SU14	STORAGE	0.00	0.02	183.47	0 13:16	0.02

SU15	STORAGE	0.00	0.01	181.47	0	13:30	0.01
SU16	STORAGE	0.01	0.01	181.36	0	14:00	0.01
SU2	STORAGE	0.00	0.02	181.31	0	13:30	0.02
SU3	STORAGE	0.00	0.01	181.31	0	12:30	0.01
SU4	STORAGE	0.00	0.01	181.31	0	12:30	0.01
SU5	STORAGE	0.00	0.02	181.29	0	14:00	0.02
SU6	STORAGE	0.00	0.02	181.32	0	14:00	0.02
SU7	STORAGE	0.00	0.01	181.46	0	12:31	0.01
SU8	STORAGE	0.00	0.01	181.46	0	13:16	0.01
SU9	STORAGE	0.00	0.01	181.47	0	13:30	0.01
UG_Storage	STORAGE	0.03	0.68	180.72	0	14:04	0.67

****
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 10^6 ltr	Flow Balance Error Percent
CB1	JUNCTION	0.000	0.006	0	13:00	0	0.0818	-0.006
CB2	JUNCTION	0.000	0.011	0	13:56	0	0.16	-0.003
CBMH3	JUNCTION	0.000	0.012	0	13:56	0	0.172	-0.003
CBMH4	JUNCTION	0.000	0.013	0	13:56	0	0.186	-0.006
CBMH5	JUNCTION	0.000	0.015	0	13:56	0	0.203	-0.003
CBMH6	JUNCTION	0.000	0.017	0	13:56	0	0.231	-0.012
CBMH7	JUNCTION	0.000	0.002	0	14:00	0	0.0285	-0.006
CBMH8	JUNCTION	0.000	0.023	0	13:56	0	0.318	-0.011
EX-CBMH	JUNCTION	0.000	0.075	0	14:00	0	1.11	-0.000
EX-OGS	JUNCTION	0.000	0.049	0	13:59	0	0.681	0.001
J1	JUNCTION	0.007	0.007	0	14:00	0.0516	0.0516	0.001
J10	JUNCTION	0.003	0.021	0	14:00	0.0367	0.282	0.000
J11	JUNCTION	0.000	0.025	0	13:59	0	0.341	-0.000
J12	JUNCTION	0.000	0.029	0	13:58	0	0.386	0.001
J13	JUNCTION	0.005	0.005	0	12:45	0.0707	0.0707	-0.000

J15	JUNCTION	0.002	0.007	0	12:45	0.0271	0.0978	0.001
J16	JUNCTION	0.000	0.050	0	13:59	0	0.681	-0.000
J17	JUNCTION	0.000	0.021	0	13:59	0	0.296	-0.001
J18	JUNCTION	0.000	0.021	0	13:52	0	0.258	-0.016
J19	JUNCTION	0.000	0.005	0	13:16	0	0.0735	0.002
J2	JUNCTION	0.000	0.003	0	13:16	0	0.0374	0.002
J20	JUNCTION	0.002	0.007	0	12:45	0.0281	0.102	0.000
J3	JUNCTION	0.000	0.003	0	12:31	0	0.0382	0.087
J4	JUNCTION	0.000	0.016	0	14:00	0	0.22	0.004
J5	JUNCTION	0.000	0.004	0	13:30	0	0.0442	0.001
J6	JUNCTION	0.000	0.004	0	13:30	0	0.0594	0.002
J7	JUNCTION	0.004	0.013	0	13:47	0.0609	0.192	0.001
J8	JUNCTION	0.000	0.005	0	13:46	0	0.0631	0.001
J9	JUNCTION	0.005	0.012	0	14:00	0.0459	0.147	0.000
OGS-MH	JUNCTION	0.000	0.026	0	14:08	0	0.428	0.028
OF1	OUTFALL	0.000	0.075	0	14:01	0	1.11	0.000
OF2	OUTFALL	0.000	0.007	0	14:00	0	0.0516	0.000
SU1	STORAGE	0.006	0.006	0	13:00	0.0818	0.0818	-0.001
SU10	STORAGE	0.002	0.002	0	14:00	0.0285	0.0285	-0.001
SU11	STORAGE	0.002	0.002	0	14:00	0.0286	0.0286	-0.001
SU12	STORAGE	0.005	0.005	0	14:00	0.0677	0.0677	-0.001
SU13	STORAGE	0.005	0.005	0	13:45	0.0631	0.0631	-0.001
SU14	STORAGE	0.005	0.005	0	13:15	0.0735	0.0735	-0.001
SU15	STORAGE	0.004	0.004	0	14:00	0.0594	0.0594	-0.001
SU16	STORAGE	0.001	0.001	0	14:00	0.0126	0.0126	0.019
SU2	STORAGE	0.005	0.005	0	13:30	0.0781	0.0781	-0.001
SU3	STORAGE	0.001	0.001	0	12:30	0.0134	0.0134	-0.001
SU4	STORAGE	0.001	0.001	0	12:30	0.0169	0.0169	-0.001
SU5	STORAGE	0.008	0.008	0	14:00	0.109	0.109	-0.001
SU6	STORAGE	0.006	0.006	0	14:00	0.0863	0.0863	-0.001

```
  SU7                   STORAGE      0.003     0.003      0  12:30       0.0382
0.0382       -0.001
  SU8                   STORAGE      0.003     0.003      0  14:00       0.0374
0.0374       -0.001
  SU9                   STORAGE      0.004     0.004      0  13:30       0.0442
0.0442       -0.001
  UG_Storage            STORAGE      0.000     0.031      0  13:56            0
0.427        0.006


  **********************
  Node Surcharge Summary
  **********************

  Surcharging occurs when water rises above the top of the highest conduit.
  -------------------------------------------------------------------------
                                          Max. Height   Min. Depth
                                 Hours    Above Crown    Below Rim
  Node                  Type   Surcharged      Meters       Meters
  -------------------------------------------------------------------------
  CB1                   JUNCTION      0.27        0.018        0.517
  CB2                   JUNCTION      0.64        0.067        0.569
  CBMH3                 JUNCTION      0.83        0.095        0.627
  CBMH4                 JUNCTION      1.09        0.132        0.585
  CBMH5                 JUNCTION      1.39        0.176        0.586
  CBMH6                 JUNCTION      1.73        0.223        0.596
  CBMH7                 JUNCTION      1.32        0.166        0.595
  CBMH8                 JUNCTION      1.79        0.232        0.578
  UG_Storage            STORAGE       2.18        0.282        0.101


  **********************
  Node Flooding Summary
  **********************

  No nodes were flooded.


  **********************
  Storage Volume Summary
  **********************

  ------------------------------------------------------------------------------------
-----------------
                         Average     Avg  Evap Exfil       Maximum     Max    Time
of Max    Maximum
                          Volume    Pcnt  Pcnt  Pcnt        Volume    Pcnt
Occurrence    Outflow
  Storage Unit           1000 m3    Full  Loss  Loss       1000 m3    Full    days
hr:min        CMS
  ------------------------------------------------------------------------------------
-----------------
  SU1                      0.000       0     0     0         0.000       0       0
13:00      0.006
  SU10                     0.000       0     0     0         0.000       0       0
14:00      0.002
  SU11                     0.000       0     0     0         0.000       0       0
14:00      0.002
```

SU12		0.000	0	0	0	0.000	0	0
14:00	0.005							
SU13		0.000	0	0	0	0.000	0	0
13:46	0.005							
SU14		0.000	0	0	0	0.000	0	0
13:16	0.005							
SU15		0.000	0	0	0	0.000	0	0
13:30	0.004							
SU16		0.000	0	0	0	0.000	1	0
14:00	0.001							
SU2		0.000	0	0	0	0.000	1	0
13:30	0.005							
SU3		0.000	0	0	0	0.000	0	0
12:30	0.001							
SU4		0.000	0	0	0	0.000	0	0
12:30	0.001							
SU5		0.000	0	0	0	0.000	1	0
14:00	0.008							
SU6		0.000	0	0	0	0.000	1	0
14:00	0.006							
SU7		0.000	0	0	0	0.000	0	0
12:31	0.003							
SU8		0.000	0	0	0	0.000	0	0
13:16	0.003							
SU9		0.000	0	0	0	0.000	0	0
13:30	0.004							
UG_Storage		0.004	4	0	0	0.083	87	0
14:04	0.026							

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF1	18.92	0.017	0.075	1.108
OF2	6.40	0.003	0.007	0.052
System	12.66	0.020	0.082	1.159

****
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
C1	CONDUIT	0.006	0 13:56	0.33	0.07	1.00
C10	CONDUIT	0.075	0 14:01	0.95	0.27	0.23
C11	CONDUIT	0.011	0 13:56	0.51	0.13	1.00
C12	CONDUIT	0.012	0 13:56	0.52	0.15	1.00

C13	CONDUIT	0.007	0	14:00	1.73	0.00	0.02
C14	CONDUIT	0.049	0	13:59	1.00	0.54	0.46
C15	CONDUIT	0.004	0	13:30	0.30	0.19	0.65
C16	CONDUIT	0.004	0	13:30	0.36	0.20	0.65
C17	CONDUIT	0.025	0	13:59	0.62	0.48	0.56
C18	CONDUIT	0.021	0	13:59	0.64	0.40	0.47
C19	CONDUIT	0.012	0	14:00	0.76	0.84	0.80
C2	CONDUIT	0.013	0	13:56	0.50	0.15	1.00
C20	CONDUIT	0.049	0	14:00	1.34	0.53	0.52
C21	CONDUIT	0.007	0	12:45	0.76	0.48	0.49
C22	CONDUIT	0.005	0	12:45	0.61	0.34	0.45
C23	CONDUIT	0.005	0	13:47	0.46	0.34	0.55
C24	CONDUIT	0.013	0	13:47	0.77	0.55	0.54
C25	CONDUIT	0.016	0	13:59	0.52	0.30	0.45
C26	CONDUIT	0.019	0	13:58	0.43	0.35	0.59
C27	CONDUIT	0.021	0	13:59	0.44	0.82	0.64
C28	CONDUIT	0.003	0	13:16	0.33	0.07	0.59
C29	CONDUIT	0.005	0	13:52	0.41	0.19	0.67
C3	CONDUIT	0.015	0	13:56	0.50	0.17	1.00
C30	CONDUIT	0.005	0	13:16	0.62	0.37	0.47
C31	CONDUIT	0.007	0	12:45	0.68	0.53	0.61
C32	CONDUIT	0.029	0	13:59	0.63	0.54	0.62
C33	CONDUIT	0.026	0	14:09	0.64	0.24	0.49
C4	CONDUIT	0.002	0	13:41	0.18	0.17	1.00
C5	CONDUIT	0.017	0	13:56	0.48	0.20	1.00
C6	CONDUIT	0.023	0	13:56	0.51	0.28	1.00
C9	ORIFICE	0.026	0	14:08			1.00
OR1	ORIFICE	0.002	0	14:00			
OR10	ORIFICE	0.006	0	14:00			
OR11	ORIFICE	0.005	0	13:30			
OR12	ORIFICE	0.006	0	13:00			
OR13	ORIFICE	0.005	0	14:00			
OR14	ORIFICE	0.005	0	13:16			
OR15	ORIFICE	0.004	0	13:30			
OR16	ORIFICE	0.008	0	14:00			
OR2	ORIFICE	0.005	0	13:46			
OR3	ORIFICE	0.004	0	13:30			
OR4	ORIFICE	0.003	0	12:31			
OR5	ORIFICE	0.003	0	13:16			
OR6	ORIFICE	0.001	0	14:00			
OR7	ORIFICE	0.001	0	12:30			
OR8	ORIFICE	0.001	0	12:30			
OR9	ORIFICE	0.002	0	14:00			

****
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

C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.10
0.00									
C10	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00
0.00									
C11	1.00	0.01	0.02	0.00	0.98	0.00	0.00	0.00	0.97
0.00									
C12	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.09
0.00									
C13	1.00	0.07	0.00	0.00	0.87	0.07	0.00	0.00	0.01
0.00									
C14	1.00	0.01	0.73	0.00	0.26	0.00	0.00	0.00	0.88
0.00									
C15	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99
0.00									
C16	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.13
0.00									
C17	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.98
0.00									
C18	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.14
0.00									
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.56
0.00									
C2	1.00	0.01	0.75	0.00	0.24	0.00	0.00	0.00	0.98
0.00									
C20	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00
0.00									
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00
0.00									
C22	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99
0.00									
C23	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.93
0.00									
C24	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95
0.00									
C25	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.13
0.00									
C26	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.98
0.00									
C27	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.05
0.00									
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99
0.00									
C29	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.18
0.00									
C3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.15
0.00									
C30	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.30
0.00									
C31	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.99
0.00									
C32	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.05
0.00									
C33	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.15
0.00									
C4	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.11
0.00									
C5	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.91
0.00									

```
  C6                     1.00   0.01  0.00  0.00  0.99  0.00  0.00  0.00  0.15
0.00


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

  ------------------------------------------------------------------------------
                                                                  Hours        Hours
                          --------- Hours Full --------    Above Full   Capacity
  Conduit                 Both Ends  Upstream  Dnstream    Normal Flow    Limited
  ------------------------------------------------------------------------------
  C1                           0.47      0.47      0.81           0.01         0.01
  C11                          0.81      0.81      1.05           0.01         0.01
  C12                          1.05      1.05      1.26           0.01         0.01
  C15                          0.01      0.01      1.93           0.01         0.01
  C16                          0.01      0.01      1.04           0.01         0.01
  C2                           1.26      1.26      1.57           0.01         0.01
  C28                          0.01      0.01      1.98           0.01         0.01
  C29                          0.01      0.01      1.78           0.01         0.01
  C3                           1.54      1.54      1.73           0.01         0.01
  C4                           3.45      3.45      3.78           0.01         0.01
  C5                           1.73      1.73      1.98           0.01         0.01
  C6                           1.98      1.98      2.39           0.01         0.01


  Analysis begun on:  Wed Apr 26 11:47:16 2023
  Analysis ended on:  Wed Apr 26 11:47:22 2023
  Total elapsed time: 00:00:06
```

MODEL OUTPUT DATA - URBAN STRESS TEST

```
  EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.015)
  ---------------------------------------------------------------


  *************
  Element Count
  *************
  Number of rain gages ...... 1
  Number of subcatchments ... 29
  Number of nodes ........... 49
  Number of links ........... 47
  Number of pollutants ...... 0
  Number of land uses ....... 0


  ****************
  Raingage Summary
  ****************
                                                          Data       Recording
  Name                 Data Source                        Type       Interval
  ------------------------------------------------------------------------
  Raingage1            UrbanStress                        INTENSITY   15 min.


  ********************
  Subcatchment Summary
  ********************
  Name                         Area     Width    %Imperv    %Slope Rain Gage
Outlet
  ----------------------------------------------------------------------------------------
--------------------------
  JANISSE                     0.12     16.66      0.00    0.5000 Raingage1
J1
  Roof1                       0.03     11.27    100.00    0.5000 Raingage1
SU2
  Roof2                       0.04     11.83    100.00    0.5000 Raingage1
SU6
  Roof3                       0.03      9.17    100.00    0.5000 Raingage1
SU1
  Roof4                       0.03     10.73    100.00    0.5000 Raingage1
SU5
  S1                          0.05     30.69     85.00    0.5000 Raingage1
SU1
  S1_10                       0.03      5.15     90.00    0.5000 Raingage1
J20
  S1_12                       0.06     27.22     80.00    0.5000 Raingage1
J7
  S1_13                       0.06     15.72     10.00    0.5000 Raingage1
J9
  S1_14                       0.06     25.17     90.00    0.5000 Raingage1
SU15
  S1_15                       0.05     27.30     50.00    0.5000 Raingage1
SU9
  S1_16                       0.03     15.55     70.00    0.5000 Raingage1
SU11
  S1_17                       0.04     21.35     95.00    0.5000 Raingage1
SU7
  S1_18                       0.06     28.22     80.00    0.5000 Raingage1
```

S1_19	0.07	13.60	100.00	0.5000	Raingage1
J13					
S1_2	0.03	15.86	50.00	0.5000	Raingage1
J10					
S1_21	0.06	10.42	100.00	0.5000	Raingage1
SU12					
S1_22	0.04	23.67	95.00	0.5000	Raingage1
SU8					
S1_23	0.03	4.98	90.00	0.5000	Raingage1
J15					
S1_24	0.01	1.69	90.00	0.5000	Raingage1
J9					
S1_25	0.01	1.58	90.00	0.5000	Raingage1
J10					
S1_8	0.07	17.88	90.00	0.5000	Raingage1
SU14					
S2	0.04	26.81	85.00	0.5000	Raingage1
SU2					
S3	0.02	13.67	25.00	0.5000	Raingage1
SU16					
S4	0.01	10.58	100.00	0.5000	Raingage1
SU3					
S5	0.02	12.31	100.00	0.5000	Raingage1
SU4					
s6	0.03	18.50	66.00	0.5000	Raingage1
SU10					
S7	0.06	27.95	66.00	0.5000	Raingage1
SU6					
S8	0.09	34.52	66.00	0.5000	Raingage1
SU5					

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB1	JUNCTION	180.31	0.94	0.0	
CB2	JUNCTION	180.26	1.04	0.0	
CBMH3	JUNCTION	180.22	1.13	0.0	
CBMH4	JUNCTION	180.19	1.12	0.0	
CBMH5	JUNCTION	180.15	1.16	0.0	
CBMH6	JUNCTION	180.12	1.19	0.0	
CBMH7	JUNCTION	180.16	1.16	0.0	
CBMH8	JUNCTION	180.09	1.21	0.0	
EX-CBMH	JUNCTION	180.01	1.49	0.0	
EX-OGS	JUNCTION	180.24	1.26	0.0	
J1	JUNCTION	100.00	2.00	0.0	
J10	JUNCTION	180.46	2.20	0.0	
J11	JUNCTION	180.41	1.05	0.0	
J12	JUNCTION	180.34	1.16	0.0	
J13	JUNCTION	180.93	1.73	0.0	
J15	JUNCTION	180.87	1.78	0.0	
J16	JUNCTION	180.33	1.17	0.0	
J17	JUNCTION	180.35	1.11	0.0	
J18	JUNCTION	180.39	1.06	0.0	
J19	JUNCTION	181.06	2.69	0.0	

J2	JUNCTION	180.53	0.93	0.0
J20	JUNCTION	180.94	3.02	0.0
J3	JUNCTION	180.50	0.95	0.0
J4	JUNCTION	180.46	1.29	0.0
J5	JUNCTION	180.47	0.98	0.0
J6	JUNCTION	180.54	0.92	0.0
J7	JUNCTION	180.59	0.86	0.0
J8	JUNCTION	180.74	0.71	0.0
J9	JUNCTION	180.83	3.12	0.0
OGS-MH	JUNCTION	180.03	1.24	0.0
OF1	OUTFALL	180.01	0.75	0.0
OF2	OUTFALL	99.00	1.00	0.0
SU1	STORAGE	181.24	0.21	0.0
SU10	STORAGE	181.32	0.13	0.0
SU11	STORAGE	181.45	0.30	0.0
SU12	STORAGE	181.45	0.30	0.0
SU13	STORAGE	181.45	0.30	0.0
SU14	STORAGE	183.45	0.30	0.0
SU15	STORAGE	181.45	0.30	0.0
SU16	STORAGE	181.35	0.10	0.0
SU2	STORAGE	181.29	0.16	0.0
SU3	STORAGE	181.31	0.14	0.0
SU4	STORAGE	181.31	0.14	0.0
SU5	STORAGE	181.27	0.18	0.0
SU6	STORAGE	181.30	0.15	0.0
SU7	STORAGE	181.45	0.30	0.0
SU8	STORAGE	181.45	0.30	0.0
SU9	STORAGE	181.45	0.30	0.0
UG_Storage	STORAGE	180.04	0.78	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	% Slope	Roughness
C1	CB1	CB2	CONDUIT	21.3	0.2300	0.0130
C10	EX-CBMH	OF1	CONDUIT	9.8	0.0612	0.0130
C11	CB2	CBMH3	CONDUIT	15.2	0.2303	0.0130
C12	CBMH3	CBMH4	CONDUIT	13.5	0.2300	0.0130
C13	J1	OF2	CONDUIT	6.6	15.3690	0.0130
C14	J16	EX-OGS	CONDUIT	30.7	0.2771	0.0130
C15	J5	J12	CONDUIT	8.7	1.5820	0.0130
C16	J6	J11	CONDUIT	7.1	1.8198	0.0130
C17	J11	J12	CONDUIT	22.7	0.2998	0.0130
C18	J10	J11	CONDUIT	16.9	0.3014	0.0130

C19		J9	J10	CONDUIT	46.1
0.8130	0.0130				
C2		CBMH4	CBMH5	CONDUIT	17.7
0.2489	0.0130				
C20		EX-OGS	EX-CBMH	CONDUIT	17.0
0.5574	0.0100				
C21		J15	J10	CONDUIT	13.4
0.7970	0.0130				
C22		J13	J15	CONDUIT	7.2
0.8104	0.0130				
C23		J8	J7	CONDUIT	19.0
0.7827	0.0130				
C24		J7	J4	CONDUIT	24.0
0.5592	0.0130				
C25		J4	J18	CONDUIT	23.7
0.2998	0.0130				
C26		J18	J17	CONDUIT	14.0
0.3007	0.0130				
C27		J17	J16	CONDUIT	26.3
0.0684	0.0130				
C28		J2	J17	CONDUIT	3.2
5.6216	0.0130				
C29		J3	J18	CONDUIT	4.1
2.7714	0.0130				
C3		CBMH5	CBMH6	CONDUIT	11.5
0.2265	0.0130				
C30		J19	J20	CONDUIT	15.3
0.8152	0.0130				
C31		J20	J9	CONDUIT	14.1
0.7510	0.0130				
C32		J12	J16	CONDUIT	3.0
0.3014	0.0130				
C33		OGS-MH	EX-CBMH	CONDUIT	5.0
0.2222	0.0100				
C4		CBMH7	CBMH6	CONDUIT	4.2
0.7802	0.0130				
C5		CBMH6	CBMH8	CONDUIT	14.6
0.2332	0.0130				
C6		CBMH8	UG_Storage	CONDUIT	23.1
0.2290	0.0130				
C9		UG_Storage	OGS-MH	ORIFICE	
OR1		SU11	J4	ORIFICE	
OR10		SU6	CBMH8	ORIFICE	
OR11		SU2	CB2	ORIFICE	
OR12		SU1	CB1	ORIFICE	
OR13		SU12	J7	ORIFICE	
OR14		SU14	J19	ORIFICE	
OR15		SU9	J5	ORIFICE	
OR16		SU5	UG_Storage	ORIFICE	
OR2		SU13	J8	ORIFICE	
OR3		SU15	J6	ORIFICE	
OR4		SU7	J3	ORIFICE	
OR5		SU8	J2	ORIFICE	
OR6		SU16	CBMH3	ORIFICE	
OR7		SU3	CBMH4	ORIFICE	
OR8		SU4	CBMH5	ORIFICE	
OR9		SU10	CBMH7	ORIFICE	

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C10	CIRCULAR	0.75	0.44	0.19	0.75	1	0.28
C11	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C12	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C13	CIRCULAR	1.00	0.79	0.25	1.00	1	9.40
C14	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C15	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C16	CIRCULAR	0.15	0.02	0.04	0.15	1	0.02
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C19	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.09
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C21	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C22	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C23	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C24	CIRCULAR	0.20	0.03	0.05	0.20	1	0.02
C25	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.03
C28	CIRCULAR	0.15	0.02	0.04	0.15	1	0.04
C29	CIRCULAR	0.15	0.02	0.04	0.15	1	0.03
C3	CIRCULAR	0.38	0.11	0.09	0.38	1	0.08
C30	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C31	CIRCULAR	0.15	0.02	0.04	0.15	1	0.01
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	

C33	CIRCULAR	0.38	0.11	0.09	0.38	1
0.11						
C4	CIRCULAR	0.15	0.02	0.04	0.15	1
0.01						
C5	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						
C6	CIRCULAR	0.38	0.11	0.09	0.38	1
0.08						

****
Transect Summary
****

Transect PondSpillway1
Area:

0.0005	0.0019	0.0043	0.0076	0.0119
0.0172	0.0234	0.0306	0.0387	0.0477
0.0578	0.0688	0.0807	0.0936	0.1074
0.1222	0.1380	0.1547	0.1724	0.1910
0.2104	0.2304	0.2510	0.2720	0.2935
0.3156	0.3382	0.3613	0.3849	0.4090
0.4337	0.4588	0.4845	0.5107	0.5374
0.5646	0.5924	0.6206	0.6494	0.6787
0.7085	0.7388	0.7697	0.8010	0.8329
0.8653	0.8982	0.9316	0.9655	1.0000

Hrad:

0.0174	0.0348	0.0522	0.0696	0.0870
0.1044	0.1218	0.1392	0.1566	0.1740
0.1914	0.2088	0.2262	0.2436	0.2610
0.2784	0.2958	0.3132	0.3306	0.3480
0.3710	0.3958	0.4203	0.4444	0.4682
0.4917	0.5149	0.5378	0.5605	0.5830
0.6052	0.6273	0.6492	0.6708	0.6924
0.7137	0.7349	0.7560	0.7769	0.7977
0.8184	0.8390	0.8594	0.8798	0.9000
0.9202	0.9403	0.9603	0.9802	1.0000

Width:

0.0275	0.0550	0.0825	0.1100	0.1375
0.1650	0.1926	0.2201	0.2476	0.2751
0.3026	0.3301	0.3576	0.3851	0.4126
0.4401	0.4676	0.4951	0.5227	0.5502
0.5687	0.5836	0.5984	0.6133	0.6282
0.6431	0.6579	0.6728	0.6877	0.7026
0.7174	0.7323	0.7472	0.7620	0.7769
0.7918	0.8067	0.8215	0.8364	0.8513
0.8661	0.8810	0.8959	0.9108	0.9256
0.9405	0.9554	0.9703	0.9851	1.0000

Transect PondSpillway2
Area:

0.0006	0.0023	0.0052	0.0092	0.0144
0.0207	0.0281	0.0367	0.0465	0.0574
0.0695	0.0827	0.0970	0.1125	0.1292
0.1470	0.1659	0.1860	0.2072	0.2291
0.2513	0.2736	0.2963	0.3191	0.3422

```
            0.3656     0.3892     0.4131     0.4372     0.4615
            0.4861     0.5109     0.5360     0.5613     0.5869
            0.6127     0.6388     0.6651     0.6916     0.7185
            0.7455     0.7728     0.8003     0.8281     0.8562
            0.8844     0.9130     0.9417     0.9707     1.0000
Hrad:
            0.0147     0.0295     0.0442     0.0590     0.0737
            0.0885     0.1032     0.1179     0.1327     0.1474
            0.1622     0.1769     0.1916     0.2064     0.2211
            0.2359     0.2506     0.2654     0.2808     0.3069
            0.3328     0.3584     0.3838     0.4090     0.4339
            0.4586     0.4831     0.5074     0.5315     0.5553
            0.5790     0.6026     0.6259     0.6491     0.6721
            0.6949     0.7176     0.7401     0.7625     0.7848
            0.8069     0.8288     0.8506     0.8723     0.8939
            0.9154     0.9367     0.9579     0.9790     1.0000
Width:
            0.0391     0.0781     0.1172     0.1563     0.1954
            0.2344     0.2735     0.3126     0.3517     0.3907
            0.4298     0.4689     0.5080     0.5470     0.5861
            0.6252     0.6643     0.7033     0.7406     0.7489
            0.7573     0.7657     0.7740     0.7824     0.7908
            0.7991     0.8075     0.8159     0.8243     0.8326
            0.8410     0.8494     0.8577     0.8661     0.8745
            0.8828     0.8912     0.8996     0.9079     0.9163
            0.9247     0.9330     0.9414     0.9498     0.9582
            0.9665     0.9749     0.9833     0.9916     1.0000

Transect PondSpillway3
Area:
            0.0005     0.0019     0.0043     0.0077     0.0120
            0.0172     0.0234     0.0306     0.0387     0.0478
            0.0579     0.0689     0.0808     0.0937     0.1076
            0.1224     0.1382     0.1550     0.1727     0.1913
            0.2109     0.2314     0.2525     0.2741     0.2961
            0.3186     0.3416     0.3650     0.3889     0.4133
            0.4382     0.4635     0.4893     0.5155     0.5423
            0.5695     0.5972     0.6253     0.6540     0.6831
            0.7126     0.7427     0.7732     0.8042     0.8356
            0.8676     0.9000     0.9328     0.9662     1.0000
Hrad:
            0.0170     0.0341     0.0511     0.0681     0.0851
            0.1022     0.1192     0.1362     0.1532     0.1703
            0.1873     0.2043     0.2213     0.2384     0.2554
            0.2724     0.2894     0.3065     0.3235     0.3405
            0.3575     0.3781     0.4034     0.4283     0.4529
            0.4772     0.5012     0.5250     0.5484     0.5717
            0.5946     0.6174     0.6400     0.6623     0.6845
            0.7065     0.7283     0.7500     0.7715     0.7929
            0.8141     0.8352     0.8562     0.8771     0.8978
            0.9185     0.9390     0.9594     0.9798     1.0000
Width:
            0.0281     0.0562     0.0843     0.1124     0.1405
            0.1685     0.1966     0.2247     0.2528     0.2809
            0.3090     0.3371     0.3652     0.3933     0.4214
            0.4495     0.4776     0.5056     0.5337     0.5618
            0.5899     0.6122     0.6260     0.6399     0.6537
```

0.6676 0.6814 0.6953 0.7091 0.7230
0.7368 0.7507 0.7645 0.7784 0.7922
0.8061 0.8199 0.8338 0.8476 0.8615
0.8753 0.8892 0.9030 0.9169 0.9307
0.9446 0.9584 0.9723 0.9861 1.0000

Transect Road
Area:
0.0005 0.0019 0.0043 0.0077 0.0120
0.0173 0.0236 0.0308 0.0390 0.0481
0.0582 0.0693 0.0813 0.0943 0.1083
0.1232 0.1393 0.1563 0.1740 0.1922
0.2109 0.2303 0.2502 0.2706 0.2916
0.3132 0.3354 0.3581 0.3813 0.4052
0.4296 0.4545 0.4800 0.5061 0.5328
0.5600 0.5877 0.6161 0.6450 0.6744
0.7045 0.7350 0.7662 0.7979 0.8302
0.8630 0.8964 0.9304 0.9649 1.0000
Hrad:
0.0205 0.0410 0.0615 0.0820 0.1025
0.1230 0.1435 0.1640 0.1845 0.2050
0.2255 0.2460 0.2665 0.2870 0.3075
0.3280 0.3441 0.3834 0.4208 0.4563
0.4899 0.5219 0.5522 0.5811 0.6084
0.6345 0.6592 0.6828 0.7052 0.7266
0.7469 0.7663 0.7848 0.8024 0.8193
0.8354 0.8508 0.8655 0.8795 0.8930
0.9058 0.9181 0.9299 0.9413 0.9521
0.9625 0.9724 0.9820 0.9912 1.0000
Width:
0.0272 0.0544 0.0816 0.1089 0.1361
0.1633 0.1905 0.2177 0.2449 0.2721
0.2994 0.3266 0.3538 0.3810 0.4082
0.4354 0.4748 0.4907 0.5066 0.5225
0.5385 0.5544 0.5703 0.5862 0.6021
0.6180 0.6340 0.6499 0.6658 0.6817
0.6976 0.7135 0.7294 0.7454 0.7613
0.7772 0.7931 0.8090 0.8249 0.8408
0.8568 0.8727 0.8886 0.9045 0.9204
0.9363 0.9523 0.9682 0.9841 1.0000

Transect Road2
Area:
0.0006 0.0023 0.0051 0.0091 0.0142
0.0205 0.0279 0.0364 0.0461 0.0569
0.0689 0.0820 0.0962 0.1116 0.1281
0.1458 0.1646 0.1844 0.2044 0.2248
0.2456 0.2667 0.2881 0.3100 0.3321
0.3546 0.3775 0.4007 0.4243 0.4482
0.4724 0.4971 0.5220 0.5473 0.5730
0.5990 0.6254 0.6521 0.6792 0.7066
0.7343 0.7625 0.7909 0.8197 0.8489
0.8784 0.9083 0.9385 0.9691 1.0000
Hrad:
0.0167 0.0335 0.0502 0.0670 0.0837
0.1004 0.1172 0.1339 0.1507 0.1674
0.1841 0.2009 0.2176 0.2344 0.2511

	0.2678	0.2897	0.3213	0.3521	0.3820
	0.4111	0.4395	0.4671	0.4939	0.5201
	0.5456	0.5704	0.5946	0.6182	0.6411
	0.6635	0.6854	0.7067	0.7274	0.7477
	0.7675	0.7867	0.8056	0.8240	0.8419
	0.8594	0.8765	0.8932	0.9096	0.9255
	0.9411	0.9563	0.9712	0.9858	1.0000
Width:					
	0.0366	0.0732	0.1099	0.1465	0.1831
	0.2197	0.2563	0.2930	0.3296	0.3662
	0.4028	0.4394	0.4761	0.5127	0.5493
	0.5859	0.6282	0.6394	0.6507	0.6620
	0.6732	0.6845	0.6958	0.7070	0.7183
	0.7296	0.7408	0.7521	0.7634	0.7746
	0.7859	0.7972	0.8085	0.8197	0.8310
	0.8423	0.8535	0.8648	0.8761	0.8873
	0.8986	0.9099	0.9211	0.9324	0.9437
	0.9549	0.9662	0.9775	0.9887	1.0000

****
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
****

****
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 ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date 03/15/2021 00:00:00
Ending Date 03/26/2021 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:15:00
Wet Time Step 00:15:00
Dry Time Step 00:15:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials 8
Number of Threads 4
Head Tolerance ..... 0.001500 m

**********	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
**********	---------	-------

Total Precipitation	0.192	149.985
Evaporation Loss	0.000	0.000
Infiltration Loss	0.029	22.794
Surface Runoff	0.163	127.243
Final Storage	0.001	0.473
Continuity Error (%)	-0.350	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.163	1.626
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.163	1.627
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 (%)	-0.049	

Time-Step Critical Elements

Link C32 (17.34%)

Highest Flow Instability Indexes

All links are stable.

Routing Time Step Summary

Minimum Time Step	:	0.50 sec
Average Time Step	:	4.51 sec
Maximum Time Step	:	5.00 sec
Percent in Steady State	:	-0.00
Average Iterations per Step	:	2.01
Percent Not Converging	:	0.13
Time Step Frequencies	:	
5.000 - 3.155 sec	:	82.15 %
3.155 - 1.991 sec	:	14.08 %
1.991 - 1.256 sec	:	3.03 %
1.256 - 0.792 sec	:	0.54 %
0.792 - 0.500 sec	:	0.20 %

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
JANISSE	149.98	0.00	0.00	83.61	0.00	68.19	68.19	0.08	0.02	0.455
Roof1	149.98	0.00	0.00	0.00	150.09	0.00	150.09	0.05	0.01	1.001
Roof2	149.98	0.00	0.00	0.00	150.09	0.00	150.09	0.05	0.01	1.001
Roof3	149.98	0.00	0.00	0.00	150.09	0.00	150.09	0.04	0.01	1.001
Roof4	149.99	0.00	0.00	0.00	150.09	0.00	150.09	0.05	0.01	1.001
S1	149.99	0.00	0.00	12.35	125.48	10.35	135.83	0.07	0.02	0.906
S1_10	149.98	0.00	0.00	7.49	135.17	7.54	142.71	0.04	0.01	0.951
S1_12	149.99	0.00	0.00	14.98	120.05	15.07	135.11	0.08	0.03	0.901
S1_13	149.98	0.00	0.00	67.78	15.00	68.80	83.81	0.05	0.02	0.559
S1_14	149.99	0.00	0.00	7.48	135.05	7.52	142.58	0.08	0.02	0.951
S1_15	149.98	0.00	0.00	37.48	75.02	37.90	112.92	0.06	0.02	0.753
S1_16	149.98	0.00	0.00	22.47	105.03	22.64	127.67	0.04	0.01	0.851
S1_17	149.98	0.00	0.00	3.74	142.55	3.76	146.31	0.05	0.01	0.975
S1_18	149.99	0.00	0.00	14.98	120.05	15.07	135.11	0.09	0.03	0.901
S1_19	149.98	0.00	0.00	0.00	150.19	0.00	150.19	0.10	0.03	1.001
S1_2	149.99	0.00	0.00	37.49	75.02	37.94	112.96	0.04	0.01	0.753
S1_21	149.98	0.00	0.00	0.00	150.28	0.00	150.28	0.09	0.03	1.002
S1_22	149.98	0.00	0.00	3.74	142.55	3.76	146.31	0.05	0.01	0.975
S1_23	149.98	0.00	0.00	7.49	135.17	7.54	142.71	0.04	0.01	0.951
S1_24	149.99	0.00	0.00	7.49	135.16	7.54	142.70	0.01	0.00	0.951
S1_25	149.99	0.00	0.00	7.49	135.16	7.54	142.70	0.01	0.00	0.951
S1_8	149.99	0.00	0.00	7.49	135.10	7.53	142.63	0.10	0.03	0.951
S2	149.99	0.00	0.00	12.35	125.47	10.35	135.83	0.06	0.02	0.906
S3	149.99	0.00	0.00	61.88	36.90	52.27	89.16	0.02	0.01	0.594
S4	149.99	0.00	0.00	0.00	147.62					

```
  S5                       149.98       0.00       0.00       0.00     147.62
0.00     147.62        0.02     0.01   0.984
  s6                       149.98       0.00       0.00      28.02      97.43
23.58     121.00        0.04     0.01   0.807
  S7                       149.98       0.00       0.00      28.02      97.43
23.59     121.02        0.07     0.02   0.807
  S8                       149.98       0.00       0.00      28.03      97.43
23.64     121.07        0.10     0.03   0.807
```

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
CB1	JUNCTION	0.03	1.10	181.41	0 09:51	1.10
CB2	JUNCTION	0.03	1.15	181.41	0 09:49	1.14
CBMH3	JUNCTION	0.03	1.19	181.41	0 09:49	1.18
CBMH4	JUNCTION	0.03	1.21	181.40	0 09:51	1.21
CBMH5	JUNCTION	0.04	1.26	181.40	0 09:51	1.25
CBMH6	JUNCTION	0.04	1.28	181.40	0 09:49	1.27
CBMH7	JUNCTION	0.03	1.25	181.41	0 09:50	1.24
CBMH8	JUNCTION	0.04	1.31	181.40	0 09:50	1.31
EX-CBMH	JUNCTION	0.02	0.32	180.34	0 09:15	0.31
EX-OGS	JUNCTION	0.01	0.58	180.82	0 09:15	0.58
J1	JUNCTION	0.00	0.04	100.04	0 09:15	0.04
J10	JUNCTION	0.01	1.12	181.58	0 09:15	1.12
J11	JUNCTION	0.01	1.04	181.44	0 09:15	1.03
J12	JUNCTION	0.02	0.87	181.21	0 09:15	0.87
J13	JUNCTION	0.01	1.66	182.59	0 09:15	1.66
J15	JUNCTION	0.01	1.50	182.37	0 09:15	1.50
J16	JUNCTION	0.02	0.84	181.17	0 09:15	0.84
J17	JUNCTION	0.02	0.95	181.30	0 09:15	0.95
J18	JUNCTION	0.01	0.95	181.34	0 09:15	0.95
J19	JUNCTION	0.03	2.55	183.61	0 09:17	2.53
J2	JUNCTION	0.01	0.80	181.32	0 09:15	0.79
J20	JUNCTION	0.03	2.69	183.63	0 09:15	2.69
J3	JUNCTION	0.01	0.87	181.38	0 09:15	0.87
J4	JUNCTION	0.01	0.92	181.38	0 09:15	0.91
J5	JUNCTION	0.01	0.90	181.38	0 09:15	0.90
J6	JUNCTION	0.01	0.95	181.49	0 09:17	0.95
J7	JUNCTION	0.01	0.96	181.55	0 09:15	0.96
J8	JUNCTION	0.01	0.86	181.60	0 09:24	0.85
J9	JUNCTION	0.03	2.77	183.60	0 09:15	2.77
OGS-MH	JUNCTION	0.02	0.32	180.34	0 09:14	0.32
OF1	OUTFALL	0.01	0.29	180.29	0 09:15	0.28
OF2	OUTFALL	0.00	0.04	99.04	0 09:15	0.04
SU1	STORAGE	0.00	0.18	181.42	0 09:50	0.18
SU10	STORAGE	0.00	0.10	181.42	0 09:32	0.10
SU11	STORAGE	0.00	0.03	181.48	0 09:16	0.03
SU12	STORAGE	0.00	0.14	181.59	0 09:24	0.12
SU13	STORAGE	0.00	0.18	181.63	0 09:29	0.18
SU14	STORAGE	0.00	0.18	183.64	0 09:26	0.18

SU15	STORAGE	0.00	0.08	181.53	0	09:19	0.06
SU16	STORAGE	0.01	0.06	181.41	0	09:36	0.06
SU2	STORAGE	0.00	0.14	181.43	0	09:39	0.14
SU3	STORAGE	0.00	0.10	181.41	0	09:40	0.10
SU4	STORAGE	0.00	0.10	181.41	0	09:40	0.10
SU5	STORAGE	0.00	0.16	181.43	0	09:38	0.16
SU6	STORAGE	0.00	0.13	181.43	0	09:36	0.13
SU7	STORAGE	0.00	0.03	181.49	0	09:15	0.03
SU8	STORAGE	0.00	0.03	181.49	0	09:15	0.03
SU9	STORAGE	0.00	0.04	181.50	0	09:15	0.04
UG_Storage	STORAGE	0.04	1.42	181.46	0	09:14	1.35

****
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 10^6 ltr	Flow Balance Error Percent
CB1	JUNCTION	0.000	0.031	0	09:15	0	0.115	-0.004
CB2	JUNCTION	0.000	0.059	0	09:14	0	0.224	0.033
CBMH3	JUNCTION	0.000	0.066	0	09:14	0	0.241	0.033
CBMH4	JUNCTION	0.000	0.070	0	09:14	0	0.26	0.006
CBMH5	JUNCTION	0.000	0.076	0	09:14	0	0.284	0.007
CBMH6	JUNCTION	0.000	0.088	0	09:14	0	0.324	-0.021
CBMH7	JUNCTION	0.000	0.013	0	09:14	0	0.0403	0.183
CBMH8	JUNCTION	0.000	0.121	0	09:14	0	0.445	0.013
EX-CBMH	JUNCTION	0.000	0.227	0	09:15	0	1.55	-0.000
EX-OGS	JUNCTION	0.000	0.186	0	09:15	0	0.949	-0.005
J1	JUNCTION	0.025	0.025	0	09:15	0.0795	0.0795	0.001
J10	JUNCTION	0.017	0.086	0	09:15	0.0511	0.393	-0.017
J11	JUNCTION	0.000	0.098	0	09:14	0	0.476	-0.011
J12	JUNCTION	0.000	0.118	0	09:15	0	0.538	-0.023
J13	JUNCTION	0.026	0.026	0	09:15	0.0981	0.0981	-0.033

J15		JUNCTION	0.011	0.037	0	09:15	0.0377
0.136	0.007						
J16		JUNCTION	0.000	0.186	0	09:15	0
0.949	-0.009						
J17		JUNCTION	0.000	0.068	0	09:16	0
0.411	-0.021						
J18		JUNCTION	0.000	0.058	0	09:28	0
0.359	-0.019						
J19		JUNCTION	0.000	0.026	0	09:49	0
0.103	0.044						
J2		JUNCTION	0.000	0.014	0	09:15	0
0.052	-0.125						
J20		JUNCTION	0.011	0.027	0	09:49	0.039
0.142	-0.002						
J3		JUNCTION	0.000	0.014	0	09:15	0
0.0531	-0.151						
J4		JUNCTION	0.000	0.052	0	09:33	0
0.306	-0.038						
J5		JUNCTION	0.000	0.021	0	09:15	0
0.0617	-0.139						
J6		JUNCTION	0.000	0.026	0	09:24	0
0.0826	-0.105						
J7		JUNCTION	0.025	0.049	0	09:34	0.0846
0.266	-0.061						
J8		JUNCTION	0.000	0.026	0	09:46	0
0.0877	-0.004						
J9		JUNCTION	0.026	0.033	0	09:06	0.0653
0.206	-0.009						
OGS-MH		JUNCTION	0.000	0.038	0	10:02	0
0.601	0.003						
OF1		OUTFALL	0.000	0.224	0	09:15	0
1.55	0.000						
OF2		OUTFALL	0.000	0.025	0	09:15	0
0.0795	0.000						
SU1		STORAGE	0.033	0.034	0	09:16	0.114
0.115	0.020						
SU10		STORAGE	0.013	0.013	0	09:15	0.0403
0.0403	0.018						
SU11		STORAGE	0.012	0.012	0	09:15	0.0397
0.0397	0.002						
SU12		STORAGE	0.025	0.026	0	09:15	0.0939
0.0939	0.015						
SU13		STORAGE	0.026	0.026	0	09:15	0.0877
0.0877	0.009						
SU14		STORAGE	0.029	0.034	0	09:15	0.102
0.103	0.012						
SU15		STORAGE	0.023	0.023	0	09:15	0.0826
0.0826	0.003						
SU16		STORAGE	0.008	0.008	0	09:15	0.0183
0.0183	0.013						
SU2		STORAGE	0.031	0.031	0	09:15	0.109
0.109	0.007						
SU3		STORAGE	0.005	0.006	0	09:15	0.0187
0.0188	0.006						
SU4		STORAGE	0.006	0.008	0	09:15	0.0236
0.0236	0.009						
SU5		STORAGE	0.047	0.123	0	09:14	0.153
0.153	0.033						
SU6		STORAGE	0.037	0.037	0	09:15	0.121
0.121	0.008						

```
  SU7                STORAGE      0.015    0.015     0  09:15      0.0531
0.0531       0.002
  SU8                STORAGE      0.014    0.014     0  09:15      0.0519
0.0519       0.002
  SU9                STORAGE      0.022    0.022     0  09:15      0.0617
0.0617       0.003
  UG_Storage         STORAGE      0.000    0.163     0  09:14           0
0.599      -0.012
```

  ****
  Node Surcharge Summary
  ****

  Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB1	JUNCTION	1.88	0.701	0.000
CB2	JUNCTION	1.99	0.752	0.000
CBMH3	JUNCTION	2.05	0.779	0.000
CBMH4	JUNCTION	2.14	0.815	0.000
CBMH5	JUNCTION	2.25	0.858	0.000
CBMH6	JUNCTION	2.40	0.906	0.000
CBMH7	JUNCTION	2.23	0.850	0.000
CBMH8	JUNCTION	2.42	0.914	0.000
EX-OGS	JUNCTION	0.37	0.206	0.675
J10	JUNCTION	0.41	0.670	1.071
J11	JUNCTION	0.60	0.738	0.009
J12	JUNCTION	0.62	0.575	0.287
J13	JUNCTION	0.41	1.508	0.068
J15	JUNCTION	0.44	1.353	0.281
J16	JUNCTION	0.50	0.463	0.333
J17	JUNCTION	0.70	0.652	0.154
J18	JUNCTION	0.65	0.654	0.110
J19	JUNCTION	0.81	2.149	0.141
J2	JUNCTION	0.37	0.397	0.129
J20	JUNCTION	0.86	2.538	0.327
J3	JUNCTION	0.42	0.474	0.076
J4	JUNCTION	0.52	0.520	0.373
J5	JUNCTION	0.36	0.502	0.076
J6	JUNCTION	0.38	0.553	0.000
J7	JUNCTION	0.63	0.560	0.000
J8	JUNCTION	0.72	0.455	0.000
J9	JUNCTION	0.87	2.617	0.354
UG_Storage	STORAGE	2.60	1.020	0.000

  ****
  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	0.000	1	0	0	0.026	67	0 09:50	0.031
SU10	0.000	1	0	0	0.004	50	0 09:32	0.013
SU11	0.000	0	0	0	0.001	2	0 09:16	0.012
SU12	0.000	0	0	0	0.014	20	0 09:24	0.030
SU13	0.000	0	0	0	0.017	35	0 09:29	0.026
SU14	0.000	0	0	0	0.022	37	0 09:26	0.026
SU15	0.000	0	0	0	0.004	7	0 09:19	0.026
SU16	0.000	0	0	0	0.001	27	0 09:36	0.008
SU2	0.000	1	0	0	0.015	67	0 09:39	0.029
SU3	0.000	0	0	0	0.003	40	0 09:40	0.005
SU4	0.000	0	0	0	0.003	40	0 09:40	0.006
SU5	0.000	1	0	0	0.026	72	0 09:38	0.043
SU6	0.000	1	0	0	0.015	70	0 09:36	0.034
SU7	0.000	0	0	0	0.000	1	0 09:15	0.014
SU8	0.000	0	0	0	0.000	1	0 09:15	0.014
SU9	0.000	0	0	0	0.001	2	0 09:15	0.021
UG_Storage	0.004	4	0	0	0.096	100	0 09:14	0.113

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr

OF1	19.99	0.021	0.224	1.547
OF2	6.25	0.004	0.025	0.080
System	13.12	0.025	0.249	1.627

****
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
C1	CONDUIT	0.030	0 09:14	0.38	0.36	1.00
C10	CONDUIT	0.224	0 09:15	1.35	0.81	0.40
C11	CONDUIT	0.058	0 09:14	0.55	0.69	1.00
C12	CONDUIT	0.065	0 09:14	0.59	0.78	1.00
C13	CONDUIT	0.025	0 09:15	2.55	0.00	0.04
C14	CONDUIT	0.186	0 09:15	1.68	2.01	1.00
C15	CONDUIT	0.021	0 09:15	1.20	1.10	1.00
C16	CONDUIT	0.027	0 09:24	1.50	1.29	1.00
C17	CONDUIT	0.098	0 09:14	1.38	1.84	1.00
C18	CONDUIT	0.086	0 09:15	1.22	1.62	1.00
C19	CONDUIT	0.033	0 09:06	1.87	2.40	1.00
C2	CONDUIT	0.070	0 09:14	0.63	0.80	1.00
C20	CONDUIT	0.186	0 09:15	2.63	1.98	1.00
C21	CONDUIT	0.037	0 09:15	2.09	2.72	1.00
C22	CONDUIT	0.026	0 09:15	1.49	1.92	1.00
C23	CONDUIT	0.026	0 09:46	1.46	1.91	1.00
C24	CONDUIT	0.049	0 09:35	1.55	1.99	1.00
C25	CONDUIT	0.053	0 09:33	0.74	0.99	1.00
C26	CONDUIT	0.058	0 09:28	0.82	1.09	1.00
C27	CONDUIT	0.068	0 09:16	0.96	2.68	1.00
C28	CONDUIT	0.014	0 09:15	0.79	0.39	1.00
C29	CONDUIT	0.014	0 09:15	0.81	0.57	1.00
C3	CONDUIT	0.075	0 09:14	0.68	0.90	1.00
C30	CONDUIT	0.025	0 09:50	1.42	1.82	1.00
C31	CONDUIT	0.027	0 09:50	1.51	2.02	1.00
C32	CONDUIT	0.118	0 09:15	1.67	2.23	1.00
C33	CONDUIT	0.042	0 09:15	0.84	0.39	0.84
C4	CONDUIT	0.012	0 09:14	0.70	0.92	1.00
C5	CONDUIT	0.087	0 09:14	0.79	1.03	1.00
C6	CONDUIT	0.120	0 09:14	1.09	1.43	1.00
C9	ORIFICE	0.038	0 10:02			1.00
OR1	ORIFICE	0.012	0 09:16			
OR10	ORIFICE	0.034	0 09:14			
OR11	ORIFICE	0.029	0 09:15			
OR12	ORIFICE	0.031	0 09:15			
OR13	ORIFICE	0.030	0 09:33			
OR14	ORIFICE	0.026	0 09:49			
OR15	ORIFICE	0.021	0 09:15			
OR16	ORIFICE	0.076	0 09:14			
OR2	ORIFICE	0.026	0 09:46			
OR3	ORIFICE	0.026	0 09:24			
OR4	ORIFICE	0.014	0 09:15			

OR5	ORIFICE	0.014	0	09:15
OR6	ORIFICE	0.008	0	09:15
OR7	ORIFICE	0.005	0	09:15
OR8	ORIFICE	0.006	0	09:15
OR9	ORIFICE	0.013	0	09:14

****
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
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.10	0.00
C10	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.98	0.00
C12	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.10	0.00
C13	1.00	0.06	0.00	0.00	0.87	0.07	0.00	0.00	0.01	0.00
C14	1.00	0.00	0.72	0.00	0.28	0.00	0.00	0.00	0.89	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C16	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.12	0.00
C17	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C18	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.13	0.00
C19	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.76	0.00
C2	1.00	0.00	0.75	0.00	0.25	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C21	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C22	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C23	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.20	0.00
C24	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.96	0.00
C25	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.12	0.00
C26	1.00	0.00	0.07	0.00	0.93	0.00	0.00	0.00	0.99	0.00

C27	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03
0.00									
C28	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C29	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00
0.00									
C3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.15
0.00									
C30	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.95
0.00									
C31	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99
0.00									
C32	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04
0.00									
C33	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.12
0.00									
C4	1.00	0.00	0.00	0.00	0.99	0.00	0.00	0.00	0.11
0.00									
C5	1.00	0.00	0.38	0.00	0.62	0.00	0.00	0.00	0.92
0.00									
C6	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.15
0.00									

****
Conduit Surcharge Summary
****

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	1.94	1.94	2.04	0.01	0.01
C11	2.04	2.04	2.12	0.01	0.01
C12	2.12	2.12	2.20	0.01	0.01
C14	0.37	0.50	0.37	0.68	0.37
C15	0.68	0.68	1.11	0.08	0.08
C16	0.64	0.64	0.95	0.08	0.08
C17	0.60	0.60	0.62	0.55	0.54
C18	0.58	0.58	0.60	0.40	0.39
C19	0.85	0.87	0.87	0.89	0.85
C2	2.20	2.20	2.33	0.01	0.01
C20	0.22	0.54	0.22	0.66	0.22
C21	0.40	0.44	0.41	0.44	0.38
C22	0.41	0.41	0.44	0.33	0.33
C23	0.77	0.77	0.81	0.24	0.24
C24	0.77	0.77	0.77	0.79	0.77
C25	0.59	0.59	0.65	0.01	0.01
C26	0.65	0.65	0.70	0.41	0.42
C27	0.61	0.70	0.61	0.85	0.61
C28	0.63	0.63	1.18	0.01	0.01
C29	0.76	0.76	0.98	0.01	0.01
C3	2.32	2.32	2.40	0.01	0.01
C30	0.85	0.85	0.86	0.41	0.41
C31	0.86	0.86	0.87	0.62	0.62
C32	0.61	0.62	0.61	0.64	0.61
C4	3.22	3.22	3.43	0.01	0.01

C5	2.40	2.40	2.51	0.01	0.02
C6	2.51	2.51	2.70	0.08	0.08

Analysis begun on: Wed Apr 26 11:46:12 2023
Analysis ended on: Wed Apr 26 11:46:19 2023
Total elapsed time: 00:00:07

Appendix D

WATER QUALITY AND QUANTITY CONTROL UNIT DETAILS

Hydro First Defense® - HC

Water Quality Flow Rate Worksheet

Rev. 12.5

Project Name:	**Fred's Farm Fresh**	*Report Date:*	**2023-04-05**
Street:	**Huron Church Road**	*City:*	**Windsor**
Province:	**Ontario**	*Country:*	**Canada**
Designer:	**Nii Nartei Nartey**	*email:*	**nnartey@bairdae.ca**

Paste

Treatment Parameters:

Structure ID:	OGS-MH	
TSS Goal:	70	% Removal
TSS Particle Size:	Fine	
Water Quality Flow:	38	L/s
Peak Storm Flow:	38	L/s
Peak Storm Return:	100	yrs

RESULTS SUMMARY

Model	TSS
FD-3HC	66.5%
FD-4HC	**74.5%**
FD-5HC	78.5%
FD-6HC	80.9%
FD-8HC	83.2%
FD-10HC	84.3%

Performance Statement:

The Hydro International stormwater treatment system, model FD-4HC, achieves the water quality objective of 74.5% TSS using Fine particle size distribution, providing continuous treatment positive removal for the water quality flow of 38 L/s.

Model Specification:

Selected Model:	**FD-4HC**	
Diameter:	1200	mm
Design WQ Flow:	38.00	L/s
Peak Flow Capacity:	510.00	L/s
Sediment Storage:	0.54	m^3
Oil Storeage:	723.00	L

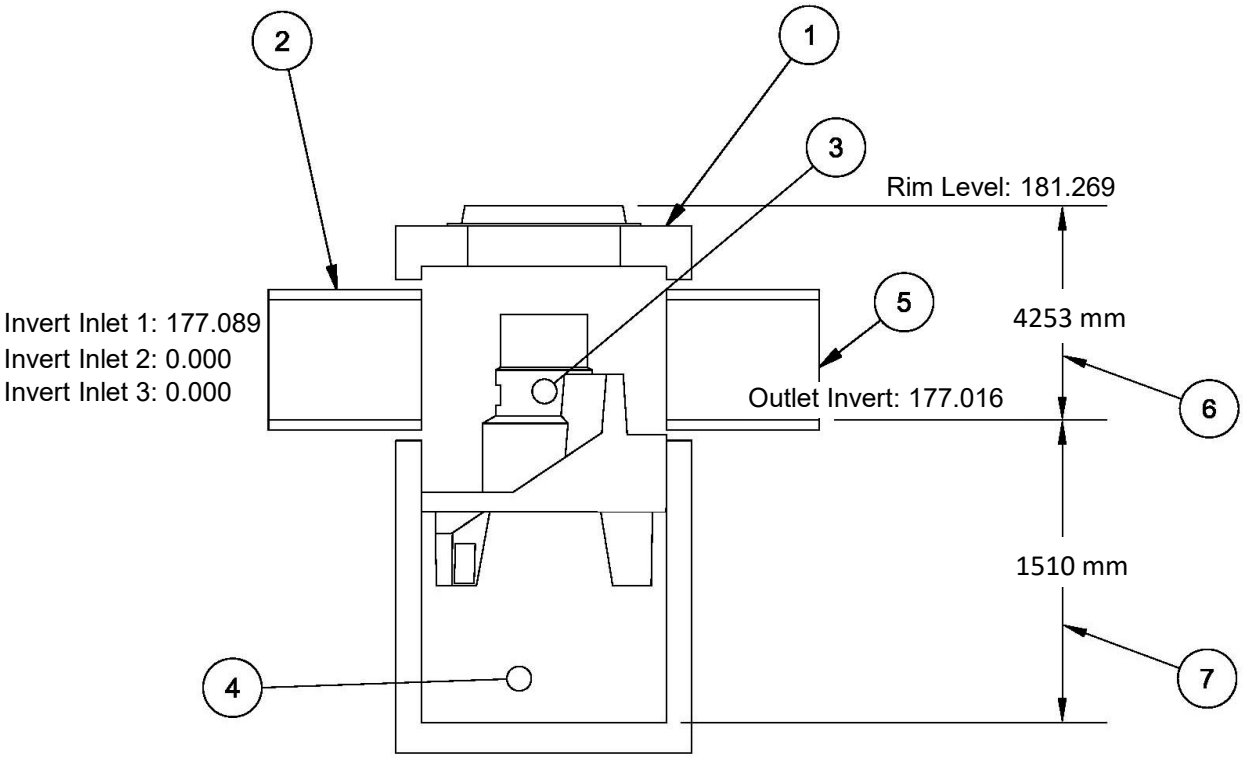
Installation Configuration:

Placement:	Online		
Outlet Pipe Size:	375	mm	*OK*
Inlet Pipe 1 Size:	375	mm	*OK*
Inlet Pipe 2 Size:		mm	*OK*
Inlet Pipe 3 Size:		mm	*OK*
Rim Level:	181.269	m	Calc Invs.
Outlet Pipe Invert:	177.016	m	*OK*
Invert Pipe 1:	177.089	m	*OK*
Invert Pipe 2:		m	*Inlet below outlet will reduce treatment capacity*
Invert Pipe 3:		m	*Inlet below outlet will reduce treatment capacity*

Designer Notes:

Hydro First Defense® - HC

FD-4HC

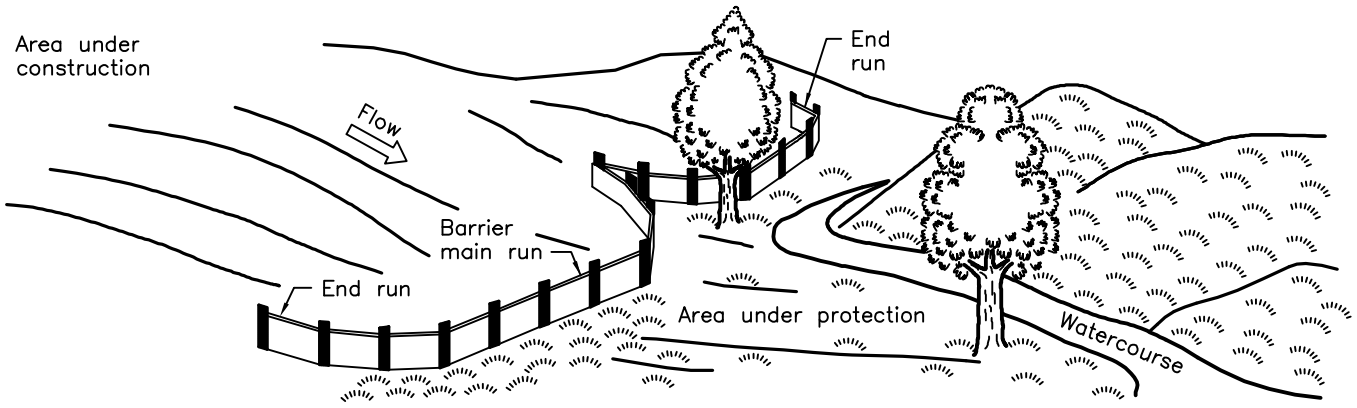


FD-4HC Specification

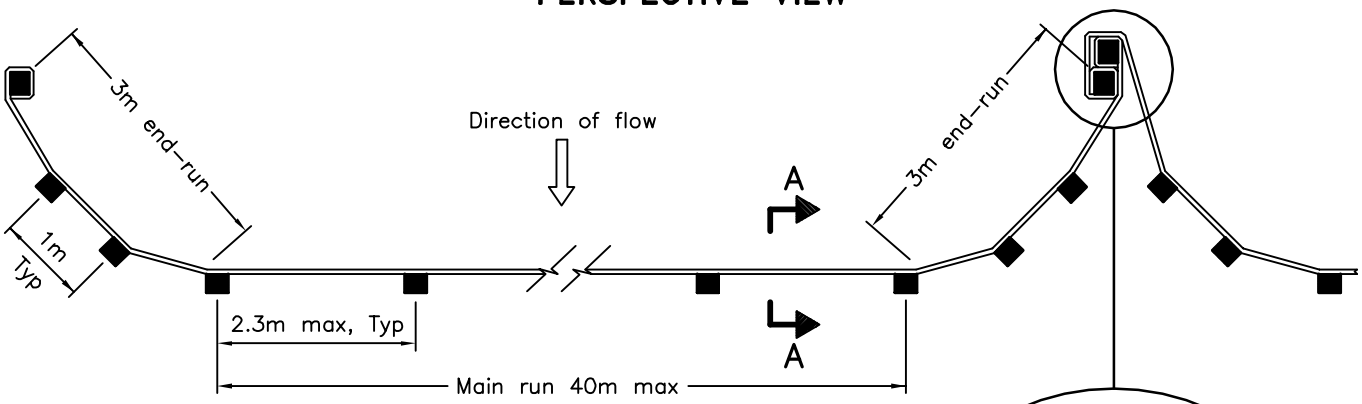
1	Vortex Chamber Diameter	1200	mm
2	Inlet Pipe Diameter	375	mm
3	Oil Storage Capacity	723	L
4	Min. Provided Sediment Storage Capacity	0.54	m^3
5	Outlet Pipe Diameter	375	mm
6	Rim to Invert	4253	mm
7	Invert to Sump	1510	mm
	Total Depth	**5763**	**mm**

All drawing elevations are metres.

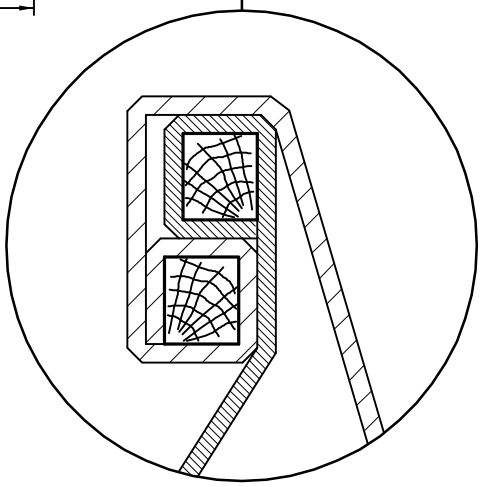
Designer Notes:



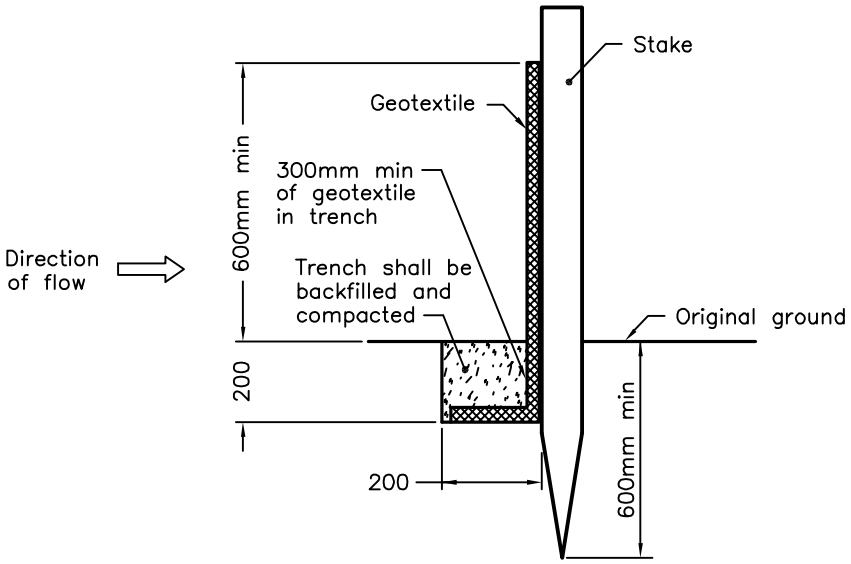
PERSPECTIVE VIEW



PLAN



JOINT DETAIL

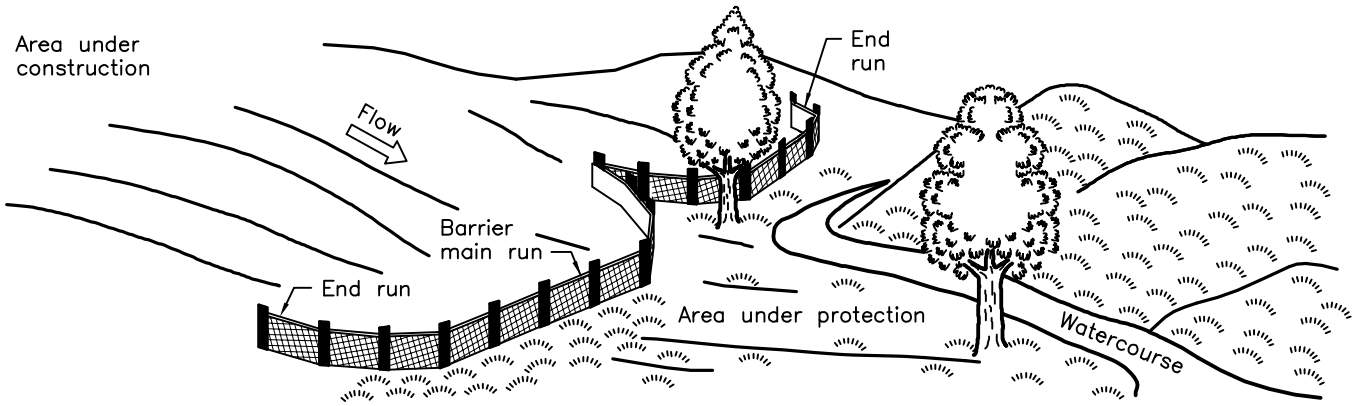


SECTION A–A

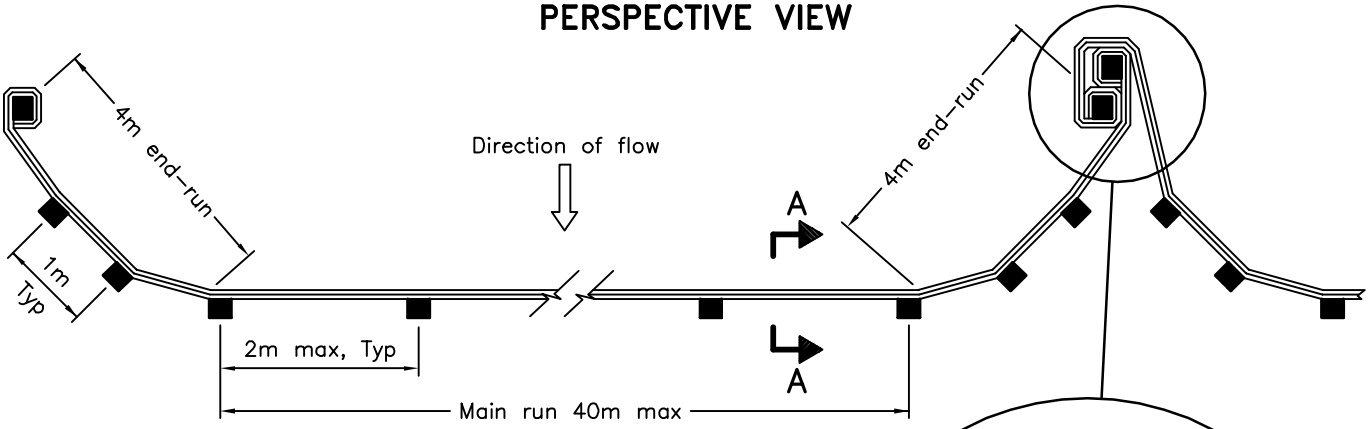
NOTE:

A All dimensions are in millimetres unless otherwise shown.

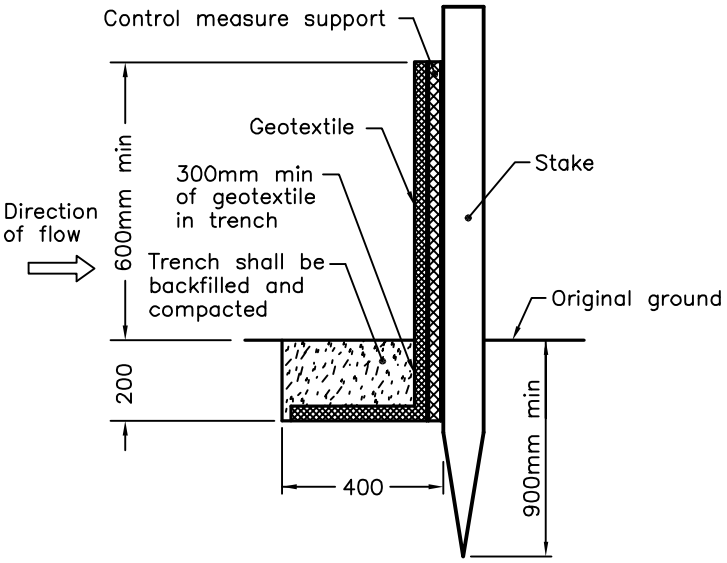
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
LIGHT–DUTY SILT FENCE BARRIER			
	OPSD 219.110		



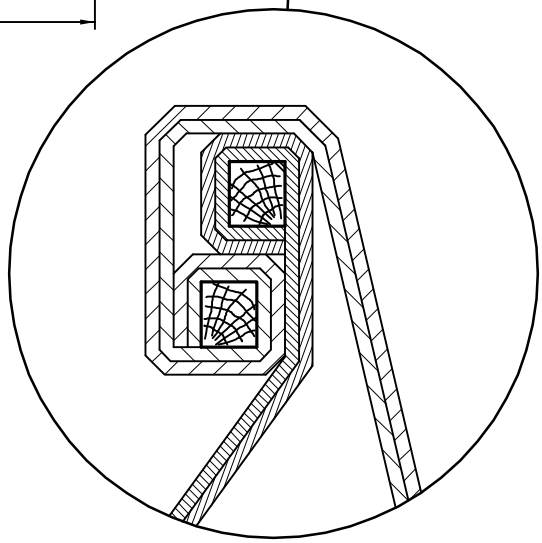
PERSPECTIVE VIEW



PLAN



SECTION A–A



JOINT DETAIL

NOTE:

A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
HEAVY–DUTY SILT FENCE BARRIER			
	OPSD 219.130		

Appendix E

DRAWING SET

BAIRD|AE
architecture + engineering

FRED'S FARM FRESH CONDOS

2144 HURON CHURCH RD. WINDSOR, ON N9C 2L7

General Notes

1) Owner and BairdAE do not guarantee the accuracy of the utilities shown on the drawings. Other utilities may be present or the utilities shown may differ in location shown. The Contractor assumes full responsibility to contact the various utility companies and to repair any damage he may cause to these utilities or to other third parties. The Contractor agrees to indemnify the Owner and BairdAE against any claims which may arise from his/her actions.

2) All work shall be done in accordance with the Standards and Specifications of the City of Windsor. Where no such standards or specifications exist, the Ontario Provincial Standards and Specifications will govern.

3) The following is a partial list of abbreviations found in these drawings:
OPSS - Ontario Provincial Standard Specification
OPSD - Ontario Provincial Standard Drawing
MECP - Ministry of the Environment Conservation & Parks (Ontario)

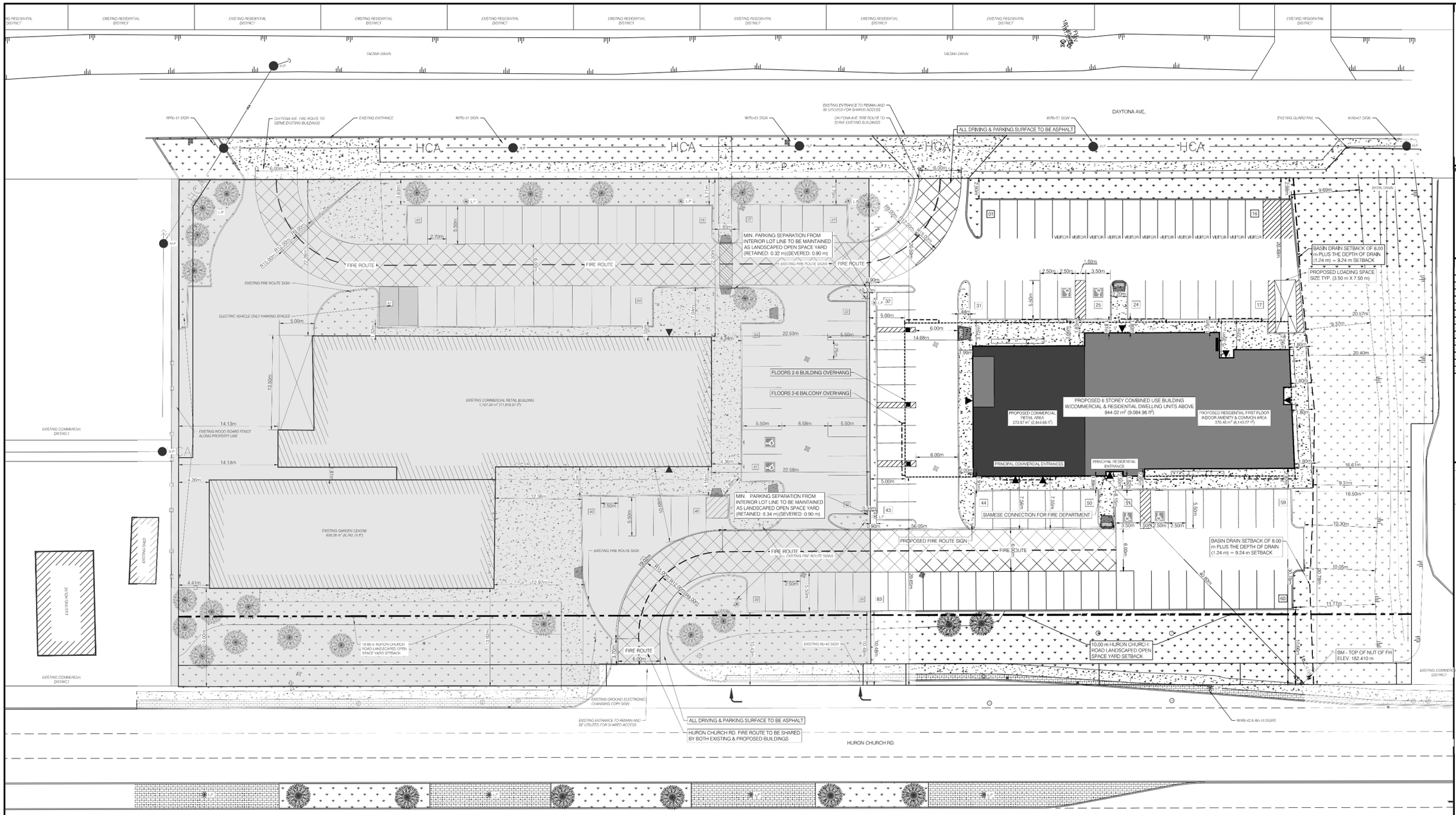
KEY PLAN
N.T.S

SHEET LIST TABLE	
Sheet Number	Sheet Title
01	OVERALL SITE
02	CONCEPT SITE PLAN - RETAINED PARCEL
03	CONCEPT SITE PLAN - SEVERED PARCEL
04	GRADING PLAN
05	SITE SERVICING PLAN
06	STORM SEWER DRAINAGE AREA PLAN
07	STORM SEWER DESIGN SHEET

BENCHMARK LOCATED IN SOUTHWEST CORNER
OF SITE NEAR HURON CHURCH RD. & BASIN DRAIN
TOP OF NUT OF FH - ELEV. 182.410 m

Revisions

PLOT BY: JAMES JACKSON (BAIRD AE)



LOT/BUILDING INFO	
	RETAINED PARCEL
	SEVERED PARCEL
LOT AREA:	*SEVERED PARCEL: 5,670.22 m² (61,033.74 ft², 0.57 ha, 1.40 ac)* *RETAINED PARCEL: 7,108.18 m² (76,511.81 ft², 0.71 ha, 1.76 ac)* TOTAL LOT AREA: 12,778.40 m² (137,545.55 ft², 1.28 ha, 3.16 ac)
BUILDING AREA:	*EXISTING BUILDINGS: 1,735.62 m² (18,682.06 ft²)* *PROPOSED BUILDING: 844.02 m² (9,084.96 ft²)* TOTAL BUILDING AREA: 2,550.19 m² (27,450.02 ft²)

DISCLAIMER
1. THIS DRAWING IS NOT TO BE SCALED.
2. THIS DRAWING, AS AN INSTRUMENT OF SERVICE, IS PROVIDED BY AND IS THE PROPERTY OF BAIRD AE ENGINEERS PLANNERS ARCHITECTS.
3. THE CONTRACTOR MUST VERIFY AND ACCEPT RESPONSIBILITY FOR ALL DIMENSIONS AND CONDITIONS ON SITE AND MUST NOTIFY BAIRD AE OF ANY VARIATION FROM THE SUPPLIED INFORMATION.
4. THIS DISCIPLINE IS NOT RESPONSIBLE FOR THE ACCURACY OF SURVEY, AND THE OTHER DISCIPLINES INFORMATION SHOWN ON THIS DRAWING. REFER TO THE APPROPRIATE CONSULTANT'S DRAWINGS BEFORE PROCEEDING WITH THE WORK.
5. CONSTRUCTION MUST CONFORM TO ALL APPLICABLE CODES AND REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
6. THE CONTRACTOR WORKING FROM DRAWINGS NOT SPECIFICALLY MARKED FOR CONSTRUCTION MUST ASSUME FULL RESPONSIBILITY AND BEAR COSTS FOR ANY CORRECTIONS OR DAMAGES RESULTING FROM THEIR WORK.

BAIRD|AE architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X9
1330 Provincial Road, Unit 700 Windsor ON N8W 5W1
519 326-6161
www.bairdae.ca
info@bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----

LICENSED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100545565
DEC 21, 2023
PROVINCE OF ONTARIO

DATE:	DEC 21, 2023
SCALE:	1:250
DRAWN BY:	CFS
CHECKED BY:	BP
APPROVED BY:	----

[X] PRELIMINARY
[ ] CONSTRUCTION
[ ] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

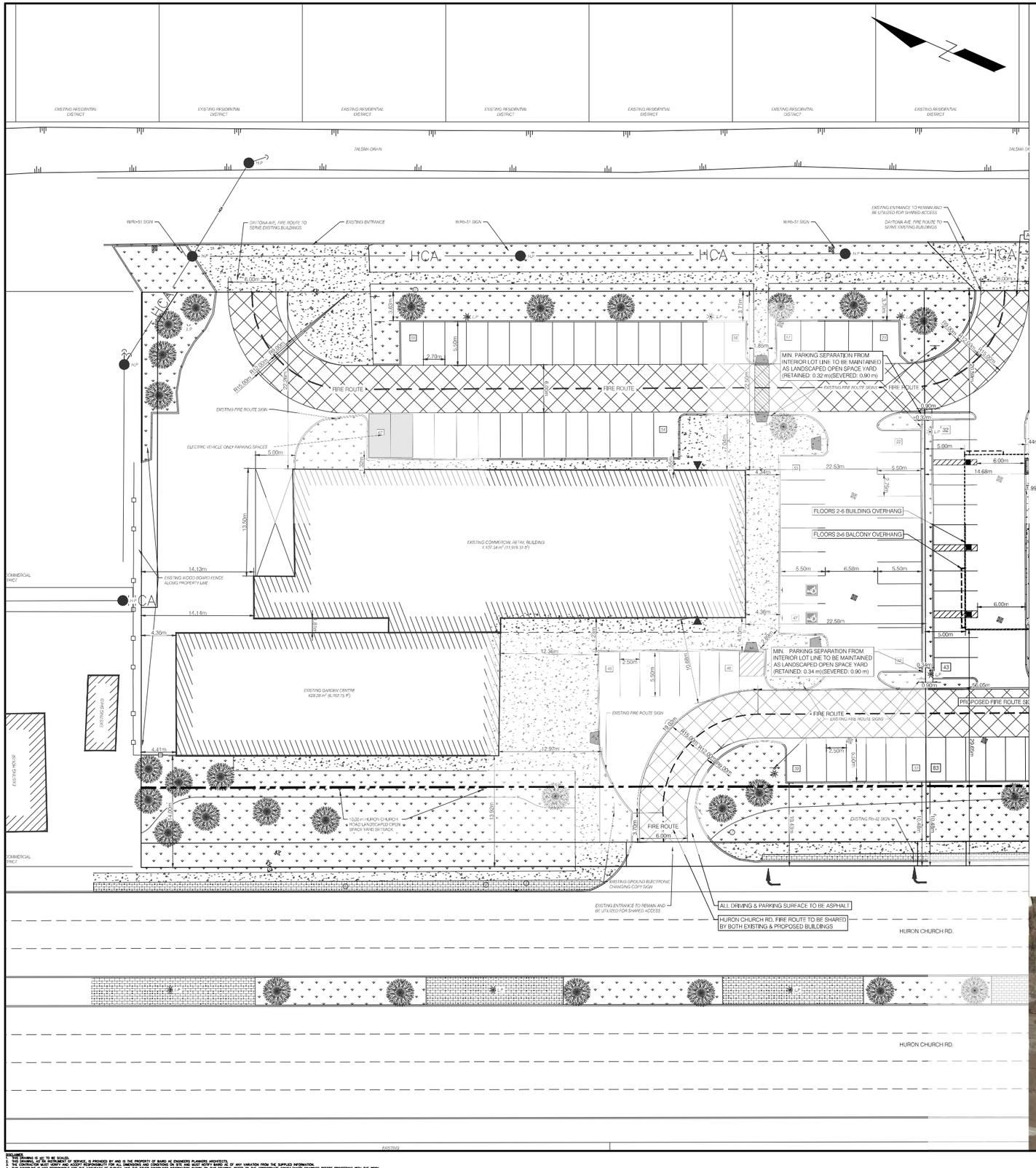
SHEET TITLE
OVERALL SITE

JOB NUMBER 22-072

SHEET NUMBER 01

P:\2022 Projects\22-072 - Freds Farm Fresh Condo 2th &FV\CAD\Engineering\Presentation Drawings

May 15, 2023



LEGEND

00	EXISTING NUMBERED PARKING SPACES
01	PROPOSED NUMBERED PARKING SPACES
	PARKING/ROAD SIGN
	ACCESSIBLE SPACE SYMBOL
	BICYCLE PARKING SPACE SIZE TYP. (0.60 m X 2.50 m)
	CURB CUT
	EXISTING FIRE HYDRANT
WV	EXISTING WATER VALVE
	PROPOSED BUILDING ENTRANCE
	PROPOSED OVERHEAD DOOR
	FLOORS 2-6 BUILDING OVERHANG
	FLOORS 2-6 BALCONY OVERHANG
	EXISTING BUILDING
	PROPOSED RESIDENTIAL GROUND FLOOR
	PROPOSED COMMERCIAL RETAIL GROUND FLOOR
	LANDSCAPE OPEN SPACE
	SIDEWALK/CONCRETE
	FIRE ROUTE
	EXISTING TREE
LP	EXISTING LIGHT POLE (LP)
HP	EXISTING HYDRO POLE (HP)
	GUY WIRE
	EXISTING CATCH BASIN
UTL MH	EXISTING UTILITY MANHOLE
STM	EXISTING STORM MANHOLE
SAN	EXISTING SANITARY MANHOLE
	PROPOSED SUPPORT COLUMN FOR CANTILEVERED FLOORS
HCA	EXISTING HYDRO CABLE
	EXISTING WOODEN BOARD FENCE
	PROPERTY LINE
	DRAIN SETBACK
	10.00 m HURON CHURCH ROAD LANDSCAPED OPEN SPACE YARD SETBACK

SITE DATA:

EXISTING SITE ZONING:	COMMERCIAL DISTRICT 2.1 (CD2.1) SITE SPECIFIC EXCEPTION 278(CD2.1-S.20(1)		
PROPOSED ZONING:	COMMERCIAL DISTRICT 2.1 SITE SPECIFIC EXCEPTION XX (CD2.1-S.20(1)XX)		
EXISTING USE:	GARDEN CENTRE & RETAIL STORE, AMONGST OTHER USES PERMITTED WITHIN THE CD2.1-S.20(1)278) ZONE		
PROPOSED USE:	GARDEN CENTRE & RETAIL STORE, AMONGST OTHER USES PERMITTED WITHIN THE CD2.1-S.20.1.XX		
DESCRIPTION:	REQUIRED:	PROVIDED:	ZONING COMPLIANCE:
MIN. LOT AREA:	0.00 m² (0.00 ft²)	7,108.18 m² (76,511.81 ft²) 0.71 ha (1.76 ac)	COMPLIES
MIN. FRONTAGE:	0.00 m (0.00 ft)	98.62 m (323.56 ft)	COMPLIES
MAX. BUILDING HEIGHT:	14.00 m (45.93 ft)	≤ 14.00 m (45.93 ft) EXISTING	COMPLIES
MIN. FRONT YARD SETBACK (WEST):	0.00 m (0.00 ft)	13.92 m (45.67 ft) EXISTING	COMPLIES
MIN. INTERIOR YARD SETBACK (SOUTH):	0.00 m (0.00 ft)	22.53 m (73.92 ft)	COMPLIES
MIN. REAR YARD SETBACK (EAST)	0.00 m (0.00 ft)	22.26 m (73.03 ft) EXISTING	COMPLIES
MIN. INTERIOR YARD SETBACK (NORTH):	0.00 m (0.00 ft)	4.36 m (14.30 ft) EXISTING	COMPLIES
MIN. HURON CHURCH ROAD LANDSCAPED OPEN SPACE YARD:	10.00 m (32.81 ft)	10.43 m (34.22 ft) EXISTING	COMPLIES
MIN. PARKING SEPARATION FROM INTERIOR LOT LINE TO BE MAINTAINED AS LANDSCAPED OPEN SPACE YARD:	0.90 m (2.95 ft)	0.32 m (1.05 ft)	RELIEF REQUESTED
LOT COVERAGE:	0.00% MAX.	24.42% (1,735.62 m²; 18,682.06 ft²)	COMPLIES
COMMERCIAL PARKING CALCULATED BASED ON GFA (GARDEN CENTRE):	1 SPACE PER 22.50 m² (242.19 ft²) OF GFA; 628.28 m² (6,762.75 ft²) = 27 SPACES	27	COMPLIES
COMMERCIAL PARKING CALCULATED BASED ON GFA (RETAIL STORE):	1 SPACE PER 22.50 m² (242.19 ft²) OF GFA; 1,107.34 m² (11,919.31 ft²) = 49 SPACES	40	RELIEF REQUESTED
ACCESSIBLE PARKING (INCLUDED IN TOTAL PARKING NUMBER CALCULATIONS):	BOTH TYPE 'A' & TYPE 'B' SPACES ARE TO BE 2% OF TOTAL PARKING COUNT; 60 TOTAL SPACES = 2 TYPE 'A' & 2 TYPE 'B' SPACES	1 TYPE 'A' & 1 TYPE 'B' EXISTING	COMPLIES
BICYCLE PARKING:	WHEN 20 OR MORE TOTAL PARKING SPACES THERE SHALL BE 2 BICYCLE SPACES FOR THE FIRST 19 PARKING SPACES PLUS 1 BICYCLE SPACE FOR EACH ADDITIONAL 20 PARKING SPACES; 60 PARKING SPACES = 5 BICYCLE SPACES	0 SPACES	RELIEF REQUESTED
LOADING SPACES:	FOR ANY NON-RESIDENTIAL BUILDING WITH GFA OF 275 m² TO 2,500 m² 1 LOADING SPACE; EXISTING BUILDING AREA OF 1,706.17 m² = 1 SPACE	1 SPACE	COMPLIES

LOT/BUILDING INFO:	
LOT AREA:	RETAINED PARCEL: 7,108.18 m² (76,511.81 ft², 0.71 ha, 1.76 ac)
BUILDING AREA:	EXISTING BUILDING AREA: 1,735.62 m² (18,682.06 ft²)
INDOOR GROSS FLOOR AREA (GFA):	*RETAIL STORE: 1,107.34 m² (11,919.31 ft²)* *GARDEN CENTRE: 628.28 m² (6,762.75 ft²)* TOTAL BUILDING GFA: 1,735.62 m² (18,682.06 ft²)
TOTAL UNITS:	1 COMMERCIAL (RETAIL & GARDEN CENTRE UNIT)
HEIGHT OF BUILDING/ NUMBER OF STOREYS:	2 SINGLE STOREY BUILDINGS @ MAX 14.00 m (45.93 ft)
TOTAL PARKING SPACES:	67 TOTAL SPACES (2 ACCESSIBLE SPACES & 65 STANDARD SPACES)
BUILDING USE, OCCUPANCY, & CLASSIFICATION:	EXISTING

NOTES
1. ALL FIRE DEPARTMENT SIGNAGE TO BE COMPLETED AFTER CONSTRUCTION IN COORDINATION WITH FIRE DEPARTMENT.
2. FIRE ROUTE TO BE IN COMPLIANCE WITH OBC REQUIREMENTS.
3. ALL ACCESSIBLE PARKING SPACES TO HAVE RB-93 SIGNS INSTALLED (TYPE 'A' TO HAVE RB-93t SIGN INSTALLED & TYPE 'B' TO HAVE RB-93 SIGN INSTALLED).
4. PARKING AREA TO BE CLOSED IN WITH 0.150 m BARRIER CURBING.
5. GARBAGE DISPOSAL UNIT LOCATED IN NORTH-EAST REAR CORNER OF LOT FOR PICK UP.
6. ALL LIGHTING TO BE DARK SKY COMPLIANT.

KEY PLAN
1:1,750

BAIRD|AE architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X9
1330 Provincial Road, Unit 700 Windsor ON N8W 5W1
519 326-6161
www.bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----

G. SIVAKUMAR 100546565 DEC 21, 2023 PROVINCE OF ONTARIO — LICENSED PROFESSIONAL ENGINEER

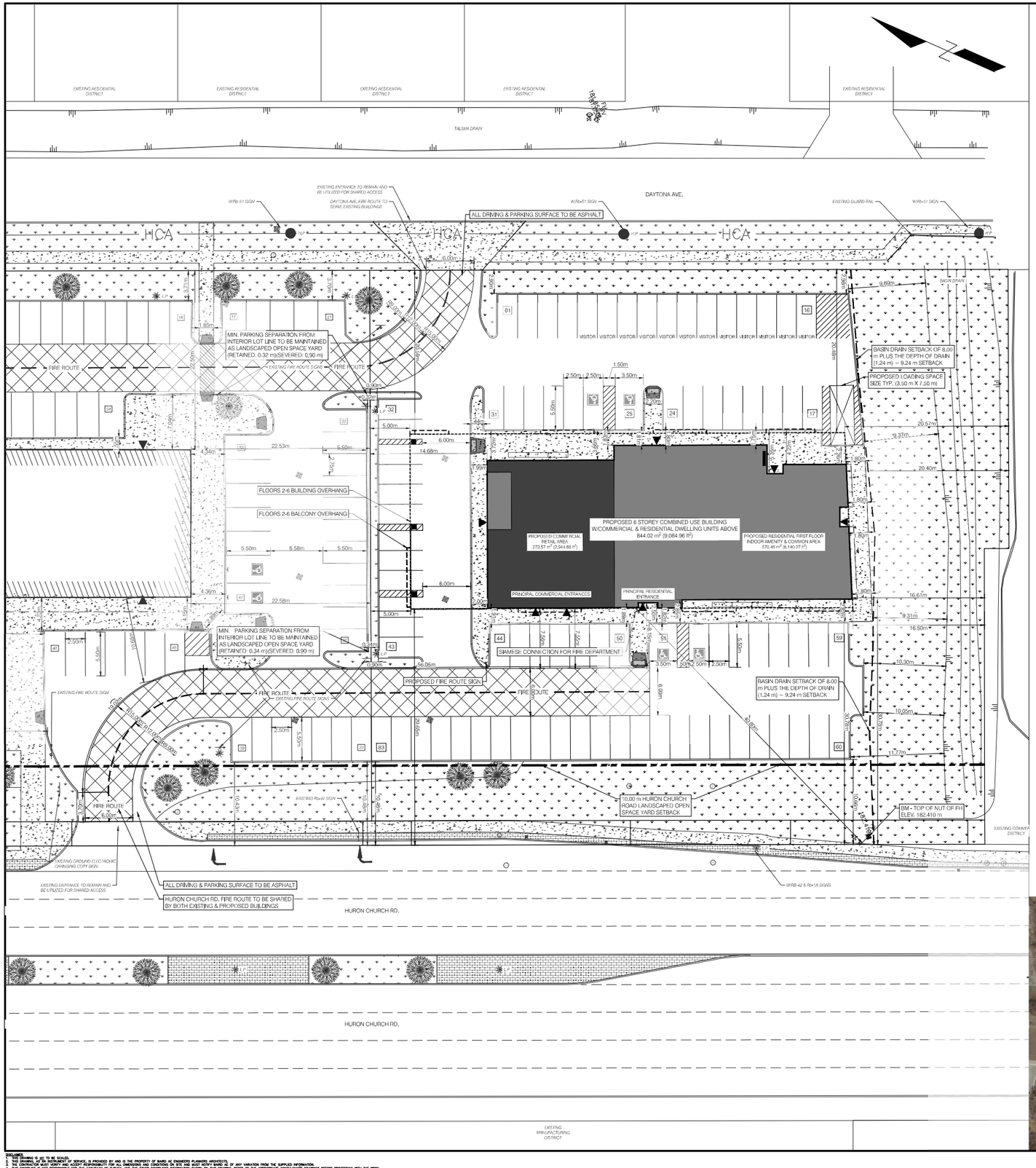
DATE: DEC 21, 2023
SCALE: 1:250
DRAWN BY: CFS
CHECKED BY: BP
APPROVED BY: ----
[X] PRELIMINARY
[ ] CONSTRUCTION
[ ] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

SHEET TITLE
CONCEPT SITE PLAN - RETAINED PARCEL

JOB NUMBER 22-072
SHEET NUMBER 02

May 15, 2023



LEGEND

	EXISTING NUMBERED PARKING SPACES
01	PROPOSED NUMBERED PARKING SPACES
	PARKING/ROAD SIGN
	ACCESSIBLE SPACE SYMBOL
	BICYCLE PARKING SPACE SIZE TYP. (0.60 m X 2.50 m)
	CURB CUT
	EXISTING FIRE HYDRANT
WV	EXISTING WATER VALVE
	PROPOSED BUILDING ENTRANCE
	PROPOSED OVERHEAD DOOR
	FLOORS 2-6 BUILDING OVERHANG
	FLOORS 2-6 BALCONY OVERHANG
	EXISTING BUILDING
	PROPOSED RESIDENTIAL GROUND FLOOR
	PROPOSED COMMERCIAL RETAIL GROUND FLOOR
	LANDSCAPE OPEN SPACE
	SIDEWALK/CONCRETE
	FIRE ROUTE
	EXISTING TREE
	EXISTING LIGHT POLE (LP)
	EXISTING HYDRO POLE (HP)
	GUY WIRE
	EXISTING CATCH BASIN
UTL MH	EXISTING UTILITY MANHOLE
STM	EXISTING STORM MANHOLE
SAN	EXISTING SANITARY MANHOLE
	PROPOSED SUPPORT COLUMN FOR CANTILEVERED FLOORS
HCA	EXISTING HYDRO CABLE
	EXISTING WOODEN BOARD FENCE
	PROPERTY LINE
	DRAIN SETBACK
	10.00 m HURON CHURCH ROAD LANDSCAPED OPEN SPACE YARD SETBACK

SITE DATA:

EXISTING SITE ZONING:	COMMERCIAL DISTRICT 2.1 (CD2.1) SITE SPECIFIC EXCEPTION (CD2.1-S.20(1)278)		
PROPOSED SITE ZONING:	COMMERCIAL DISTRICT 2.2 (CD2.2) SITE SPECIFIC EXCEPTION XX(CD2.2-S.20(1)XX)		
PERMITTED USE:	DWELLING UNITS IN A COMBINED USE BUILDING WITH RETAIL STORE ON THE MAIN FLOOR, AMONGST OTHER USES PERMITTED WITHIN THE CD2.2-S 20(1)XX ZONE		
PROPOSED USE:	DWELLING UNITS IN A COMBINED USE BUILDING		
DESCRIPTION:	REQUIRED:	PROVIDED:	ZONING COMPLIANCE:
MIN. LOT AREA:	0.00 m² (0.00 ft²)	5,670.22 m² (61,033.74 ft²) 0.57 ha (1.40 ac)	COMPLIES
MIN. FRONTAGE:	0.00 m (0.00 ft)	77.00 m (252.62 ft)	COMPLIES
MAX. BUILDING HEIGHT:	14.00 m (45.93 ft)	20.12 m (66.00 ft)	RELIEF REQUESTED
MIN. FRONT YARD SETBACK (WEST):	0.00 m (0.00 ft)	29.65 m (97.28 ft)	COMPLIES
MIN. INTERIOR YARD SETBACK (SOUTH):	0.00 m (0.00 ft)	16.61 m (54.49 ft)	COMPLIES
MIN. REAR YARD SETBACK (EAST)	0.00 m (0.00 ft)	20.48 m (67.19 ft)	COMPLIES
MIN. INTERIOR YARD SETBACK (NORTH):	0.00 m (0.00 ft)	5.00 m (16.40 ft)	COMPLIES
MIN. HURON CHURCH ROAD LANDSCAPED OPEN SPACE YARD:	10.00 m (32.81 ft)	10.48 m (34.38 ft)	COMPLIES
MIN. PARKING SEPARATION FROM INTERIOR LOT LINE TO BE MAINTAINED AS LANDSCAPED OPEN SPACE YARD:	0.90 m (2.95 ft)	0.90 m (2.95 ft)	COMPLIES
MIN. PARKING SEPARATION FROM ANY OTHER STREET:	3.00 m (9.84 ft)	2.90 m (9.51 ft)	RELIEF REQUESTED
MAX LOT COVERAGE:	N/A	21.33%	COMPLIES
AMENITY AREA:	12.00 m² (129.17 ft²) PER DWELLING UNIT; 58 DWELLING UNITS = 696.00 m² (7,491.68 ft²)	*INDOOR AMENITY AREA: 213.40 m² (2,297.02 ft²)* *OUTDOOR LANDSCAPE OPEN SPACE: 1,543.36 m² (16,612.59 ft²)* TOTAL AMENITY AREA: 1,756.76 m² (18,909.61 ft²) = 30.29 m² (322.06 ft²) PER DWELLING UNIT	COMPLIES
RESIDENTIAL PARKING CALCULATED BASED ON DWELLING UNITS:	MULTIPLE DWELLING CONTAINING A MIN. OF 5 DWELLING UNITS 1.25 SPACES PER DWELLING UNIT; 58 DWELLING UNITS = 72 SPACES	1.23 SPACES PER DWELLING UNIT; 58 DWELLING UNITS = 71 SPACES	RELIEF REQUESTED
COMMERCIAL RETAIL PARKING CALCULATED BASED ON GFA:	1 SPACES PER 22.5 m² (242.19 ft²) OF COMMERCIAL RETAIL GFA; 273.57 m² (2,944.68 ft²) GFA = 12 SPACES	12	COMPLIES
ACCESSIBLE PARKING (INCLUDED IN TOTAL PARKING NUMBER CALCULATIONS):	BOTH TYPE 'A' & TYPE 'B' SPACES ARE TO BE 2% OF TOTAL PARKING COUNT. 77 TOTAL SPACES = 2 TYPE 'A' & 2 TYPE 'B' SPACES	2 TYPE 'A' 2 TYPE 'B	COMPLIES
VISITOR PARKING:	MIN OF 15% OF PARKING SPACES SHALL BE MARKED FOR VISITOR PARKING = 12 SPACES	12 SPACES	COMPLIES
BICYCLE PARKING:	WHEN 20 OR MORE TOTAL PARKING SPACES THERE SHALL BE 2 BICYCLE SPACES FOR THE FIRST 19 PARKING SPACES PLUS 1 BICYCLE SPACE FOR EACH ADDITIONAL 20 PARKING SPACES. 83 PARKING SPACES = 6 BICYCLE SPACES	6 SPACES	COMPLIES
LOADING SPACES:	FOR A MULTIPLE DWELLING WITH 9 OR MORE UNITS THAT HAS A GFA OF 1,000 m² TO 7,500 m² = 1 SPACE	1 SPACE FOR 6,984.54 m² (75,180.96 ft²) RESIDENTIAL GFA	COMPLIES
LOT/BUILDING INFO:			
LOT AREA:	SEVERED PARCEL: 5,670.22 m² (61,033.74 ft², 0.57 ha, 1.40 ac)		
BUILDING AREA:	PROPOSED BUILDING AREA: 844.02 m² (9,084.96 ft²)		
INDOOR GROSS FLOOR AREA (GFA):	*COMMERCIAL (FLOOR 1): 273.57 m² (2,944.68 ft²)* *RESIDENTIAL DWELLING UNITS (FLOORS 2-6): 4,853.65 m² (52,244.25 ft²)* *AMENITY & COMMON AREA (FLOOR 1): 570.45 m² (6,140.28 ft²)* *AMENITY & COMMON AREA (FLOORS 2-6): 675.13 m² (7,267.04 ft²)* TOTAL GFA: 6,372.80 m² (68,596.25 ft²)		
TOTAL UNITS:	58 RESIDENTIAL DWELLING UNITS & 2 COMMERCIAL RETAIL UNITS		
HEIGHT OF BUILDING/ NUMBER OF STOREYS:	6 STOREYS @ 20.12 m (66.00 ft)		
CONCRETE CURBING LENGTH:	421.77 m (1,383.76 ft)		
TOTAL PARKING SPACES:	83 TOTAL SPACES (4 ACCESSIBLE SPACES, 12 VISITOR SPACES, & 67 STANDARD SPACES)		
BUILDING USE, OCCUPANCY, & CLASSIFICATION:	RESIDENTIAL GROUP 'C' & MERCANTILE 'E' MINOR OCCUPANCY FOR COMMERCIAL; 3.2.2.43 GROUP 'C', UP TO 6 STOREYS, NON-COMBUSTIBLE		

NOTES:
1. BUILDING TO BE SPRINKLERED.
2. ALL FIRE DEPARTMENT SIGNAGE TO BE COMPLETED AFTER CONSTRUCTION IN COORDINATION WITH FIRE DEPARTMENT.
3. FIRE ROUTE TO BE IN COMPLIANCE WITH OBC REQUIREMENTS.
4. ALL ACCESSIBLE PARKING SPACES TO HAVE RB-93 SIGNS INSTALLED (TYPE 'A' TO HAVE RB-93I SIGN INSTALLED & TYPE 'B' TO HAVE RB-93 SIGN INSTALLED).
5. PARKING AREA TO BE CLOSED IN WITH 0.150 m BARRIER CURBING.
6. GARBAGE DISPOSAL UNIT LOCATED WITHIN THE BUILDING, TO BE ROLLED OUT TO LOADING AREAS FOR PRIVATE SERVICE PICK UP.
7. ALL LIGHTING TO BE DARK SKY COMPLIANT.

KEY PLAN
1:1,750

BAIRD|AE architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X9
1330 Provincial Road, Unit 700, Windsor ON N8W 5W1
519-326-6161
www.bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----
----	----

LICENSED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100546565
DEC 21, 2023
PROVINCE OF ONTARIO

DATE: DEC 21, 2023
SCALE: 1:250
DRAWN BY: CFS
CHECKED BY: BP
APPROVED BY: ----
[X] PRELIMINARY
[ ] CONSTRUCTION
[ ] RECORD

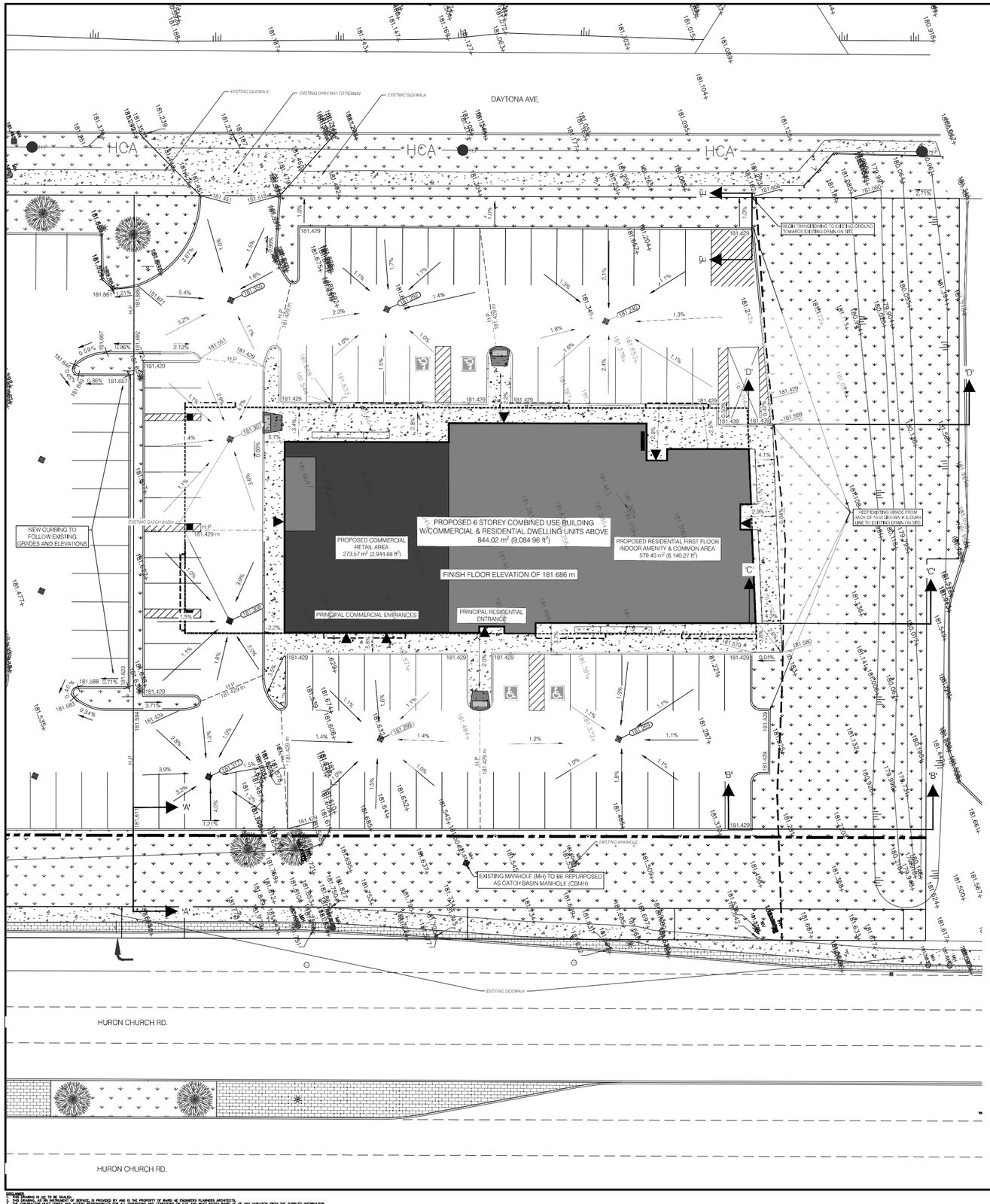
PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

SHEET TITLE
CONCEPT SITE PLAN - SEVERED PARCEL

JOB NUMBER 22-072

SHEET NUMBER 03

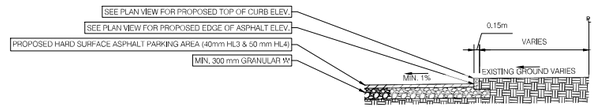
P:\2022 Projects\22-072 - Freds Farm Fresh Condo Site 3\PLANS\Engineering\Presentation Drawings
May 15, 2023



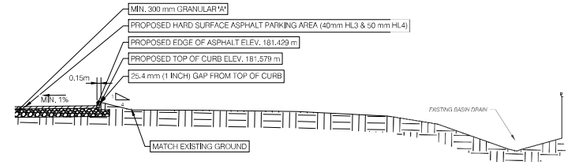
LEGEND

01	EXISTING NUMBERED PARKING SPACES
01	PROPOSED NUMBERED PARKING SPACES
	PARKING/ROAD SIGN
	ACCESSIBLE SPACE SYMBOL
	BICYCLE PARKING SPACE SIZE TYP. (0.60 m X 2.50 m)
	CURB CUT
	EXISTING FIRE HYDRANT
WV	EXISTING WATER VALVE
	PROPOSED BUILDING ENTRANCE
	PROPOSED OVERHEAD DOOR
	FLOORS 2-6 BUILDING OVERHANG
	FLOORS 2-6 BALCONY OVERHANG
	EXISTING BUILDING
	PROPOSED RESIDENTIAL GROUND FLOOR
	PROPOSED COMMERCIAL RETAIL GROUND FLOOR
	LANDSCAPE OPEN SPACE
	SIDEWALK/CONCRETE
	FIRE ROUTE
	EXISTING TREE
	EXISTING LIGHT POLE (LP)
H.P	EXISTING HYDRO POLE (HP)
	GUY WIRE
	EXISTING CATCH BASIN
	PROPOSED CATCH BASIN
UTIL MH	EXISTING UTILITY MANHOLE
STM	EXISTING STORM MANHOLE
SAN	EXISTING SANITARY MANHOLE
	PROPOSED SUPPORT COLUMN FOR CANTILEVERED FLOORS
HCA	EXISTING HYDRO CABLE
	EXISTING WOODEN BOARD FENCE
	PROPERTY LINE
	DRAIN SETBACK
	10.00 m HURON CHURCH ROAD LANDSCAPED OPEN SPACE YARD SETBACK

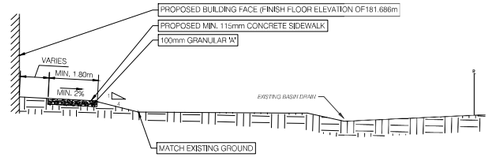
NOTES:
1. CURBING TO BE 150 mm (6 INCHES) ABOVE ASPHALT SURFACE



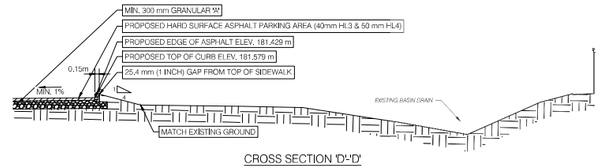
CROSS SECTION 'A'-'A'
SCALE 1:75



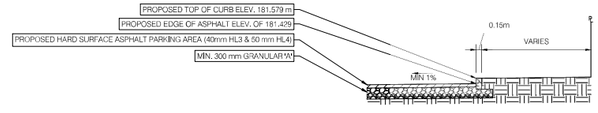
CROSS SECTION 'B'-'B'
SCALE 1:100



TYPICAL CROSS SECTION 'C'-'C'
SCALE 1:100



CROSS SECTION 'D'-'D'
SCALE 1:100



CROSS SECTION 'E'-'E'
SCALE 1:100

BAIRD|AE
architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X8
1530 Provincial Road, Unit 700, Windsor ON N8W 5W1
519 326-6161
info@bairdae.ca
www.bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----

LICENSED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100540565
DEC 21, 2023
PROVINCE OF ONTARIO

DATE:	DEC 21, 2023
SCALE:	1:200
DRAWN BY:	CFS
CHECKED BY:	BP
APPROVED BY:	----

[X] PRELIMINARY
[-] CONSTRUCTION
[-] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

SHEET TITLE
GRADING PLAN

JOB NUMBER 22-072

SHEET NUMBER
04

May 15, 2023

EXISTING 250mm SANITARY SEWER

DAYTONA AVE.

EXISTING 250mm SANITARY SEWER

HCA HCA HCA HCA

PROPOSED 200mm SANITARY PIPE TO BE CONNECTED TO EXISTING 250mm SANITARY SEWER ON DAYTONA AVENUE

SANITARY SAMPLING MANHOLE. CONNECTION TO BUILDING TO BE PROVIDED IN DETAILED DESIGN STAGES

VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR VISITOR

CBMH3 CB2 CB1

181.43

15.20m OF 375mmØ PVC PIPE @ 0.23%

21.30m OF 375mmØ PVC PIPE @ 0.23%

18.68m OF 375mmØ PVC PIPE @ 0.23%

181.45

CBMH4

CBMH

CB

PROPOSED 6 STOREY COMBINED USE BUILDING
W/COMMERCIAL & RESIDENTIAL DWELLING UNITS ABOVE
844.02 m² (9,084.96 ft²)

PROPOSED COMMERCIAL RETAIL AREA
273.57 m² (2,944.68 ft²)

PROPOSED RESIDENTIAL FIRST FLOOR INDOOR AMENITY & COMMON AREA
570.45 m² (6,140.27 ft²)

PRINCIPAL COMMERCIAL ENTRANCES

PRINCIPAL RESIDENTIAL ENTRANCE

17.08m OF 375mmØ PVC PIPE @ 0.23%

CBMH5

11.48m OF 375mmØ PVC PIPE @ 0.23%

CBMH6 14.58m OF 375mmØ PVC PIPE @ 0.23% CBMH8 23.14m OF 375mmØ PVC PIPE @ 0.23% CBMH9

CB7

17.00m

CONNECTION TO BUILDING TO BE PROVIDED IN DETAILED DESIGN STAGES

OGS-MH

4.95m OF 375mmØ PVC PIPE @ 0.22%

STORAGE-MH

4.79m OF 375mmØ PVC PIPE @ 0.23%

EX-CBMH

15.07m

CBMH

OGS

PROPOSED 150mm CONNECTION TO EXISTING 200mm WATER MAIN ON HURON CHURCH RD.

EXISTING 200mm WATER MAIN

EXISTING 675mm STORM SEWER

EXISTING 675mm STORM SEWER

OUTLET

EXISTING 675mm STORM SEWER

LEGEND	
EXISTING PIPES	
PROPOSED PIPES	
EXISTING PIPES TO BE REMOVED	
EXISTING PIPES TO BE REPLACED	

DISCLAIMER
1. THIS DRAWING IS NOT TO BE SCALED.
2. THIS DRAWING, AS AN INSTRUMENT OF SERVICE, IS PROVIDED BY AND IS THE PROPERTY OF BAIRD AE ENGINEERS PLANNERS ARCHITECTS.
3. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON SITE AND SHALL REPORT ANY VARIATIONS OF ANY VARIATION FROM THE SUPPLIED INFORMATION.
4. THIS DISCIPLINE IS NOT RESPONSIBLE FOR THE ACCURACY OF SURVEY, AND THE OTHER DISCIPLINES INFORMATION SHOWN ON THIS DRAWING. REFER TO THE APPROPRIATE CONSULTANTS DRAWINGS BEFORE PROCEEDING WITH THE WORK.
5. CONSTRUCTION MUST CONFORM TO ALL APPLICABLE CODES AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
6. THE CONTRACTOR WORKING FROM DRAWINGS NOT SPECIFICALLY MARKED FOR CONSTRUCTION MUST ASSUME FULL RESPONSIBILITY AND BEAR COSTS FOR ANY CORRECTIONS OR DAMAGES RESULTING FROM THEIR WORK.

BAIRD|AE architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X8
1330 Provincial Road, Unit 700, Windsor ON N8W 5W1
519 326-4161 info@bairdae.ca www.bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
----	----

LICENSED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100546565
DEC 21, 2023
PROVINCE OF ONTARIO

DATE:	DEC 21, 2023
SCALE:	1:150
DRAWN BY:	CFS
CHECKED BY:	BP
APPROVED BY:	----

[X] PRELIMINARY
[ ] CONSTRUCTION
[ ] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

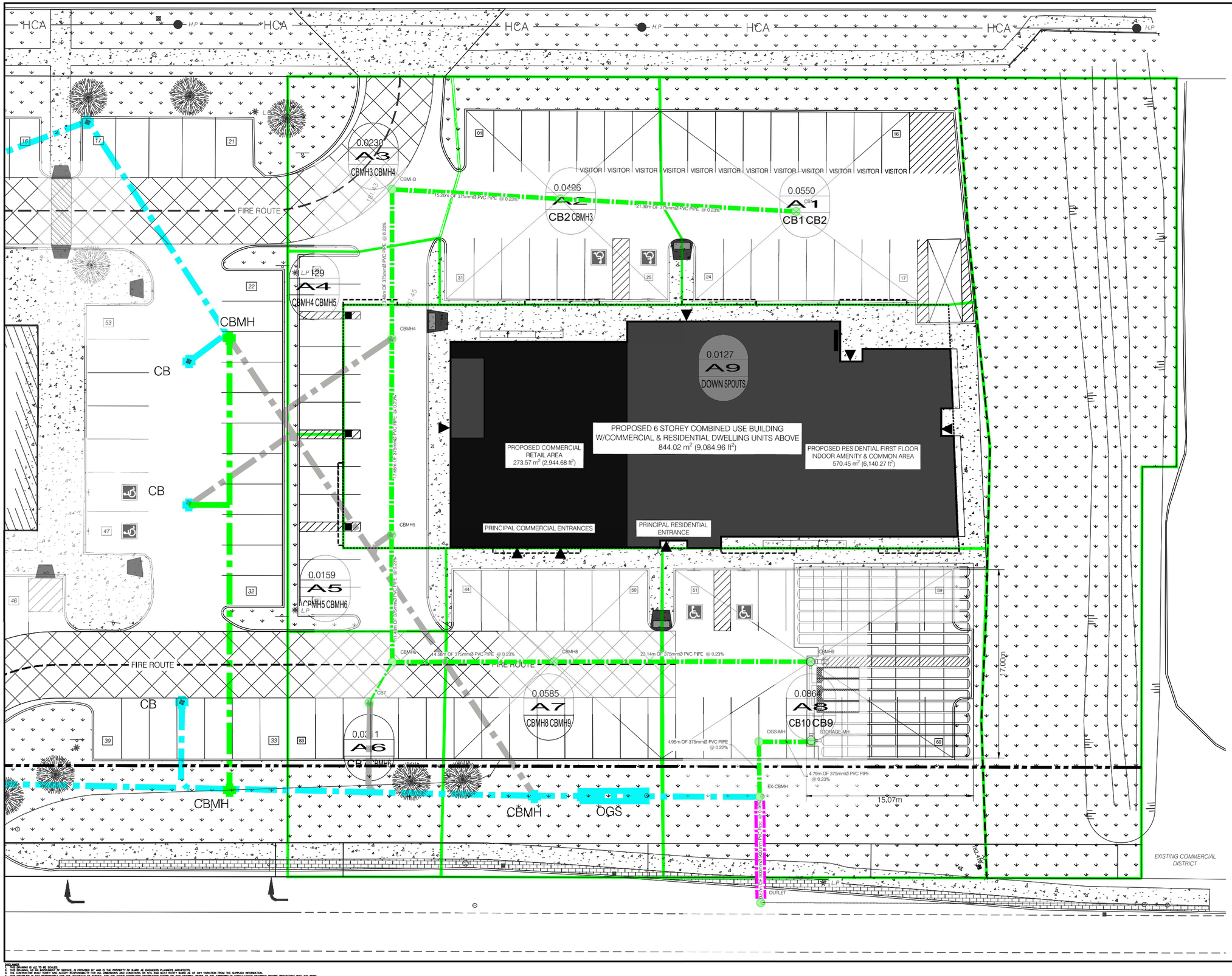
SHEET TITLE
SITE SERVICING PLAN

JOB NUMBER 22-072

SHEET NUMBER 05

July 7, 2023

A:\2022 Projects\22-072 – Fred Farm Fresh Condo 2Bk WFLWA\Engineering\Production Drawings



BAIRD|AE
architecture + engineering
27 Princess Street, Unit 102, Leamington ON N8H 2X8
1530 Provincial Road, Unit 700 Windsor ON N8W 5W1
519 326-6161
info@bairdae.ca
www.bairdae.ca

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....
....	....

LICENCED PROFESSIONAL ENGINEER
G. SIVAKUMAR
100545565
DEC 21, 2023
PROVINCE OF ONTARIO

DATE:	DEC 21, 2023
SCALE:	1:150
DRAWN BY: NNN	[X] PRELIMINARY
CHECKED BY: BP	[ ] CONSTRUCTION
APPROVED BY: ----	[ ] RECORD

PROJECT TITLE
FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO

SHEET TITLE
STORM SEWER DRAINAGE AREA PLAN

JOB NUMBER 22-072

SHEET NUMBER
06

Nov 15, 2023

P:\2022 Projects\22-072 - Fred's Farm Fresh Condo 3th SPA\CAD\Engineering\Preliminary Drawings

DISCLAIMER:
1. THIS DRAWING IS NOT TO BE SCALED.
2. THIS DRAWING, OR ANY REPRESENTATION OF SERVICE IS PROVIDED BY AND IS THE PROPERTY OF BAIRD AE ENGINEERING PLANNERS ARCHITECTS.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND REPORT ANY DISCREPANCIES TO THE ENGINEER OF ANY VARIATION FROM THE SUPPLIED INFORMATION.
4. THIS DISCIPLINE IS NOT RESPONSIBLE FOR THE ACCURACY OF SURVEY, AND THE OTHER DISCIPLINES INFORMATION SHOWN ON THIS DRAWING. REFER TO THE APPROPRIATE CONSULTANTS DRAWINGS BEFORE PROCEEDING WITH THE WORK.
5. CONSTRUCTION MUST CONFORM TO ALL APPLICABLE CODES AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
6. THE CONTRACTOR WORKING FROM DRAWINGS NOT SPECIFICALLY MARKED FOR CONSTRUCTION MUST ASSUME FULL RESPONSIBILITY AND BEAR COSTS FOR ANY CORRECTIONS OR DAMAGES RESULTING FROM THEIR WORK.

FRED'S FARM FRESH CONDOS
STORM SEWER DESIGN SHEET (5-YEAR EVENT, Computed Tc)

LOCATION				AREA (ha)				FLOW							SEWER DATA								PROFILE			
Area ID	Area Included	From Node	To Node	Paved Parking C= 0.90	Grass C= 0.15	From Roof C= 0.95	Total (includnig downspouts)	Indiv 2.78 AC	Accum 5 2.78AC	Time of Conc.	Design Storm	Rainfall Intensity	Peak Flow (L/sec)	Qtotal (L/s)	Dia. (m) Actual	Dia. (mm)	Type	Slope (%)	Length (m)	Capacity (L/s)	Velocity (m/s)	Flow Time (min)	Ratio Q/Q full	Upstream Elevation		Downstream Elevation	
																								Invert (m)	Ground (m)	Invert (m)	Ground (m)
A1		CB1	CB2	0.0470	0.0080	0.0032	0.0582	0.13	0.13	15.00	5	88.40	11.43	11.43	0.375	375	PVC	0.23	21.30	84.0	0.76	0.47	14%	180.305	181.240	180.256	181.292
A2		CB2	CBMH3	0.0348	0.0058	0.0032	0.0438	0.10	0.23	15.47	5	86.97	19.76	19.76	0.375	375	PVC	0.23	15.20	84.0	0.76	0.33	24%	180.256	181.292	180.221	181.357
A3		CBMH3	CBMH4	0.0175	0.0055		0.0230	0.05	0.27	15.80	5	85.99	23.50	23.50	0.375	375	PVC	0.23	13.48	84.0	0.76	0.30	28%	180.221	181.357	180.190	181.307
A4		CBMH4	CBMH5	0.0114	0.0015		0.0129	0.03	0.30	16.10	5	85.13	25.75	25.75	0.375	375	PVC	0.23	17.68	84.0	0.76	0.39	31%	180.190	181.307	180.149	181.308
A5		CBMH5	CBMH6	0.0139	0.0020		0.0159	0.04	0.34	16.48	5	84.04	28.41	28.41	0.375	375	PVC	0.23	11.48	84.0	0.76	0.25	34%	180.149	181.308	180.123	181.317
A6		CB7	CBMH6	0.0165	0.0146		0.0311	0.05	0.05	1.00	5	185.94	8.81	8.81	0.150	150	PVC	0.78	4.23	13.4	0.76	0.09	66%	180.156	181.358	180.123	181.317
		CBMH6	CBMH8					0.00	0.39	16.73	5	83.34	32.12	32.12	0.375	375	PVC	0.23	14.58	84.0	0.76	0.32	38%	180.123	181.317	180.089	181.299
A7		CBMH8	CBMH9	0.0376	0.0209	0.0032	0.0617	0.11	0.50	17.05	5	82.48	40.96	40.96	0.375	375	PVC	0.23	23.14	84.0	0.76	0.51	49%	180.089	181.299	180.036	181.269
		STORAGE	OGS MH	0.0564	0.0300	0.0032	0.0896	0.16	0.66	17.56	5	81.15	53.45	53.45	0.375	375	PVC	0.23	4.79	84.0	0.76	0.10	64%	180.036	181.269	180.025	181.400
		OGS MH	EX-CBMH					0.00	0.66	17.67	5	80.88	53.27	53.27	0.375	375	PVC	0.23	4.95	84.0	0.76	0.11	63%	180.025	181.400	180.014	0.000
		EX-CBMH	OUTLET	1.1600			1.1600	2.90	3.56	17.77	5	80.60	287.01	287.01	0.900	900	PVC	0.06	9.57	435.8	0.68	0.23	66%	180.014		180.008	

Q = 2.78 AIR, where
Q= Peak Flow in Litres per Second (l/s)
A= Area in hectares (ha)
I= Rainfall Intensity (mm/hr)
R= Runoff Coefficient

1) Windsor Rainfall-Intensity Curve
2) Min Pipe Velocity = 0.76 m/s
3) Tc =15 min
Minimum cover = 1m
I= A/(T+B)^C

A= 1259
B= 8.8
C= 0.838

BAIRD|AE architecture + engineering

Consultant:	Baird AE - Architects & Engineers
Date:	May 8, 2023
Design By:	Nii Nartei Nartey

Client:	Dwg. Reference:	Checked and Stamped:
Fred's Farm Fresh	22-072	Gowtham Sivakumar

BAIRD|AE architecture + engineering
27 Princess Street, Unit 102 Leamington ON N8H 2X8
1350 Provincial Road Unit 700 Windsor ON N8W 5W1
www.bairdae.ca info@bairdae.ca
519-252-4161

PARTNER / CONSULTANTS

REVISIONS

Date	Revision
---	---

LICENSED PROFESSIONAL ENGINEER G. SIVAKUMAR 100546565 DEC 21, 2023 PROVINCE OF ONTARIO

DATE: DEC 21, 2023
SCALE: #####
DRAWN BY: NNN [X] PRELIMINARY
CHECKED BY: BP [ ] CONSTRUCTION
APPROVED BY: --- [ ] RECORD

PROJECT TITLE: FRED'S FARM FRESH CONDOS
2144 HURON CHURCH RD, CITY OF WINDSOR, ONTARIO
SHEET TITLE: STORM SEWER DESIGN SHEET
JOB NUMBER 22-072
SHEET NUMBER 07