319 Huntmar Drive

Site Servicing and Stormwater Management Report

Project Location:
319 Huntmar Drive, Ottawa, ON

Prepared for:
Ironclad Developments
101-57158 Symington Road 20E, Springfield, MB

Prepared by:
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MTE File No.: 65860_001

Engineers, Scientists, Surveyors.

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Drawing

Removals Plan
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Erosion and Sediment Control Plan
MTE Drawing No. C1.2 ..... Appended

Key Plan
MTE Drawing No. C2.0 ..... Appended

Site Grading Plan 1
MTE Drawing No. C2.1 ..... Appended

Site Grading Plan 2
MTE Drawing No. C2.2 ..... Appended

Site Servicing Plan 1
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Notes and Details Plan 1
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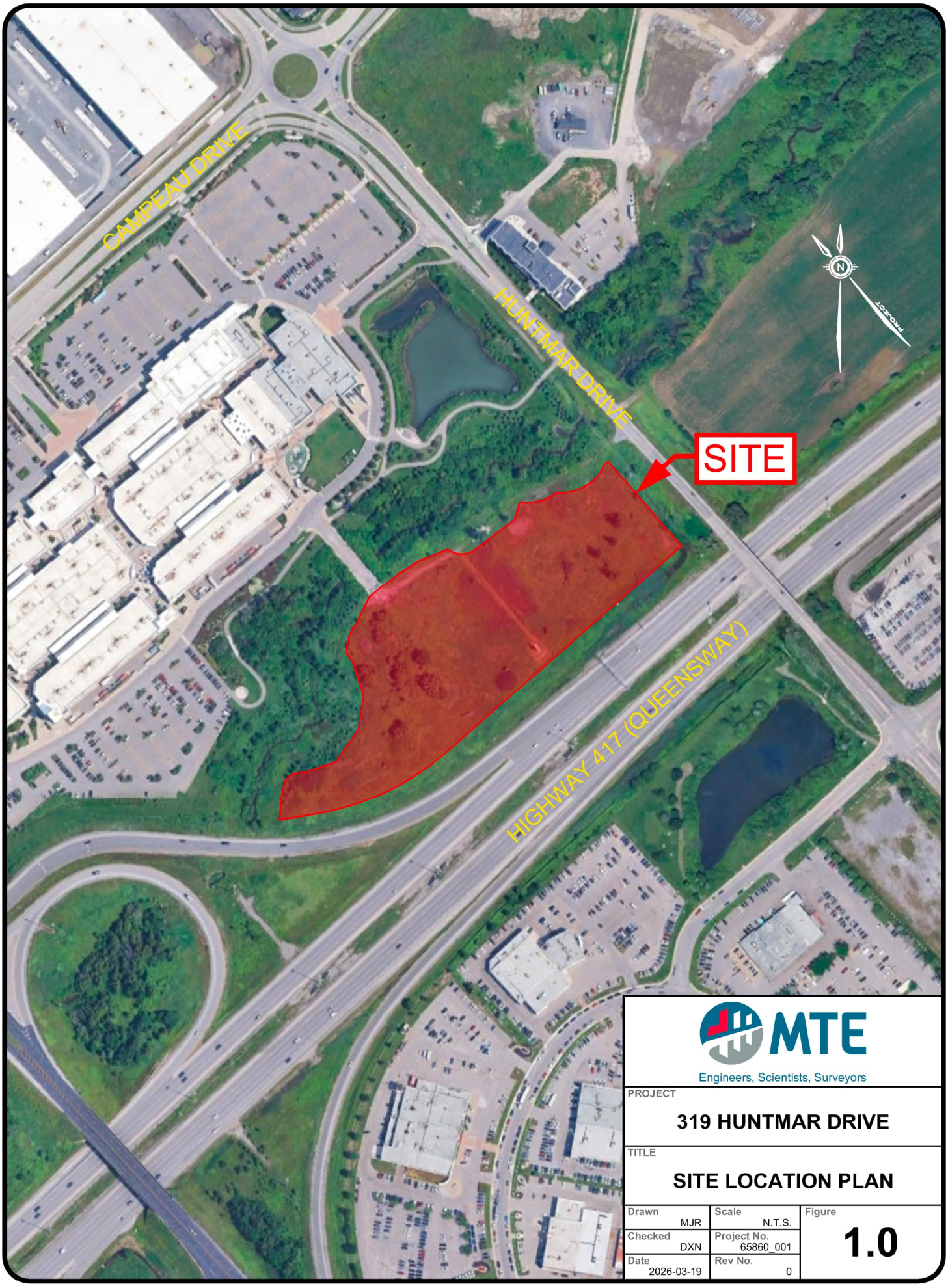
1.0 INTRODUCTION

MTE Consultants Inc. was retained by Ironclad Developments to complete a Site Servicing and Stormwater Management Report for a new residential development to be constructed at 319 Huntmar Drive (herein referred to as 'the Site') in the City of Ottawa (herein referred to as 'the City') in support of the Site Plan Control application.

The property is bounded to the north and west by Feedmill Creek, to the east by Huntmar Drive, and to the south by Trans-Canada Highway 417. Tanger Outlets is located north of Feedmill Creek wherein the Site is connected via a crossing. It is our understanding that this crossing is comprised of a box culvert and headwalls where it overpasses Feedmill Creek. For the purposes of this report, north refers to project north. Refer to Figure 1.0 for the exact location of the Site.

The proposed development for the Site is the construction of six mid-rise residential buildings complete with at-grade parking, underground parking, exterior amenity areas, a driveway connection to Huntmar Drive, and a connection to the existing crossing between the Site and Tanger Outlets. There are a total of 472 units proposed for this development. The construction of this development is planned to occur in phases; however, all water, sanitary, and storm services are anticipated to be installed in the first phase of construction.

The purpose of this study is to support the Site Plan Control application. This will be accomplished by reviewing the opportunities and constraints for the subject property with respect to servicing, grading, and stormwater management; reviewing the requirements of the reviewing agencies; describing the development concept; and demonstrating the serviceability of the property.



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PROJECT
319 HUNTMAR DRIVE

TITLE
SITE LOCATION PLAN

Drawn: MJR	Scale: N.T.S.	Figure: **1.0**
Checked: DXN	Project No.: 65860_001	
Date: 2026-03-19	Rev No.: 0	

2.0 CRITERIA

2.1 Existing Topography

The Site encompasses an area of 3.23ha and currently comprises of undeveloped green space with a few foundation ruins and signs. In the existing condition, surface runoff from the Site generally drains to Feedmill Creek. There is an existing high point near the center of the Site at an elevation of approximately 101.25masl where surface runoff flows away from in a radial pattern. Runoff from areas west and north of this high point flow directly into Feedmill Creek from the Site, whereas the area east of this high point drains to an existing ditch between the Site and Huntmar Drive. It is noted that drainage from the Ministry of Transportation of Ontario (MTO) lands located to the south side of the Site also flows into this existing ditch. This ditch drains north and ultimately outlets to Feedmill Creek. The Site is 99.6% pervious in the existing condition.

2.2 Existing Servicing

2.2.1 Water

There is an existing 200mm diameter watermain along the road located on the south side of Tanger Outlets. There is an existing waterman that connects to this 200mm diameter watermain which extends south towards the Site and is capped at the north limit of the existing crossing. The size of this capped watermain is unknown but is anticipated to be 200mm in diameter. Based on the background information reviewed to date, it is anticipated that this 200mm diameter watermain is a private watermain.

Additionally, there is an existing 600mm diameter watermain along the eastern limits of the Site. There is an existing 200mm diameter watermain that connects to the 600mm diameter municipal watermain inside an existing underground chamber. The 200mm diameter watermain then extends into the Site near the southwest corner where it is capped. It is our understanding that the existing 600mm diameter watermain and the connected 200mm diameter watermain are municipal watermains on a private site, with an easement in favour of the City.

The closest fire hydrant to the Site is located north of the existing crossing between the Site and Tanger Outlets. It is anticipated that this is a private fire hydrant. There are no existing fire hydrants along Huntmar Drive adjacent to the Site.

2.2.2 Sanitary

There is an existing sanitary sewer located under the existing crossing between the Site and Tanger Outlets which drains toward the north. It is our understanding that this sewer is located below the bottom bank of Feedmill Creek. This sanitary sewer then connects to an existing sanitary sewer within the road located on the south side of Tanger Outlets which drains to the east. Based on the field observations observed by Stantec in April 2026, it is understood that these existing sewers are 250mm in diameter; however, as the sewers are approximately 6-7m deep, it is possible that the sanitary sewers differ in size. As per the available record drawings, it is understood that these sanitary sewers may be 300mm in diameter. There is an existing manhole located at the northern limit of the Site and which is approximately 6.0m deep to the outlet invert. Based on the background information reviewed to date, it is anticipated that these 250mm diameter sanitary sewers are privately owned.

2.2.3 Storm

Based on the available record drawings and the previous topographical survey completed by Stantec, dated January 23, 2026, it was our understanding that there are no existing storm sewers adjacent to the Site; however, the City's Pre-Consultation Meeting Feedback, dated December 11, 2025, stated that a network of 300mm to 825mm private storm sewers were installed on-site. To verify this information, locates and additional field work was completed in April 2026. The findings of this additional work concluded that no private storm sewers are present on-site. Refer to the latest topographical survey by Stantec, dated April 20, 2026, for additional information. As noted in Section 2.1, surface runoff from the Site generally drains to Feedmill Creek in the existing condition.

2.3 Existing Soils Information

A geotechnical investigation was completed for the Site by Paterson Group. The latest copy of this investigation is dated October 23, 2026 and a complete copy of this report has been submitted separately for the City's records. Fifteen boreholes were advanced in March 2020 to determine the underlying soil conditions of the Site. It is noted that previous investigations were also completed by Paterson Group in October 2012, December 2010, and October 2006 which consisted of a total of two boreholes and one test pit. Furthermore, an environmental field investigation was completing in November 2025 which consisted of fifteen test pits. The investigation, dated October 23, 2026, revealed the Site is generally comprised of a thin topsoil layer and/or fill material underlain by a silty clay deposit. The fill layer was generally observed to consist of a brown silty clay with varying amounts of sand, gravel and crush stone. The fill layer was observed to be underlain by a deposit of hard to very stiff brown silty clay. The silty clay deposit was further underlain by a deposit of stiff to firm grey silt clay. Due to the presence of a silty clay layer, the Site is subject to a permissible grade restriction. This is further discussed in Section 3.1 below.

Standpipe piezometers were installed in all borehole locations to permit monitoring of the groundwater levels on Site. Groundwater measurements were taken in March 2020, November 2012 and October 2006, and were observed between depths of 0.76mbgs to 2.09mbgs.

For additional information, refer to the separately submitted geotechnical investigation.

2.4 Reviewing Agencies

Grading, servicing, and stormwater management designs, as well as this Site Servicing and Stormwater Management Report will be required for submission to the City of Ottawa in support of the Site Plan Control application. The City will also be responsible for the review and approval of site plans, lighting, and landscape design and ultimately issuing building permits.

As the Site falls within the Mississippi Valley Conservation Authority (MVCA) regulation limit, the site engineering design will also be submitted to the MVCA for their review and approval. Furthermore, the Site is located in proximity to Trans-Canada Highway 417 which is a provincial highway. As such, the MTO will be circulated on the Site Plan Control application and will need to provide approval for the development.

3.0 METHODOLOGY

The grading and servicing strategies for the proposed development have been developed based on the topographic survey, plan and profile information, and the Site Plan prepared by mcCallumSather dated October 20, 2026.

3.1 Proposed Grading

The proposed development will include six mid-rise residential buildings complete with at-grade parking, underground parking, exterior amenity areas, a driveway connection to Huntmar Drive, and a connection to the existing crossing between the Site and Tanger Outlets. The proposed grading strategy will respect the existing grades along the southern property line for the west half of the Site. Re-grading within the 14.0m MTO setback and within the MVCA regulation limit will be required to accommodate the proposed development, as well as a portion of the Huntmar Drive boulevard. The existing gravel access lane connecting to Huntmar Drive located north of the Site will be re-built and extended further west as a part of this development. Generally, the proposed pathway will be constructed to match the existing grades.

As noted in Section 2.3, the Site is subject to a permissible grade restriction due to the presence of silty clay soils. As noted in the geotechnical investigation by Paterson Group, dated October 23, 2026, the proposed structures may be supported by conventional shallow footings bearing on an undisturbed stiff silty clay bearing surface. The disturbance of subgrade soils may result in having to sub-excavate the disturbed material and the placement of additional suitable fill material. Thus, the finished floors of the buildings have been determined considering the elevation of the existing clay soils such that the existing clay soils remain undisturbed.

3.2 Proposed Servicing

As noted in Section 1.0, the construction of this development is planned to occur in phases; however, all water, sanitary, and storm services are anticipated to be installed in the first phase of construction.

3.2.1 Water

In order to service the development, two connections are proposed; one to the existing 200mm diameter watermain located at the southeast limits of the Site and another to the existing watermain capped at the north limits of the existing crossing. New 200mm diameter watermains will be extended into the Site at each connection point where a watermain boundary district metering area chamber is proposed. A backflow preventor will be provided inside each building to mitigate the risk of water contamination.

The required water service size for each building is to be reviewed and confirmed by the mechanical engineer but is anticipated to be 150mm diameter. The water services for each building are proposed to connect to the above-mentioned 200mm diameter watermain and will enter the mechanical room of each building.

3.2.2 Water Demand

Water demands were calculated for the proposed development by referencing the City's Water Distribution Design Guidelines, dated December 8, 2025. These calculations are included in Appendix A. The maximum domestic water demand was determined to be approximately 6.9L/s.

The proposed development was analyzed using both OBC and FUS fire flow requirements. The governing fire flow requirement was determined to be 150L/s and 133L/s based on the OBC and FUS fire flow requirements, respectively.

Many municipalities in Ontario use both the OBC and the FUS fire flow requirements for assessing firefighting water supply requirements. It is our understanding that the FUS fire flow requirements are the governing criteria within the City of Ottawa. As a result, the minimum allowable pressure permitted under firefighting conditions is 150.0kPa per FUS 2020.

The proposed buildings will each have an automatic sprinkler system. Section A-3.2.5.7.2 of the OBC relates to water supply for firefighting in sprinklered buildings. For sprinklered buildings, water supply additional to that required by the sprinkler systems should be provided for firefighting using fire hoses in accordance with the hose stream demands and water supply durations for different hazard classifications as specified in National Fire Protection Association's (NFPA) NFPA 13, "Standard for the Installation of Sprinkler Systems". The site-specific system demand for the proposed sprinkler system is not known at this time; however, is expected that the sprinkler demand will be less than the FUS water demand of 133L/s.

For firefighting purposes, two private on-site hydrants will be required. It is noted that a boundary condition assessment has been previously completed by the City. As the proposed water servicing strategy has been revised since the City's assessment, a new boundary condition request will be submitted to the City in parallel with this Site Plan Control application to ensure adequate pressures will be available at the proposed on-site hydrants.

3.2.3 Sanitary

A sanitary flow design sheet has been prepared by referencing the City's Sewer Design Guideline, dated December 2025, to determine the flows anticipated to be generated by the proposed development. With the proposed development having 472 units and a site area of 3.23ha, the anticipated peak sanitary flow from the Site is approximately 9.1L/s (including infiltration). Refer to Appendix B for sanitary flow calculations.

As per the Design Brief for Tanger Outlet Centres prepared by IBI Group, dated May 2013, it is understood that a total sanitary peak flow of 2.6L/s (including infiltration) was allocated for the Site. Based on our review of the sanitary sewer design sheet included in Appendix G of IBI Group's Design Brief, it is observed that the existing sanitary sewer is assumed to be 300mm in diameter (from MH100A to MH17A in IBI Group's sanitary sewer design sheet) which has an available capacity of 42.5L/s, equivalent to 94.2% availability. Considering the new total peak sanitary flow rate of 9.1L/s from the Site, and understanding that this sanitary sewer may be 250mm in diameter instead of 300mm in diameter as discussed in Section 2.2.2, the availability of the sanitary sewer between MH100A and MH17A has been re-assessed as shown in MTE's sanitary flow calculations in Appendix B. A 250mm diameter sanitary sewer at 0.2% would have a capacity of approximately 26.6L/s which would have 65.8% availability after conveying the anticipated 9.1L/s from the Site.

Furthermore, the downstream sanitary sewer that was designed as part of the Tanger Outlet Centres development (from MH301A to MH EX in IBI Group's sanitary sewer design sheet) has an available capacity of 27.9L/s which is equivalent to 61.7% availability. These availabilities were based on the previously allocated total sanitary peak flow rate of 2.6L/s from the Site. Considering the new total peak sanitary flow rate of 9.1L/s from the Site, the availability of the sanitary sewer between MH301A and MH EX is anticipated to be 21.4L/s (47.4%).

As such, it is concluded that there is adequate capacity in the existing sanitary sewers to accommodate the anticipated peak sanitary flow rate of 9.1L/s. The sanitary sewer design sheet from IBI Group's Design Brief, along with the corresponding drainage area plan, have been

included in Appendix B for reference. It is proposed that the Site will be serviced by the existing sanitary sewer mentioned in Section 2.2.2. This existing sanitary sewer is understood to be privately owned and thus, an agreement with the owner of this sewer and associated easement will be required to service the Site.

To accommodate the proposed development design, the existing sanitary manhole located near the northern limit of the Site will need to be relocated further north. A new 200mm diameter sanitary sewer will connect to this relocated manhole with an external drop structure and extend into the Site to service all buildings.

3.2.4 Storm

A private storm sewer system will be installed on-site to collect runoff from the common drive aisles and at-grade parking areas. Runoff from the building rooftops will be conveyed to the surface via downspouts which will ultimately enter the proposed private storm sewer system as well. This storm sewer system, which will include catchbasins, manholes, catchbasin-manholes, and side inlet catchbasins, will convey runoff towards catchbasin-manhole CBMH13 where flows will be controlled prior to flowing through the proposed oil-grit separator located within the northern landscape area between the Site and Feedmill Creek. This storm sewer will outlet directly into Feedmill Creek complete with a headwall and erosion protection measures. A storm sewer design sheet has been included in Appendix C for reference.

Furthermore, two rain gardens are proposed for the Site to support the stormwater management design. Additional information regarding these rain gardens is discussed in Section 4.3.

4.0 STORMWATER MANAGEMENT DESIGN

4.1 Background

It is noted that the Site has been included in the Kanata West Master Servicing Study (MSS) and is also part of the tributary discussed in the Carp River Watershed/Subwatershed Study (Subwatershed Study). Following the first Site Plan Control application, the City and MVCA had numerous comments related to the MSS and the Subwatershed Study. The main topics were related to the following:

i) Demonstrating that the proposed stormwater management strategy works in both the interim and ultimate conditions as referenced in the MSS. The interim condition consists of discharging directly to Feedmill Creek and the ultimate condition consists of discharging to Pond 2.

ii) Implementing greater erosion and sediment control measures.

iii) Providing on-site infiltration in accordance with the MSS.

A response letter was prepared by MTE, dated July 31, 2026, which provided suggested approaches regarding the above items. A virtual meeting was held on September 9, 2026 with City and MVCA staff to review the suggested approach. The outcome of this meeting was as follows:

i) Discharging directly to Feedmill Creek as per the interim condition design is accepted by the City and MVCA as long as flows can be re-directed to Pond 2 once it is active.

ii) Greater erosion and sediment control measures should be implemented. The proposed control measures should be monitored following the completion of construction to ensure they are functioning adequately.

iii) Best efforts should be made to provide an opportunity for infiltration to occur on-site.

To address Item i, a series of 675mm diameter storm sewers have been proposed to extend to the east property line for a future connection to Pond 2. Refer to MTE drawings for further details. For discussion related to items ii and iii, refer to Sections 4.6 and 4.5, respectively.

4.2 Stormwater Management Criteria

The stormwater management design criteria for the Site, as provided by the City of Ottawa via the Pre-Consultation Meeting Feedback, dated December 11, 2025, and based on the discussions shared with the City and MVCA via the virtual meeting on September 9, 2026, are as follows:

iv) Attenuation of the post-development peak flows for the 2-, 5-, 10-, 25-, 50- and 100-year storm event to the pre-development (existing) peak flows.

v) Implementation of Enhanced (80% TSS removal) water quality controls.

vi) Infiltration of 50-70mm/year of runoff with a 25% increase for post-development.

vii) Implementation of Erosion and Sediment Control measures.

4.3 Water Quantity Control

In order to successfully complete the preliminary stormwater management design for the Site, the following specific tasks were undertaken:

i) Calculate the allowable runoff rates using MIDUSS NET.

ii) Determine the percent impervious of the site and catchment parameters for inclusion in MIDUSSS modeling.

iii) Calculate post-development runoff hydrographs using MIDUSS NET.

iv) Revise the site design to attain the required storage for runoff control.

The following table summarizes the catchments used in modeling of the Site. The pre-development condition was separated into two catchment areas: the area draining north directly into Feedmill Creek and the area draining south towards MTO lands and the existing ditch prior to discharging to Feedmill Creek. The post-development condition was separated into five catchment areas: the controlled area, the partially controlled west area, the partially controlled north area, the uncontrolled area draining north directly into Feedmill Creek, and the uncontrolled area draining south towards MTO lands and the existing ditch prior to discharging to Feedmill Creek. Figure 2.0 illustrates the limits of the pre-development catchment areas. Figure 3.0 illustrates the limits of the post-development catchment areas.

Table 4.1 – Catchment Parameters

#	Catchment	Area (ha)	% Impervious	Pervious CN	Impervious CN	Slope (%)	Flow Length (m)
Pre-Development Catchment Area							
101	To North	2.342	0.5	75	98	2.5	50.0
102	To South	0.891	0.1	75	98	4.0	50.0

#	Catchment	Area (ha)	% Impervious	Pervious CN	Impervious CN	Slope (%)	Flow Length (m)
Post-Development Catchment Area							
201	Controlled Area	2.560	86.3	75	98	1.5	15.0
202	Partially Controlled West Area	0.108	67.5	75	98	2.0	5.0
203	Partially Controlled North Area	0.140	58.0	75	98	3.5	15.0
204	Uncontrolled Area to North	0.242	11.1	75	98	15.0	10.0
205	Uncontrolled Area to South	0.183	0.0	75	98	20.0	5.0

As discussed in Section 2.3, a geotechnical investigation for the Site was completed by Paterson Group, dated October 23, 2026. The investigation revealed the Site is generally comprised of a thin topsoil layer and/or fill material underlain by a silty clay deposit. Therefore, a pervious CN value of 75 for grassed areas is appropriate (as per Table 5.11 of the City's Sewer Design Guideline, dated December 2025).

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LEGEND

- SITE BOUNDARY
- MVCA SHAPEFILE (APPROX. ONLY) – REGULATION LIMIT
- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
- PATERSON GROUP – LIMIT OF HAZARD LANDS
- CATCHMENT 101
- CATCHMENT 102
- 101 / 3.233 — SUB-CATCHMENT NUMBER / AREA (ha.)
- OVERLAND FLOW ROUTE (MAJOR STORM)

FEEDMILL CREEK

101 / 2.342

102 / 0.891

HWY 417 (QUEENSWAY)

0 10 20 30 40 50m

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PROJECT
319 HUNTMAR DRIVE

TITLE
PRE-DEVELOPMENT CATCHMENT AREAS

Drawn	Scale	Figure
MJR	1:1000	**2.0**
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Date: 2026-03-19	Rev No.: 0	

Plot Date: October 28, 2026 – 1:49 PM

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LEGEND

- SITE BOUNDARY
- MVCA SHAPEFILE (APPROX. ONLY) – REGULATION LIMIT
- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
- PATERSON GROUP – LIMIT OF HAZARD LANDS
- CATCHMENT 201
- CATCHMENT 202
- CATCHMENT 203
- CATCHMENT 204
- CATCHMENT 205

201 / 2.560 — SUB-CATCHMENT NUMBER / AREA (ha.)

OVERLAND FLOW ROUTE (MAJOR STORM)

FEEDMILL CREEK

204 / 0.242

203 / 0.140

202 / 0.108

201 / 2.560

205 / 0.183

MH8A
T/G=102.20

MH4A
T/G=102.18

HWY 417 (QUEENSWAY)

0 10 20 30 40 50m

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PROJECT
319 HUNTMAR DRIVE

TITLE
POST-DEVELOPMENT CATCHMENT AREAS

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Date: 2026-03-19	Rev No.: 0	

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In order to achieve the stormwater management requirements for the Site, runoff generated from the controlled area (Catchment 201) will be conveyed to catchbasin-manhole CBMH13, located within the drive aisle north of Building B2 wherein the flow will be controlled with the installation of a 100mm diameter on-line orifice plate on the outlet pipe, as well as a 22.0m wide weir and an 8.0m wide weir along the curb of this drive aisle. Storage volume for the orifice and the weirs will be provided within the at-grade parking areas, underground storm sewers, and an underground storage tank. Details regarding the underground storage tank can be found on MTE Drawing C2.6. It is noted that the at-grade parking areas within the 14.0m MTO setback have not been considered as part of the available storage volume. The maximum depth of ponding permitted by grading within the at-grade parking areas is 0.30m.

Runoff generated near the northwest external amenity area (Catchment 202) will be conveyed to a rain garden located west of Building B4. Similarly, runoff generated near the existing crossing (Catchment 203) will be conveyed to a rain garden located southeast of the existing crossing. Each rain garden has been sized to contain the 2-year storm runoff volume of its catchment with a safety factor of 1.17 to 1.33 which will provide full quantity control for the 2-year storm event. For any larger storm event, the rain gardens will overflow to Feedmill Creek, creating an uncontrolled scenario. As such, Catchments 202 and 203 are considered partially controlled and have been modelled separately for the 2-year storm event. For the 5-year storm event and larger, they have been modelled as uncontrolled catchments. Refer to Appendix D for the rain garden volume calculations.

Runoff from the remainder of the Site will be uncontrolled and have been separated into two catchments: the area draining north directly into Feedmill Creek (Catchment 204) and the area draining south towards MTO lands and the existing ditch prior to discharging to Feedmill Creek (Catchment 205).

It is noted that both the MTO and City of Ottawa IDF parameters were initially utilized to model the 100-year storm event. As the City of Ottawa IDF parameters yielded greater volumes and flow rates, the City of Ottawa's IDF parameters were utilized to model all other storm events. The flow equations for the orifice and the weir are included in Appendix D, along with the IDF parameters used for all storm events. Refer to Appendix E for the MIDUSS NET output.

The following table illustrates the stage-storage-discharge relationship for the storm system.

Table 4.2 – Stage-Storage-Discharge Information

Elevation (m)	Head (m)	Orifice/Weir Flow (m^3/s)	Volume (m^3)	Remarks
99.05	0.00	0.0000	0.0	100mm diameter Orifice Invert
101.55	2.50	0.0342	555.3	Top of Grate
101.60	2.55	0.0346	556.6	Top of Grate
101.65	2.60	0.0349	564.2	Top of Grate
101.70	2.65	0.0353	587.7	Top of Grate
101.75	2.70	0.0356	637.5	Top of Grate
101.80	2.75	0.0359	726.7	Top of Grate
101.85	2.80	0.0363	862.5	22.0m + 8.0m wide Weirs
101.90	2.85	0.5513	1,036.8	Contour

With the addition of the 100mm diameter orifice plate, the 22.0m wide weir, and the 8.0m wide weir, the post-development runoff from the controlled portion of the Site for the 5- and 100-year storm events is controlled to 0.036m^3/s and 0.284m^3/s, respectively. The following table summarizes the flows generated by the whole Site.

Table 4.3 – Summary of Flows

Modelling Condition	2-Year Storm (m^3/s)	5-Year Storm (m^3/s)	10-Year Storm (m^3/s)	25-Year Storm (m^3/s)	50-Year Storm (m^3/s)	100-Year Storm (m^3/s)
Pre-Development (To North)	0.024	0.060	0.094	0.143	0.189	0.242
Pre-Development (To South)	0.010	0.025	0.038	0.060	0.078	0.100
Pre-Development (Total Site)	**0.034**	**0.085**	**0.132**	**0.202**	**0.267**	**0.340**
Post-Development (To North)	0.029	0.077	0.097	0.122	0.209	0.325
Post-Development (To South)	0.004	0.011	0.016	0.023	0.028	0.033
Post-Development (Total Site)	**0.032**	**0.084**	**0.108**	**0.141**	**0.216**	**0.336**

As summarized by Table 4.3 above, the post-development flow rates for the Site have been attenuated to the pre-development flow rates for the Site for all storm events.

The maximum depth for the 5-year storm event is 101.748m. This represents 19.8cm of ponding depth within the parking area. For the 100-year storm event, the maximum ponding elevation is 101.874m. This represents 30.0cm of ponding depth within the parking area with 2.4cm flowing over the weirs.

As per Section 8.3.12 of the City's Sewer Design Guideline, dated December 2025, it is understood that the proposed drainage system shall be stress tested using design storms calculated based on a 20% increase of the City's IDF curves rainfall values. Due to the limited information available regarding this 20% increase, the IDF parameters of the 100-year storm have been modified to produce a 20% increase in the maximum intensity of the storm. Refer to Appendix D for further information on the IDF parameters used for this stress test. The results of this stress test have been included in Appendix E with the other post-development MIDSS NET output results. For this 100-year + 20% storm event, the peak flow rate is 0.577m^3/s for the total Site, and the maximum ponding elevation is 101.893m which represents 30.0cm of ponding depth within the parking area with 4.3cm flowing over the weir.

4.4 Water Quality Control

A Stormceptor EFO8 will be installed on the storm sewer system to provide water quality control for the Site. The chosen unit is expected to provide Enhanced water quality control. Refer to Appendix F for the sizing output from the Stormceptor Expert program. The Stormceptor will require regular annual maintenance to ensure it is operating properly. The owner may be required to enter into a maintenance agreement with a suitable contractor to complete this work. In addition, all the storm structures will have a 600mm sump.

4.5 Infiltration Target

As noted by the City in the Pre-Consultation Meeting Feedback, dated December 11, 2025, an infiltration target equal to 50-70mm/year of runoff must be achieved, with an increase of 25% for the post-development conditions. As per the geotechnical investigation prepared for the Site by Paterson Group, dated October 23, 2026, it is understood that implementation of infiltration-type LIDs are not considered suitable for the Site due to the poor hydraulic properties of the in-situ silty clay soils. Furthermore, based on the email correspondence with Oleksandr (Alex) Polyak from the City on February 23, 2026, it is understood that the infiltration galleries within the Tanger Outlets site were sized to accommodate the Site. It is also noted that Appendix 10 of the City's Sewer Design Guideline, dated December 2025, states that infiltration-type LIDs are not permitted in clay or silt soils due to poor hydraulic properties.

Nevertheless, as per the discussion with Rubina Rasool from the City on September 9, 2026 in a virtual meeting, it is understood that best efforts should be made to provide an opportunity for infiltration to occur on-site. The possibility of converting the above-noted underground storage tank to an underground infiltration gallery was considered; however, due to the proximity of the groundwater relative to the bottom of the underground storage tank, this option was deemed impractical. As such, amended topsoil has been provided on landscaped areas throughout the site, as well as two rain gardens discussed in Section 4.3 above. These features will promote on-site infiltration without an underground infiltration tank. For details regarding the amended topsoil and rain gardens, refer to the plan by Ruhland & Associates Ltd. included in Appendix G. With the implementation of the amended topsoil and rain gardens, it is anticipated that volume equivalent to approximately 14.9mm of runoff generated from the Site will be retained. Refer to Appendix G for calculations.

4.6 Erosion and Sediment Control

In order to minimize the effects of erosion during the grading of the site, sediment control fencing will be installed: as shown on the enclosed engineering drawing, around any stockpiles and around the catchbasins during construction. Any sediment that is tracked onto the roadway during the course of construction will be cleaned by the contractor.

Typically, the recommended construction sequence for erosion and sedimentation control measures will be as follows:

i) Erosion and sedimentation facilities are to be installed prior to any area grading operations.

ii) All erosion control measures are to be inspected and monitored by the contractor and repairs are to be completed as required.

iii) All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance from leaving the Site.

iv) Construction of temporary swales to direct runoff to sedimentation basin with fibre roll check dams as required to control velocities.

v) Stripping and strategic placement of topsoil stockpiles. Placement of sediment control fencing around all stockpile areas.

vi) Re-vegetation of completed areas as soon as possible after construction, including those areas not slated for construction, within 60 days of rough grading.

vii) To minimize the amount of mud being tracked onto the roadway, a mud mat should be installed at the primary construction entrance.

In order to minimize effects of erosion in the post-development condition, energy dissipation measures such as rip rap pads and concrete block mats with vegetation are being implemented.

To ensure the proposed erosion and sedimentation control measures are working adequately, the Site will be monitored for 2 years following the completion of construction. As a part of this monitoring program, inspections should be completed by a qualified professional three times per year at minimum (once following the spring thaw, once in mid-summer, once in the late fall) and as soon as practical following a significant storm event (i.e., the occurrence of 25mm or more of rain at a location in a 24-hour period). The findings of each inspection should be documented for reference and shared with the City and MVCA.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing analysis, it is concluded that:

i) The proposed grading design will respect the existing grades along the southern property line for the west half of the Site. Re-grading within the 14.0m MTO setback and within the MVCA regulation limit will be required to accommodate the proposed development, as well as a portion of the Huntmar Drive boulevard.

ii) The existing service stubs for water and sanitary services will be utilized, and a storm sewer outlet to Feedmill Creek will be required to service the Site. The Site will ultimately outlet to Pond 2 once it is active and infrastructure to accommodate this connection have been proposed at this time.

iii) The anticipated maximum day domestic water demand is approximately 6.9L/s and the maximum fire flow demand is 150L/s and 133L/s based on OBC and FUS calculations, respectively. A new boundary condition request will be submitted to the City to confirm adequate pressures will be available at the proposed on-site hydrants.

iv) The proposed sanitary peak flow rate is anticipated to be approximately 9.1L/s.

v) The proposed stormwater management design provides adequate attenuation of the 2- to 100-year storm events.

vi) Stormwater quality control can be provided with the installation of a Stormceptor Model EFO8.

vii) Amended topsoil and rain gardens are proposed to promote on-site infiltration.

viii) Erosion and sedimentation control measures are to be monitored throughout construction and for 2 years following the completion of construction.

All of which is respectfully submitted,

MTE Consultants Inc.



Dain Na, P.Eng.
Designer
519-743-6500
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Design Engineer
519-743-6500
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DXN:dlb

https://mte85.sharepoint.com/sites/65860_001/Shared Documents/03- Reports/SSSWM/2026-10-30/rpt_2026-10-30_SSSWM.docx

Appendix A

Water Demand Calculations

319 Huntmar Road

PRELIMINARY WATER DEMANDS

Ottawa, Ontario

Project #: 65860_001
Date: October 23, 2026
Date Printed: 10/23/2026
Designed By: DXN
Checked By: LEI

Development Information[1]								Fire Flow[1,2,3]														Domestic Flow[4,5]					
								Ontario Building Code						Fire Underwriters Survey													
Node ID / Area ID / Building #	F.F.E. (m.a.s.l.)	Description	# of Units	Population	Bldg Area (1st Floor)	Total Bldg Area	Building Volume	K	V	S_{tot}	Q	F	F	C	A	F	(2) Occupancy Reduction	(3) Sprinkler Protection	(4) Building Exposure	F	F	Fire Flow (Max OBC/FUS)	City of Ottawa Guidelines	Average Day	Max Day	Maximum Hour	Minimum Hour	Max Day + Fire Flow
				# of people	m^2	m^2	m^3		m^3		*L*	*L/min*	*L/s*		m^2	*L/min*				*L/min*	*L/s*	*L/s*	*L/s*	*L/s*	*L/s*	*L/s*	*L/s*	*L/s*
A	102.60	Apartment	87	157	1,409	8,412	32,315	18	32,315	1.00	581,670	9,000	150	0.90	2,136	9,000	-15%	-50%	0%	4,000	67	150	0.508	0.508	1.269	2.791	0.203	157
B1	102.35	Apartment	77	139	1,085	6,560	23,951	18	23,951	1.00	431,118	9,000	150	1.05	6,560	19,000	-15%	-50%	0%	8,000	133	150	0.449	0.449	1.123	2.470	0.180	157
B2	102.25	Apartment	77	139	1,085	6,560	23,951	18	23,951	1.00	431,118	9,000	150	1.05	6,560	19,000	-15%	-50%	0%	8,000	133	150	0.449	0.449	1.123	2.470	0.180	157
B3	102.35	Apartment	77	139	1,085	6,560	23,951	18	23,951	1.00	431,118	9,000	150	1.05	6,560	19,000	-15%	-50%	0%	8,000	133	150	0.449	0.449	1.123	2.470	0.180	157
B4	102.45	Apartment	77	139	1,085	6,560	23,951	18	23,951	1.00	431,118	9,000	150	1.05	6,560	19,000	-15%	-50%	0%	8,000	133	150	0.449	0.449	1.123	2.470	0.180	157
B5	102.80	Apartment	77	139	1,085	6,560	23,951	18	23,951	1.00	431,118	9,000	150	1.05	6,560	19,000	-15%	-50%	0%	8,000	133	150	0.449	0.449	1.123	2.470	0.180	157
		TOTALS FOR SITE	472	850	6833	41213	152070				Max Fire Flow =		150							Max Fire Flow =		150	2.75	2.75	6.88	15.14	1.10	157

Sum of Maximum Day Flows + Largest OBC Fire Flow (L/s) = 157
Sum of Maximum Day Flows + Largest FUS Fire Flow (L/s) = 140

Assumptions:

1 All building areas, volumes, and construction coefficients are based on the Site Plan (dated October 20, 2026) and information provided by McCallum Sather on October 23, 2026. A population density value of 1.8 (average for apartments) was used as noted in Table 4.1 of the Water Distribution Design Guidelines by the City of Ottawa (dated December 8, 2025).

2 All buildings are classified as major occupancy group C (Residential Occupancy).

3 The construction coefficient for FUS calculations have been determined by GHL Consultants. Refer to the appended letter from GHL Consultants for additional information.

4 Average Daily Demands for each building are based on the information provided in Table 4.2 of the Water Distribution Design Guidelines by the City of Ottawa (dated December 8, 2025).

Residential = 280 L/cap/day

5 Maximum day and maximum hour peaking factors are based on the information provided in Table 4.2 of the Water Distribution Design Guidelines by the City of Ottawa (dated December 8, 2025). The minimum hour peaking factor is based on Table 3-1 of the Design Guidelines for Drinking-Water Systems by the MOE (dated 2008).

Average Day =	1	
Maximum Day =	2.5	x average day
Maximum Hour =	2.2	x maximum day
Minimum Hour =	0.4	

Building Exposure Calculations:

As noted on Page 32 of the Fire Underwriters Survey (2020), all proposed builidings are fully protected with automatic sprinkler systems. Thus, no exposure adjustment charge should be applied.
For subject buildings adjacent to the Feedmill Creek, Huntmar Drive, or the Trans-Canada Highway 417, an exposure adjustment charge is not applicable as there are no exposed risks within the creek or the roads.
Refer to the appended figure for building exposure dimensions.

GHL CONSULTANTS
A PART OF JS|HELD

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October 20, 2026

Via Email nkyriakopoulos@ceengineering.ca
Phone 204 777 1972

Mr. Nikolas Kyriakopoulos, MASc P Eng
Ironclad Developments Inc
101 – 57158 Symington Road
Springfield, MB
R2J 4L6

FIRE UNDERWRITERS SURVEY REVIEW
319 HUNTMAR DRIVE
KANATA, BC **JHS File 260400265**

Dear Nikolas:

We have prepared the following interpretation regarding the Fire Underwriters Survey (FUS) Guide to "*Water Supply for Public Fire Protection*" 2020 Edition. We understand the FUS calculation will be prepared by others. This letter describes an adjustment for applying a modified (interpolated) construction coefficient based on characteristics of the building for calculating the required water supply for firefighting.

In preparation of this letter, we were provided with architectural drawings prepared by McCallumSather. The review provided in this letter is limited to assessing the applicable construction coefficient from the FUS Guide only.

Applicable Code

The applicable Building Code is the Ontario Building Code 2024 (OBC) and references are to this edition.

Project Description

We understand this project consists of the construction of six 6-storey residential buildings. Building A will consist of hybrid mass timber and fire protected wood frame construction, Buildings B1 to B5 will be constructed of fire protected wood frame construction. Each building will be constructed in accordance with Article 3.2.2.51, thus will be sprinklered and all loadbearing elements, floors, and roofs will be constructed to provide a 1h fire resistance rating. In addition to the requirements of Article 3.2.2.51, all buildings of this project will incorporate exterior walls with a 1h fire resistance rating, even where not required by the Building Code. The project site plan is included in *Attachment 1*.

The FUS Guide states that it is a "… *guide and requires specialized knowledge and experience in public fire protection engineering for its effective application*." Based on our knowledge and experience in fire protection engineering, it is our opinion that the following adjustments can be made to the fire flow calculation per the FUS Guide:

- Building A is Type IV-B Mass Timber Construction; based on the combination of mass timber and fire protected wood frame construction, and
- Building B1 to B5 Coefficient of construction can be adjusted; based on fire protected wood frame combustible construction, which is not contemplated in the construction types in the FUS Guide.

Preamble - Performance of Fire Protected Wood Frame Construction

A series of fire tests was undertaken by Codes Canada in 2014 and summarized in a report titled, "*Report to Research Consortium for Wood and Wood-Hybrid Midrise Buildings*" to determine whether protected wood frame construction was a viable alternative to the National Building Code's (NBC) requirement for noncombustible construction. This was part of the research into permitting 5 and 6 storey wood frame buildings in the NBC 2015 edition.

The study undertook four large scale fire tests of mocked up three storey apartments. These were constructed; two of wood frame construction, one of steel stud construction, and one of CLT (mass timber) construction. Exterior walls included various configurations of regular or Type X gypsum board in single or double layers at the interior to simulate exterior walls with and without a fire resistance rating.

The test summary indicates that the steel was significantly impacted by fire with more than 80% loss of strength at 30min and that the steel structure expanded, leading to failure of the gypsum board which contributed to increased ventilation and rapid fire growth and fire spread at 24min. The protected wood frame performed better than the steel, and the structural members were unaffected by fire for more than 30min and did not contribute to fire growth or spread until after 45min in the first protected wood frame test. The second protected wood frame test performed better than the steel but slightly below the first wood test and the wood structure began to contribute at 35min.

The full report can be reviewed at: *Fire safety summary: Fire research conducted for the project on mid-rise wood construction: report to Research Consortium for Wood and Wood-Hybrid Mid-Rise Buildings (canada.ca)* and the relevant discussion is in Chapter 9.

The report concluded that protected wood framing performed *as well as* or better than steel framing and that the wood *met the objectives* attributed to the requirement for noncombustible construction. This is significant as the Building Code defines the acceptable level of performance of an alternative solution to perform "*as well as*" the Division B prescribed solution.

FUS Guide

The FUS Guide has been prepared for usage with Canadian Building Codes (specifically the National Building Code) and relies significantly on the terms and construction requirements in the Building Code. The FUS Guide relies significantly on the fire resistance of assemblies and loadbearing elements in its definitions of construction types but does not define how fire resistance rating is evaluated. Thus, it is understood that the fire resistance rating is evaluated as prescribed by the Building Code (i.e., CAN/ULC-S101 and the MMAH Supplementary Standard SB-2, "Fire Performance Ratings.").

For an exterior wall to achieve a 1h fire resistance rating per the CAN/ULC-S101 test, the assembly, when exposed to a fire (based on a standardized time temperature curve), must prevent the passage of flame from the interior to the exterior for a duration of at least 1h. The CAN/ULC-S101 standard does not limit the material(s) used, nor does it modify its test methodology based on the construction of the assembly. As such, any 1h fire resistance rated assembly is deemed to have the same level of performance as another, regardless of construction materials.

Mass Timber Construction (Building A)

The FUS Guides describes mass timber construction as "Encapsulated Mass Timber, Heavy Timber, and other forms of Mass Timber" and describes subcategories based on the fire resistance rating of assemblies ranging from A (2h fire resistance rated encapsulated mass timber) to D (unrated mass timber).

Type IV-B Mass Timber Construction describes a building that includes mass timber assemblies and all structural elements, exterior walls, interior loadbearing walls, and roofs that have a minimum 1h fire resistance rating. The FUS Guide does not limit the construction types of assemblies and structural elements of a Type IV-B Mass Timber building. Mass timber buildings are typically constructed of hybrid construction, to compensate for design requirements that mass timber is not well suited to address.

Building A will be constructed with CLT floor assemblies and in accordance with Article 3.2.2.51 of the Building Code; as such, all structural elements, interior loadbearing walls, floor and roof assemblies, will have the minimum 1h fire resistance rating as required for Type IV-B Mass Timber Construction. In addition to the requirements of the Building Code, and to meet the definition of Type IV-B Mass Timber Construction, all exterior walls of Building A will be constructed of fire protected wood frame construction with a 1h fire resistance rating.

Thus, the applicable construction coefficient is 0.9.

Protected Wood Frame Construction (Buildings B1 – B5)

The FUS Guide defines ordinary construction as buildings with floors and interior walls that may have no fire resistance rating, and with exterior walls of noncombustible (masonry) construction *or other approved materials* that provide a 1h fire resistance rating.

On the basis that the ordinary, noncombustible, and fire resistive categories specify fire resistance ratings, and the wood frame category does not specify a fire resistance rating, we conclude that the wood frame category is describing unprotected wood frame construction. This type of construction is not

contemplated in the Building Code except for houses (including rowhouses), and the FUS Guide includes a different method of calculation for houses. Ordinary construction describes a type of construction that was common historically; however, it is not common in new construction.

None of the construction types described in the FUS Guide accurately represent the protected wood frame studied in the fire tests by Codes Canada discussed above and proposed for this building. Buildings designed to Article 3.2.2.51 have significantly increased fire protection compared to wood frame construction described in the FUS Guide; both passive protection in the form of fire separations and active fire protection in the form of sprinkler requirements.

As discussed above, the CAN/ULC-S101 test is not dependent on material of construction, thus any 1h fire resistance rated assembly is deemed to have the same level of performance as another, regardless of construction materials. The exterior walls of Buildings B1 to B5 will be constructed of fire protected wood frame construction with a 1h fire resistance rating as determined by the CAN/ULC-S101 test. As discussed below, fire protected wood frame construction meets the functional statements and objectives of noncombustible construction, thus would be considered as '*other approved materials*' described in the FUS Guide definition of ordinary construction.

While Buildings B2 to B5 have not yet commenced construction, the letter provided by McCallumSather, *Attachment 2*, confirms that exterior wall assemblies will be the same 1h exterior walls provided for Building B1.

Coefficient of Construction Adjustment

Reference to interpolation between consecutive construction coefficients was included in the 1999 FUS Guide. Discussion with staff at Fire Underwriters Survey confirmed that although specific reference to interpolation was removed in the 2020 edition of the FUS Guide, interpolation can still occur. They recommend the methodology for interpolation be documented and submitted to the AHJ. A copy of this email discussion is included in *Attachment 3*.

As noted previously, the Codes Canada testing confirmed that protected wood framing performed *as well as* steel framing and that the wood *met the objectives* attributed to the requirement for noncombustible construction.

The FUS Guide would consider the light steel frame in the fire tests to be of noncombustible construction and would assign a construction coefficient of 0.8. The FUS Guide does not include a comparable category for protected wood framing, as the wood frame category in the FUS Guide does not require a fire resistance rating. Based on the results of the fire tests and the conclusion that protected wood frame performed *as well as* protected steel frame, the proposed construction is equivalent to noncombustible and could be assigned a construction coefficient of 0.8.

The ordinary category is assigned a construction coefficient of 1.0. This category includes exterior walls of noncombustible *or other approved material* having a 1h fire resistance rating, and floors and interior walls with no fire resistance ratings, which, as noted previously, is not permitted in the current Building Code other than for houses. In the proposed buildings, the exterior walls, floor assemblies and vertical fire separations between dwelling units will be protected by Type X (or Type C) gypsum board in accordance

with listed designs per the Building Code providing at least a 1h fire resistance rating. Typically, floors are protected using an assembly that includes two layers of gypsum board and walls are protected with a single layer.

Buildings constructed with exterior walls having a 1h fire resistance rating, as determined by the Building Code, would in our opinion, meet the definition of ordinary construction in the FUS Guide. Additionally, the use of two-layer construction provides increased robustness to exterior wall assemblies by adding mass, structural integrity, and redundancy, leading to improved fire resistance performance. This was demonstrated in the NRC testing data which showed that two-layer exterior wall construction delayed the time of structural member involvement.

Fire testing has shown that fire protected wood framed construction will perform as well as noncombustible construction and thus, can be considered *other approved material*. In our opinion, the proposed six-storey buildings will function as well as, if not better than, a building classified as *Ordinary Construction,* and we are proposing an adjusted construction coefficient of 1.05.

Summary

Building A

As discussed above, Building A will meet the FUS Guide's definition of Type IV-B Rated Mass Timber Construction. Thus, the applicable construction coefficient is 0.9.

Buildings B1 – B5

As discussed above, fire testing has shown that fire protected wood framed construction will perform as well as noncombustible construction and thus, can be considered *other approved material*. Thus, in our opinion, the proposed six-storey buildings will function as well as, if not better than, a building classified as *Ordinary Construction,* and we are proposing an adjusted construction coefficient of 1.05.

Should you have any questions, please contact the undersigned.

Prepared by,
GHL Consultants
Permit to Practice 100555315

Reviewed by,

Raphael Klensch

Matt Turco, MASc, P Eng, CP

Raphael Klensch, PL Eng, CP

Reviewed by,

K.M. Gary Chen, MASc, P Eng

Enclosures

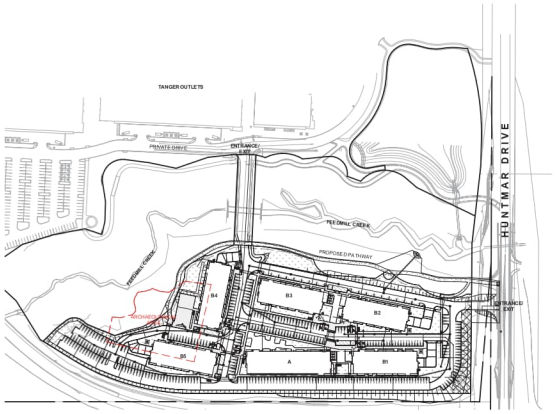
* Limitation of Liability *

This technical report addresses only specific Building Code issues under the GHL/Client agreement for this project and shall in no way be construed as exhaustive or complete. This technical report is issued only to the Authority Having Jurisdiction, the Client, Prime Consultants, and Fire Suppression Designer to this project and shall not be relied upon (without prior written authorization from GHL) by any other party.

MT/RK/GC/kl/dh C:\Box\260400265 - 10239 - 319 Huntmar Drive, Kanata\Report\2026-10-20 Kyriakopoulos- Fire Flow Letter (JSH 260400265).docx

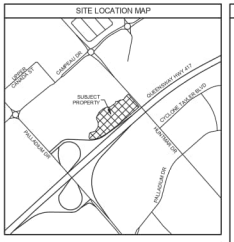
Attachment 1

Site Plan

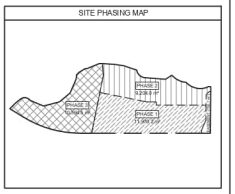


OVERALL SITE PLAN - SITE ENTRANCES

SITE LOCATION MAP



SITE PHASING MAP



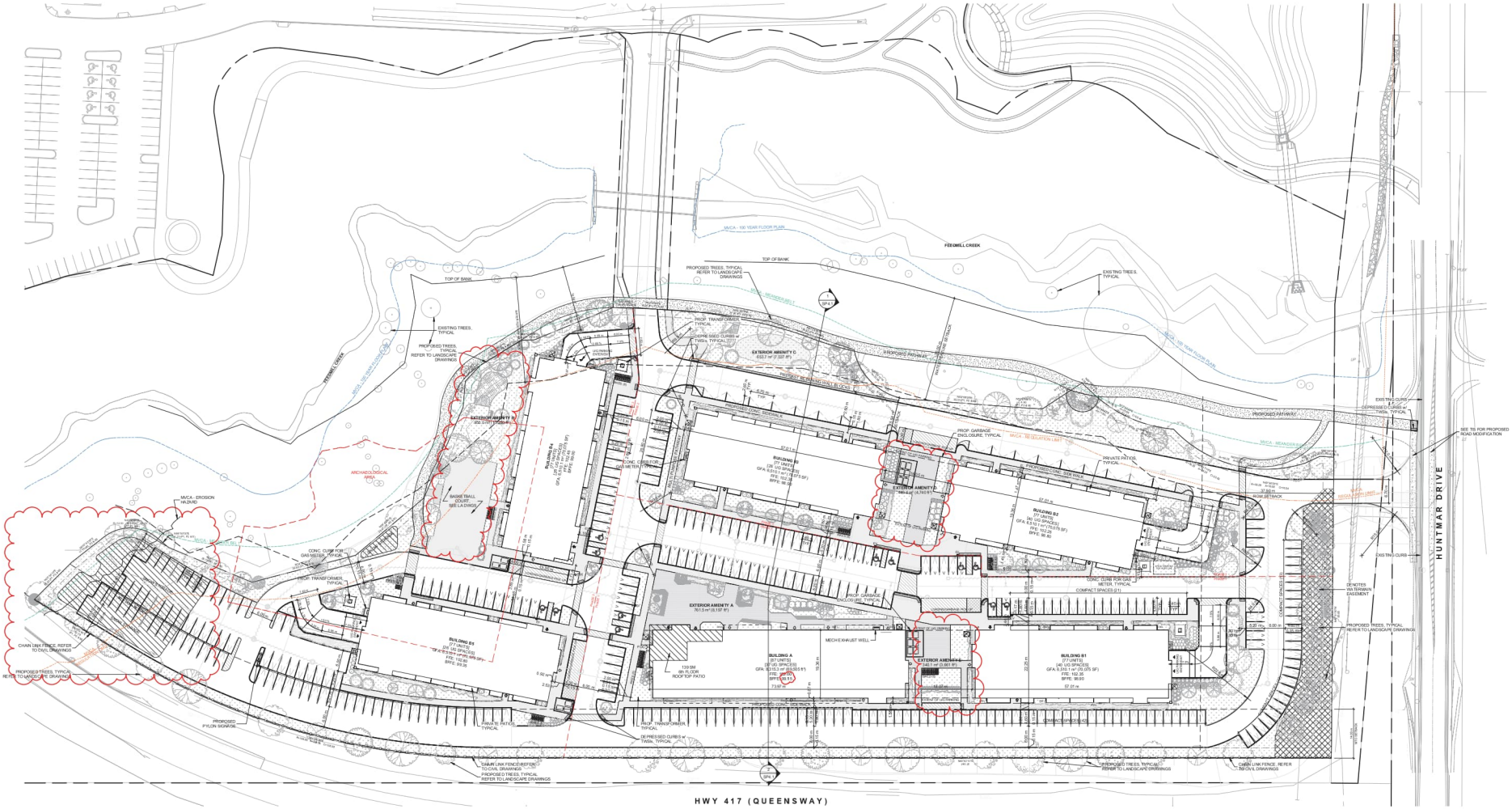
SITE PLAN LEGEND

- EXTENT OF UNDERGROUND PARKING GARAGE
- LINE OF SETBACK
- CENTERLINE OF ROAD
- PROPERTY LINE
- DRIP LINE
- MAIN BUILDING ENTRANCE/ FIRE FIGHTER ENTRANCE
- SECONDARY BUILDING ENTRANCE
- FIRE EXIT
- PARKING ENTRANCE
- FDC: FIRE DEPT CONNECTION
- BOL: BOLLARD
- LBO: LIGHT BOLLARD
- MANHOLE COVER
- CATCH BASIN
- FIRE HYDRANT
- GAS: GAS METER
- EX. WATER VALVE
- SIGNAGE
- EX GUY: EX. GUY WIRE
- EX WUP: EX. WOOD UTILITY POLE
- F.F.E.: FINISHED FLOOR ELEVATION
- SITE ELEVATIONS (SHOWN TO ESTABLISH AVERAGE GRADE)
- FIRE ACCESS ROUTE - SIGNAGE PLACED ON WITHER SIDE.
- FIRE ACCESS ROUTE
- WASTE COLLECTION POINT
- SOFT LANDSCAPING
- REGULATED AREA
- DISTANCE FROM PRINCIPAL ENTRANCE TO FIRE ROUTE
- DISTANCE FROM FIRE HYDRANT TO FIRE DEPARTMENT CONNECTION
- MVCA - MEANDER BELT
- MVCA - REGULATION LIMIT
- MVCA - 100 YEAR FLOOD PLAIN

TALLWORTH | CONSTRUCTION KEY

KEY PLAN

Issued for Schematic Design	2026.03.06
Issued for Design Development	2026.04.10
Issued for Site Plan Control	2026.04.10
Issued for Permit	
Issued for Tender	
Issued for Construction	



1 SP1.0 OVERALL SITE PLAN

1 : 400

No.	DATE	DESCRIPTION
REVISIONS		

DIMENSIONS SHOULD NOT BE REPORTED INACCURATELY TO THE ARCHITECT - CHANGES BEFORE PROCEEDING

ONLY FIGURED DIMENSIONS SHOULD BE USED.

THE CONTRACTOR MUST CHECK THE DIMENSIONS ON SITE

THE DRAWING IS PROTECTED BY COPYRIGHT.

ALL DIMENSIONS ARE SHOWN IN MILLIMETERS.

DO NOT SCALE THE DRAWINGS.

CallumSather
510-13F Grasgo - St., Office 43h
Kitchener ON
N2G 4K8 Canada
mcallumsather.com

ONTARIO ASSOCIATION OF ARCHITECTS
MATTHEW CALLUM SATHER
LICENCE
2018
REGISTERED ARCHITECT

CONSULTANTS

IRONCLAD DEVELOPMENTS INC.

PROJECT
319 HUNTMAR - SITE PLAN

319 HUNTMAR DR, KANATA, ON, K2S 0P6

DRAWING TITLE
SITE PLAN

SHEET SIZE: ARCH D (24"x36")	SCALE: As indicated
PROJECT NO.	25066
DRAWING	SP1.0

File Number D07-12-26-0037 | Plan Number #19463

Attachment 2

Letter dated October 16, 2026 from McCallumSather to GHL Consultants re Fire Underwriters Survey Review

mcCallumSather

October 16, 2026

ATTN: Matt Turco, MASc, P Eng, CP | Associate
GHL Consultants, a part of J.S. Held
700 West Pender Suite 800, Vancouver, BC V6C 1G8
September 21, 2026

Subject: FIRE UNDERWRITERS SURVEY REVIEW
319 HUNTMAR DRIVE
KANATA, ON

To whom it may concern,

We confirm that although construction drawings have not yet commenced for Buildings B2, B3, B4 and B5, the intent is for these buildings to utilize the same building assemblies as those specified for Building B1.

These assemblies will be incorporated into the construction documents as design progresses in phase 2 and 3 of the 319 Huntmar Drive project located in Kanata, Ontario.

Yours truly,



Morgan Wright, OAA.
Project Architect, Associate

Attachment 3

FUS Email Correspondence on Construction Coefficient

Cindy Yee

From: Kevin To
Sent: October 16, 2023 11:14 AM
To: Frankie Victor
Subject: FW: 2023-10-04 - Technical Query (GHL) - FUS 2020 Guide_Question of Construction Coefficient

Follow Up Flag: Follow up
Flag Status: Flagged

See below.

Kevin To, M Eng, P Eng, ing, CP

GHL CONSULTANTS LTD celebrating **30** years
Building Codes & Fire Science
700 W Pender St, Suite 800, Vancouver, BC V6C 1G8
P 604 689 4449 Ext 148 \ **E** kto@ghl.ca \ **W** www.ghl.ca

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From: King, Michael
Sent: Thursday, October 5, 2023 12:11 PM
To: Kevin To
Cc: Banyi, Gabriela
Subject: 2023-10-04 - Technical Query (GHL) - FUS 2020 Guide_Question of Construction Coefficient

Hi Kevin,

I am doing well. Hope you have been good as well.

With the update of the Construction Coefficient terms of reference and Items of Note Regarding Construction Coefficients item II, the note from the 1999 edition was removed. The updated terms of reference provides guidance to aid users of the document in selecting an adequate Construction Coefficient based on the predominate Construction Coefficient for new construction and structures already built.

Interpolation can still occur by users of the document. Methods of interpolation may exist if a user of the guide chooses to not apply Note II. The method of interpolation chosen by a user should be well document and submitted to the authority having jurisdiction (AHJ - municipality and/or water purveyor) for acceptance. The AHJ can permit or restrict how the document is used for the analysis of structural fire protection needs in the community for the development of a water distribution infrastructure and fire department.

A note will be created to review the past note during the next revision cycle of the guide.

If you wish to discuss further, please let us know.

Michael King, B.Sc & Fire, C.Tech
Public Fire Protection Specialist, Fire Underwriters Survey
+1.604.609.4137 direct | +1.778.227.7039 mobile | +1.800.665.5661 toll free
fireunderwriters.ca



From: Kevin To <kto@ghl.ca>
Sent: October 4, 2023 3:17 PM
To: King, Michael <Michael.King@verisk.com>
Subject: FUS 2020 Guide_Question of Construction Coefficient

Hi Mike,

Hope all is well. It has been a while. I believe Rob has mentioned that you I would get in touch.

I came across a question on the changes in the 2020 version of the guide from the 1999 version.

In the 1999 version, there is discussion on interpolating the construction type coefficient as shown below. This text has been removed in the 2020 version. I was wondering if there is a particular reason that has been removed.

Some “practitioner” seems to interpret that it is not possible to apply 1.2 as C for example due to this change. So it is either 1.5 or 1.0 and nothing in between. I just wanted to see if this is indeed the intent for current calculation method and the thinking behind this change if that is the case.

Your insight would be helpful and appreciated.

1. An estimate of the fire flow required for a given area may be determined by the formula:

$$F = 220\ C\sqrt{A}$$

where

F = the required fire flow in litres per minute.

C = coefficient related to the type of construction.

- = 1.5 for wood frame construction (structure essentially all combustible).
- = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
- = 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
- = 0.6 for fire-resistive construction (fully protected frame, floors, roof).

Note: For types of construction that do not fall within the categories given, coefficients shall not be greater than 1.5 nor less than 0.6 and may be determined by interpolation between consecutive construction types as listed above. Construction types are defined in the Appendix.

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

For fire-resistive buildings, consider the two largest adjoining floors plus 50 percent of each of any floors immediately above them up to eight, when the vertical openings are inadequately protected. If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25 percent of each of the two immediately adjoining floors.

Thanks,

Kevin To, M Eng, P Eng, ing, CP

GHL CONSULTANTS LTD celebrating **30** years
Building Codes & Fire Science
700 W Pender St, Suite 800, Vancouver, BC V6C 1G8
P 604 689 4449 Ext 148 \ **E** kto@ghl.ca \ **W** www.ghl.ca

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Appendix B

Sanitary Demand Calculations

319 Huntmar Drive
CITY OF OTTAWA

SANITARY SEWER DESIGN SHEET

ENGINEERING AND PUBLIC WORKS

Project Number: 65860_001
Date: September 24, 2026
Design By: DXN
Checked By: LEI
File: Q:\65860_001\SAN\65860_001_Sanitary Sewer Design Sheet.xls

Drainage Area Plan No:

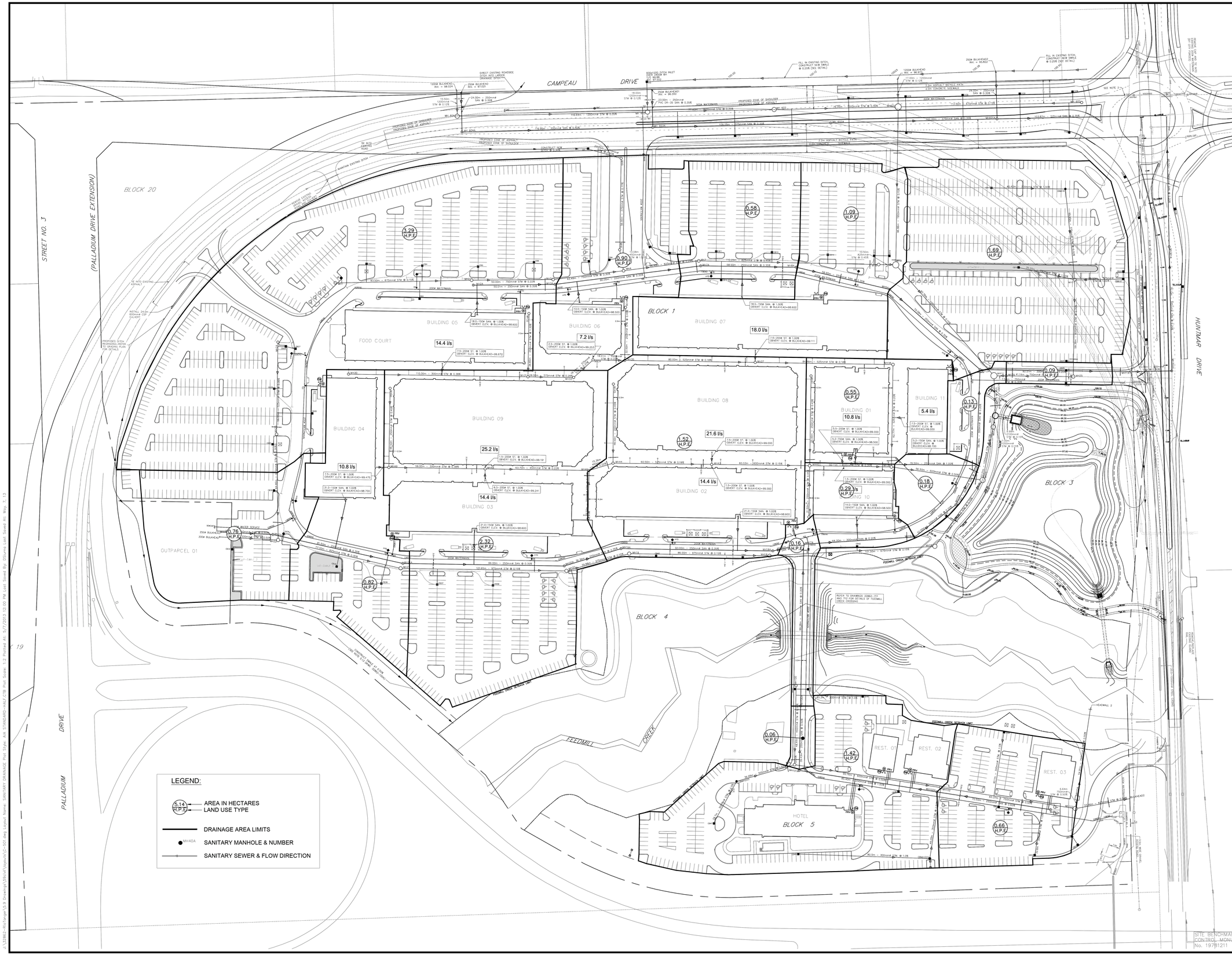
Design Parameters

Average Daily Flow

Residential	0.00324	L/s/c	(280 L/c/d)
Commercial	28000	L/ha/d	
Light Industrial	35000	L/ha/d	
Institutional	28000	L/ha/d	

Mannings "*n*" 0.013
Min. Velocity 0.6 m/sec
Max. Velocity 3.0 m/sec
Residential Harmon Peaking Factor (F) $F = 1 + 14/(4 + (P/1000)^{0.5})$ K
where P = population and K = correction factor = 0.8
Residential Areas Infiltration 0.33 L/s/ha

LOCATION				RESIDENTIAL AREAS AND POPULATION						SCHOOL, INSTITUTIONAL			COMMERCIAL			INDUSTRIAL				INFILTRATION			DESIGN					
										HECTARES AND FLOW OF EACH ZONING																	
										28000 *L/ha/d*			28000 *L/ha/d*			35000 *L/ha/d*											
STREET	AREA NO.	MANHOLE LOCATION FROM MH	MANHOLE LOCATION TO MH	AREA	No. UNITS @ 1.80 PPU	POPUL.	CUMUL POPUL.	PEAK FACTOR "F"	PEAK RES. FLOW	AREA	CUMUL AREA	PEAK FLOW	AREA	CUMUL AREA	PEAK FLOW	AREA	CUMUL AREA	PEAK FLOW	TOTALS-C-I FLOW	AREA	CUMUL AREA	INFIL FLOW	TOTAL VOLUME FLOW	LENGTH	SLOPE	PIPE SIZE	CAPACITY	FULL FLOW VELOCITY
				ha	*(Avg. Apt)*	*1000s*	*1000s*		*L/sec*	*ha*	*ha*	*L/sec*	*ha*	*ha*	*L/sec*	*ha*	*ha*	*L/sec*	*L/sec*	*ha*	*ha*	*L/sec*	*L/sec*	*m*	*%*	*mm*	*L/sec.*	*m/s*
Site (Last SAN Run On-Site)		MH6A	MH7A	3.23	472.00	0.850	0.850	3.275619	9.0189										0.0000	0.31	0.31	0.1016	9.1205	29.4	1.00	200	32.7818	1.044
Feedmill Creek Crossing		100A	17A																					99.3	0.20	250	26.5812	0.542



No.	Date	Issued/Revision	By
06			
05			
04			
03			
02	13:05:07	RE-ISSUED FOR SITE PLAN APPROVAL	J.I.M.
01	13:01:31	ISSUED FOR SITE PLAN APPLICATION	J.I.M.

PROJECT ARCHITECT

TURNER FLEISCHER

TURNER FLEISCHER ARCHITECTS INC.
67 Lesmill Road Toronto ON Canada M3B 2T8
Telephone (416) 425-2222 Facsimile (416) 425-6717
turnerfleischer.com

DESIGN ARCHITECT

CREATE
Architecture Planning & Design PLLC

The Chrysler Building
405 Lexington Avenue, Tower Suite 70
New York, NY 10174

Phone: (212) 297-0880
www.createworldwide.com

SITE/ CIVIL

IBI GROUP

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Fax: (416) 596-0644

333 Preston Street
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Ottawa, Ontario
Canada K1S 5N4
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FAX (613)225-9868

ELECTRICAL

HAMMERSCHLAG + JOFFE I N.C.

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PLANNER

FOTENN PLANNING & URBAN DESIGN

223 McLeod Street | Ottawa, ON | K2P 0Z8
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DEVELOPER

RIOCAN

RioCan Real Estate Investment Trust
2300 Yonge Street
Suite 500
Toronto, Ontario
M4P 1E4
(416) 646 8330

DEVELOPER

TangerOutlets

Tanger Outlets
3200 Northline Avenue, Suite 360
Greensboro, North Carolina
27408

PROJECT

TANGER OUTLET CENTRES

KANATA ONTARIO

DWG. TITLE

SANITARY DRAINAGE AREA PLAN

LICENSED PROFESSIONAL ENGINEER — J. I. MOFFATT — 07/05/13 — PROVINCE OF ONTARIO

PROJECT NO.	DATE
32862	JANUARY 2013
DRAWN BY: M.M.	SCALE: 1 : 1000
CHECKED BY: J.I.M.	FILE NAME: —

TRUE NORTH

PLOT SCALE: 1:1

DRAWING NUMBER: C-501

X:\32862-RioCan\gta V3.0 Drawings\Offices\Ottawa\C-501.dwg Layout Name: SANITARY DRAINAGE Plot Style: AIA STANDARD-HALF CTB Plot Scale: 1:2 Plotted At: 5/7/2013 12:00 PM Last Saved By: DiSanta Last Saved At: May 7, 13

IBI Group
400-333 Preston Street
Ottawa, Ontario
K1S 5N4

SANITARY SEWER DESIGN SHEET

PROJECT: TANGER OUTLET CENTRES
LOCATION: CITY OF OTTAWA
CLIENT: RIO-CAN MANAGEMENT INC

LOCATION				RESIDENTIAL									ICI AREAS							INFILTRATION ALLOWANCE			TOTAL FLOW	PROPOSED SEWER DESIGN						
				UNIT TYPES				AREA	POPULATION		PEAK FACTOR	PEAK FLOW	AREA (Ha)						PEAK FLOW	AREA (Ha)		FLOW		CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
													INSTITUTIONAL		HIGH PROFILE EMPLOY		PRESTIGE BUSINESS PK												
STREET	AREA ID	FROM MH	TO MH	SF	SD	TH	APT	(Ha)	IND	CUM		(L/s)	IND	CUM	IND	CUM	IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
Tanger Site		2A	3A						0.0		4.00	0.00			3.29	3.29			2.86	3.29	3.29	0.92	3.78	36.70	50.01	250	0.35	0.724	32.93	89.71
		3A	7A						0.0		4.00	0.00			0.90	4.19			3.64	0.90	4.19	1.17	4.81	36.70	90.00	250	0.35	0.724	31.89	86.89
		7A	8A						0.0		4.00	0.00			0.58	4.77			4.14	0.58	4.77	1.34	5.48	36.70	58.50	250	0.35	0.724	31.23	85.08
		8A	9A						0.0		4.00	0.00			1.09	5.86			5.09	1.09	5.86	1.64	6.73	36.70	58.90	250	0.35	0.724	29.98	81.67
		9A	12A						0.0		4.00	0.00			1.69	7.55			6.55	1.69	7.55	2.11	8.67	36.70	74.08	250	0.35	0.724	28.03	76.38
Tanger Site		BLKHD	22A						0.0		4.00	0.00			0.76	0.76			0.66	0.76	0.76	0.21	0.87	43.87	32.00	250	0.50	0.866	43.00	98.01
		22A	21A						0.0		4.00	0.00			0.82	1.58			1.37	0.82	1.58	0.44	1.81	36.70	81.50	250	0.35	0.724	34.89	95.06
		21A	20A						0.0		4.00	0.00			2.32	3.90			3.39	2.32	3.90	1.09	4.48	36.70	99.00	250	0.35	0.724	32.23	87.80
		20A	19A						0.0		4.00	0.00			0.00	3.90			3.39	0.00	3.90	1.09	4.48	36.70	36.36	250	0.35	0.724	32.23	87.80
		19A	18A						0.0		4.00	0.00			1.52	5.42			4.70	1.52	5.42	1.52	6.22	36.70	93.00	250	0.35	0.724	30.48	83.05
		18A	17A						0.0		4.00	0.00			0.00	5.42			4.70	0.00	5.42	1.52	6.22	36.70	19.36	250	0.35	0.724	30.48	83.05
Hotel Site		103A	102A						0.0		4.00	0.00			0.66	0.66			0.57	0.66	0.66	0.18	0.76	48.06	70.50	250	0.60	0.948	47.30	98.42
		102A	101A						0.0		4.00	0.00			1.42	2.08			1.81	1.42	2.08	0.58	2.39	62.04	85.40	250	1.00	1.224	59.65	96.15
		101A	100A						0.0		4.00	0.00			0.06	2.14			1.86	0.06	2.14	0.60	2.46	43.87	39.43	250	0.50	0.866	41.41	94.40
Feedmill Creek Crossing		100A	17A						0.0		4.00	0.00			0.16	2.30			2.00	0.16	2.30	0.64	2.64	45.12	99.28	300	0.20	0.618	42.48	94.15
Tanger Site		17A	16A						0.0		4.00	0.00			0.29	8.01			6.95	0.29	8.01	2.24	9.20	45.12	68.30	300	0.20	0.618	35.92	79.62
		16A	15A						0.0		4.00	0.00			0.18	8.19			7.11	0.18	8.19	2.29	9.40	45.12	32.00	300	0.20	0.618	35.71	79.16
		15A	14A						0.0		4.00	0.00			0.00	8.19			7.11	0.00	8.19	2.29	9.40	45.12	27.12	300	0.20	0.618	35.71	79.16
Tanger Site		13A	14A						0.0		4.00	0.00			0.55	0.55			0.48	0.55	0.55	0.15	0.63	62.04	76.50	250	1.00	1.224	61.41	98.98
Tanger Site		14A	12A						0.0		4.00	0.00			0.13	8.87			7.70	0.13	0.13	0.04	7.74	45.12	58.78	300	0.20	0.618	37.38	82.85
Tanger Site/Huntmar		12A	11A						0.0		4.00	0.00			0.09	16.51			14.33	0.09	0.09	0.03	14.36	45.12	92.51	300	0.20	0.618	30.76	68.18
		11A	302A						0.0		4.00	0.00			0.00	16.51			14.33	0.00	0.22	0.06	14.39	45.12	25.03	300	0.20	0.618	30.72	68.10
		302A	301A						0.0		4.00	0.00			0.29	16.80			14.58	0.29	8.06	2.26	16.84	45.12	76.13	300	0.20	0.618	28.28	62.67
		301A	EX.						0.0		4.00	0.00			0.37	17.17			14.90	0.37	8.43	2.36	17.26	45.12	80.50	300	0.20	0.618	27.85	61.73
External (West)			604A						0.0		4.00	0.00					52.66	52.66	32.00	52.66	52.66	14.74	46.74	63.80		300	0.40	0.874	17.06	26.74
External (North)			604A						0.0		4.00	0.00					4.76	4.76	2.89	4.76	4.76	1.33	4.23	36.70	24.00	250	0.35	0.724	32.48	88.49
Campeau Drive		604A	603A						0.0		4.00	0.00					0.44	57.86	35.16	0.44	57.86	16.20	51.36	63.80	116.95	300	0.40	0.874	12.44	19.50
External (North)			603A						0.0		4.00	0.00					5.14	5.14	3.12	5.14	5.14	1.44	4.56	36.70	23.00	250	0.35	0.724	32.14	87.57
Campeau Drive		603A	602A						0.0		4.00	0.00					0.50	63.50	38.59	0.50	63.50	17.78	56.37	108.21	109.05	375	0.35	0.949	51.85	47.91
Campeau Drive		602A	601A						0.0		4.00	0.00					0.50	64.00	38.89	0.50	64.00	17.92	56.81	108.21	102.00	375	0.35	0.949	51.40	47.50
External (North)			601A						0.0		4.00	0.00					5.00	5.00	3.04	5.00	5.00	1.40	4.44	36.70	29.00	250	0.35	0.724	32.26	87.91
Campeau Drive		601A	600A						0.0		4.00	0.00					0.39	69.39	42.16	0.39	77.45	21.69	63.85	108.21	103.87	375	0.35	0.949	44.36	41.00

Design Parameters:

Residential

SF	3.4	p/p/u
TH/SD	2.7	p/p/u
APT	2.3	p/p/u
Other	60	p/p/Ha

ICI Areas

			Peak Factor
INST	50,000	L/Ha/day	1.5
EMP	50,000	L/Ha/day	1.5
BUSS	35,000	L/Ha/day	1.5

Notes:

1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 350 L/day
3. Infiltration allowance: 0.28 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+P^0.5))
   where P = population in thousands

Designed: J.I.M.
Checked: P.K.
Dwg. Reference: 32862 C-501/C-501A

No.	Revision	Date
1.	1st Submission for Site Plan Application	30/01/2013
2.	2nd Submission for Site Plan Application	

File Reference: 32862.5.7.1
Date: 25/01/2013
Sheet No: 1 of 1

Appendix C

Storm Sewer Design Sheet

319 Huntmar Drive

CITY OF OTTAWA

STORM SEWER DESIGN SHEET

ENGINEERING AND PUBLIC WORKS

Project Number: 65860_001
Date: September 28, 2026
Design By: DXN
Checked By:
File: Q:\65860_001\STM\Outlet Pipe Sizing\Storm Sewer Design Sheet Kitchener_Rev10 (Modified for Ottawa) - Outlet Pipe.xlsx

Drainage Area Plan No:

Design Parameters

5 YEAR STORM

Q=kAIC, k=0.00278
Intensity (I) = a/(tc+b)^c
a = 998.071
b = 6.053
c = 0.814

Manning's "n" 0.013
Min. Velocity 0.800 m/s
Max. Velocity 6.000 m/s

LOCATION				STORMWATER FLOW								DESIGN					
STREET	AREA NUMBER	MANHOLE LOCATION FROM MH	MANHOLE LOCATION TO MH	AREA (A)	RUNOFF COEFF. (C)	A x C	CUMUL. A x C	CONCENTRATION TIME TOTAL	CONCENTRATION TIME IN PIPE	RAIN INTENSITY (I)	FLOW (Q)	PIPE SIZE	LENGTH	SLOPE	CAPACITY	FULL FLOW VELOCITY	PIPE FULL
				ha		*ha*	*ha*	*min*	*min*	*mm/hr*	*L/s*	*mm*	*m*	*%*	*L/s*	*m/s*	*%*
Site (Last STM Run)		MH35	Headwall	Maximum discharge for 100mm dia. orifice (see stage storage dischage table from MIDUSS):							36.3	375	36.7	0.80	156.82005	1.4199	23.15

Note:
1. Only the last run has been shown as the pipes upstream of the orifice plate are designed to be utilized for storage.

Appendix D

Stormwater Management Calculations

CALCULATIONS

Rain Garden Storage Volumes

Modelling Condition	Catchment 202	Catchment 203
Footprint (m^2)	68	71
Depth (m)	1.0	1.0
Void Ratio	0.4	0.4
Storage Volume Provided (m^3)	27.2	28.4
2-Year Runoff Volume from MIDUSS (m^3)	20.4	24.4
Factor of Safety	1.33	1.17

Orifice Equation (MIDUSS NET)

$$Q = C_c \, p/4 \, D5 \, \text{sqrt}(2g(H-2/3D))$$

where,

- C_c coefficient of contraction
- H head relative to the invert of the orifice
- D orifice diameter
- g gravitational acceleration

Weir Equation (MIDUSS NET)

$$Q_{cr} = B \, \text{sqrt}(g) \, y_{cr}^{3/2} \qquad \text{where } y_{cr} = 2/3 \, (H-Z)$$

where,

- B weir breadth
- g gravitational acceleration
- H head relative to the invert of the weir
- Z weir sill elevation

City of Ottawa IDF Parameters
(From Section 5.4.2 of the City's Sewer Design Guidelines, dated December 2025)

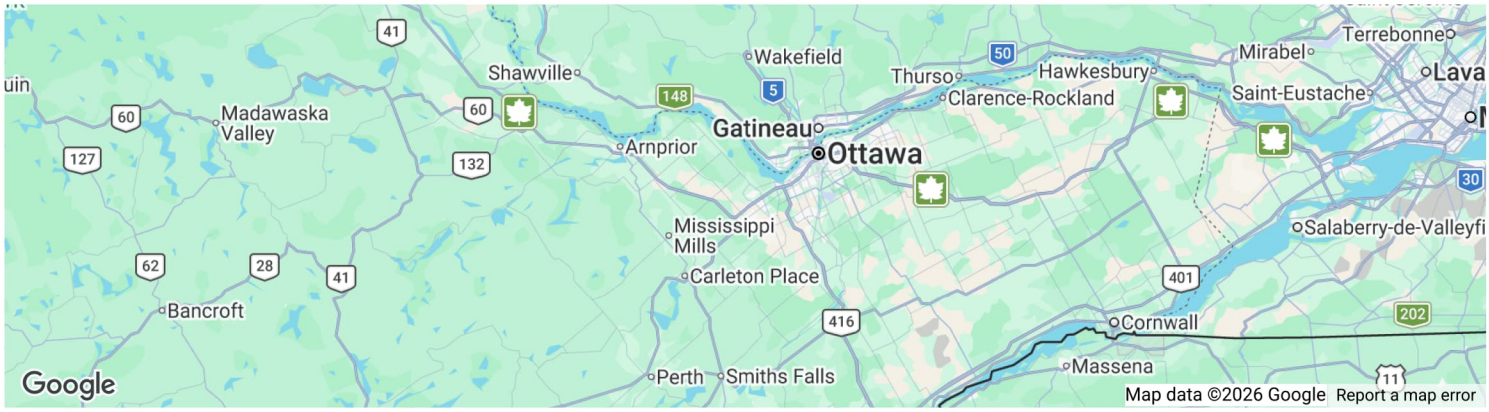
Modelling Condition	a	b	c
2-Year Storm Event	732.951	6.199	0.810
5-Year Storm Event	998.071	6.053	0.814
10-Year Storm Event	1174.184	6.014	0.816
25-Year Storm Event	1402.884	6.018	0.819
50-Year Storm Event	1569.580	6.014	0.820
100-Year Storm Event	1735.688	6.014	0.820
100-Year + 20% Storm Event*	2082.820	5.890	0.824

*To increase the maximum intensity of the 100-year storm by 20%, the 'a' value was multiplied by 1.2, and the 'b' and 'c' values were adjusted as required to produce a 20% increase.

Active coordinate

45° 17' 45" N, 75° 56' 15" W (45.295833,-75.937500)

Retrieved: Thu, 10 Sep 2026 12:57:02 GMT



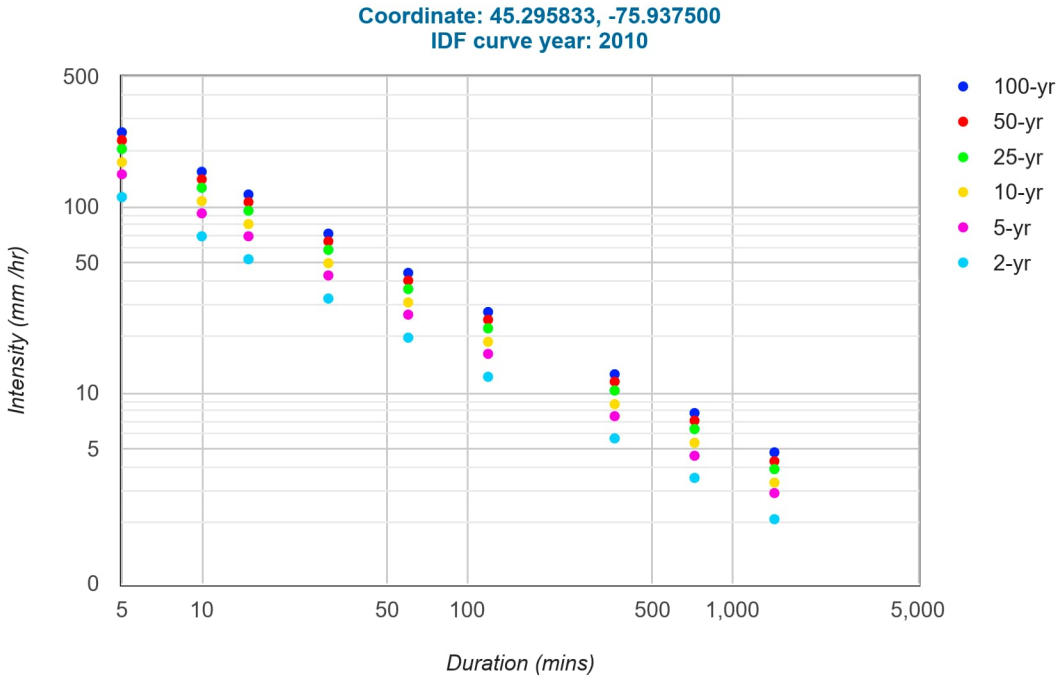
Location summary

These are the locations in the selection.

IDF Curve: 45° 17' 45" N, 75° 56' 15" W (45.295833,-75.937500)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 45° 17' 45" N, 75° 56' 15" W (45.295833,-75.937500)

Retrieved: Thu, 10 Sep 2026 12:57:02 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	19.8	26.3	30.6	36.1	40.1	44.1
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	112.5	69.3	52.2	32.1	19.8	12.2	5.7	3.5	2.1
5-yr	149.4	92.0	69.3	42.7	26.3	16.2	7.5	4.6	2.9
10-yr	173.8	107.1	80.6	49.7	30.6	18.8	8.7	5.4	3.3
25-yr	205.0	126.3	95.1	58.6	36.1	22.2	10.3	6.4	3.9
50-yr	227.8	140.3	105.7	65.1	40.1	24.7	11.5	7.1	4.3
100-yr	250.5	154.3	116.2	71.6	44.1	27.2	12.6	7.8	4.8

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	9.4	11.5	13.0	16.1	19.8	24.4	34.0	41.8	51.5
5-yr	12.4	15.3	17.3	21.3	26.3	32.4	45.1	55.6	68.5
10-yr	14.5	17.8	20.2	24.8	30.6	37.7	52.5	64.6	79.6
25-yr	17.1	21.1	23.8	29.3	36.1	44.5	61.9	76.3	94.0
50-yr	19.0	23.4	26.4	32.5	40.1	49.4	68.8	84.7	104.4
100-yr	20.9	25.7	29.1	35.8	44.1	54.3	75.6	93.2	114.8

Terms of Use

You agree to the Terms of Use of this site by reviewing, using, or interpreting these data.

Appendix E

MIDUSS Outputs

Pre-Development

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                                 2 Year Pre.out"
"                Licensee name:                                             A"
"                Company                                                    "
"                Date & Time last used:             9/28/2026 at 2:11:25 PM"
" 31          TIME PARAMETERS"
"       5.000    Time Step"
"     180.000    Max. Storm length"
"    1500.000    Max. Hydrograph"
" 32          STORM Chicago storm"
"           1    Chicago storm"
"     732.951    Coefficient A"
"       6.199    Constant B"
"       0.810    Exponent C"
"       0.400    Fraction R"
"     180.000    Duration"
"       1.000    Time step multiplier"
"              Maximum intensity          103.571    mm/hr"
"              Total depth                 31.880    mm"
"            6   002hyd   Hydrograph extension used in this file"
" 33           CATCHMENT 101"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          101   North to Feedmill Creek"
"       0.500    % Impervious"
"       2.342    Total Area"
"      50.000    Flow length"
"       2.500    Overland Slope"
"       2.330    Pervious Area"
"      50.000    Pervious length"
"       2.500    Pervious slope"
"       0.012    Impervious Area"
"      50.000    Impervious length"
"       2.500    Impervious slope"
"       0.250    Pervious Manning 'n'"
"      75.000    Pervious SCS Curve No."
"       0.159    Pervious Runoff coefficient"
"       0.100    Pervious Ia/S coefficient"
"       8.467    Pervious Initial abstraction"
"       0.015    Impervious Manning 'n'"
"      98.000    Impervious SCS Curve No."
"       0.831    Impervious Runoff coefficient"
"       0.100    Impervious Ia/S coefficient"
"       0.518    Impervious Initial abstraction"
"                  0.024     0.000     0.000     0.000 c.m/sec"
"              Catchment 101          Pervious   Impervious Total Area "
"              Surface Area           2.330      0.012      2.342      hectare"
"              Time of concentration  36.445     2.880      35.586     minutes"
"              Time to Centroid       146.864    92.249     145.467    minutes"
"              Rainfall depth         31.880     31.880     31.880     mm"
"              Rainfall volume        742.89     3.73       746.62     c.m"
"              Rainfall losses        26.809     5.384      26.702     mm"
"              Runoff depth           5.071      26.496     5.178      mm"
"              Runoff volume          118.16     3.10       121.27     c.m"
"              Runoff coefficient     0.159      0.831      0.162      "
"              Maximum flow           0.024      0.002      0.024      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                  0.024     0.024     0.000     0.000"
" 40           HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                  0.024     0.024     0.024     0.000"
" 40           HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To North"
"             Maximum flow                 0.024    c.m/sec"
"             Hydrograph volume          121.266    c.m"
"                    0.024     0.024     0.024     0.024"
" 40           HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To North"
"             Maximum flow                 0.024    c.m/sec"
"             Hydrograph volume          121.266    c.m"
"                    0.024     0.024     0.024     0.000"
" 40           HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.024     0.024     0.024     0.000"
" 40           HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                 0.024    c.m/sec"
"             Hydrograph volume          121.266    c.m"
"                    0.024     0.024     0.024     0.024"
" 40           HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.024     0.000     0.024     0.024"
" 33           CATCHMENT 102"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          102   South to MTO Lands"
"       0.100    % Impervious"
"       0.891    Total Area"
"      50.000    Flow length"
"       4.000    Overland Slope"
"       0.890    Pervious Area"
"      50.000    Pervious length"
"       4.000    Pervious slope"
"       0.001    Impervious Area"
"      50.000    Impervious length"
"       4.000    Impervious slope"
"       0.250    Pervious Manning 'n'"
"      75.000    Pervious SCS Curve No."
"       0.159    Pervious Runoff coefficient"
"       0.100    Pervious Ia/S coefficient"
"       8.467    Pervious Initial abstraction"
"       0.015    Impervious Manning 'n'"
"      98.000    Impervious SCS Curve No."
"       0.830    Impervious Runoff coefficient"
"       0.100    Impervious Ia/S coefficient"
"       0.518    Impervious Initial abstraction"
"                  0.010     0.000     0.024     0.024 c.m/sec"
"              Catchment 102          Pervious   Impervious Total Area "
"              Surface Area           0.890      0.001      0.891      hectare"
"              Time of concentration  31.652     2.501      31.500     minutes"
"              Time to Centroid       141.164    91.650     140.906    minutes"
"              Rainfall depth         31.880     31.880     31.880     mm"
"              Rainfall volume        283.76     0.28       284.05     c.m"
"              Rainfall losses        26.812     5.421      26.790     mm"
"              Runoff depth           5.068      26.459     5.089      mm"
"              Runoff volume          45.11      0.24       45.35      c.m"
"              Runoff coefficient     0.159      0.830      0.160      "
"              Maximum flow           0.010      0.000      0.010      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                  0.010     0.010     0.024     0.024"
" 40           HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                  0.010     0.010     0.010     0.024"
" 40           HYDROGRAPH   Combine    3"
```

```
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.010    c.m/sec"
"             Hydrograph volume            45.347    c.m"
"                    0.010     0.010     0.010     0.010"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.010    c.m/sec"
"             Hydrograph volume            45.347    c.m"
"                    0.010     0.010     0.010     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.010     0.010     0.010     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.034    c.m/sec"
"             Hydrograph volume           166.613    c.m"
"                    0.010     0.010     0.010     0.034"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.034    c.m/sec"
"             Hydrograph volume           166.613    c.m"
"                    0.010     0.034     0.010     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 19          EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                          Version 2.25  rev. 473"
"               MIDUSS created                       Sunday, February 7, 2010"
"           10  Units used:                                        ie METRIC"
"               Job folder:                       Q:\65860_001\SWM\2026-09-22"
"               Output filename:                                5 Year Pre.out"
"               Licensee name:                                             A"
"               Company                                                    "
"               Date & Time last used:             9/28/2026 at 2:10:47 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"     998.071   Coefficient A"
"       6.053   Constant B"
"       0.814   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"             Maximum intensity          141.178    mm/hr"
"             Total depth                 42.540    mm"
"           6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         101   North to Feedmill Creek"
"       0.500   % Impervious"
"       2.342   Total Area"
"      50.000   Flow length"
"       2.500   Overland Slope"
"       2.330   Pervious Area"
"      50.000   Pervious length"
"       2.500   Pervious slope"
"       0.012   Impervious Area"
"      50.000   Impervious length"
"       2.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.230   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.864   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.060     0.000     0.000     0.000 c.m/sec"
"             Catchment 101          Pervious   Impervious Total Area "
"             Surface Area           2.330      0.012      2.342      hectare"
"             Time of concentration  25.684     2.512      25.254     minutes"
"             Time to Centroid       133.320    90.694     132.529    minutes"
"             Rainfall depth         42.540     42.540     42.540     mm"
"             Rainfall volume        991.31     4.98       996.29     c.m"
"             Rainfall losses        32.772     5.778      32.637     mm"
"             Runoff depth           9.768      36.762     9.903      mm"
"             Runoff volume          227.62     4.30       231.92     c.m"
"             Runoff coefficient     0.230      0.864      0.233      "
"             Maximum flow           0.059      0.003      0.060      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.060     0.060     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.060     0.060     0.060     0.000"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                  0.060    c.m/sec"
"            Hydrograph volume           231.920    c.m"
"                   0.060     0.060     0.060     0.060"
" 40          HYDROGRAPH   Confluence    1"
"           7   Confluence "
"           1   Node #"
"               To North"
"            Maximum flow                  0.060    c.m/sec"
"            Hydrograph volume           231.920    c.m"
"                   0.060     0.060     0.060     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.060     0.060     0.060     0.000"
" 40          HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.060    c.m/sec"
"            Hydrograph volume           231.920    c.m"
"                   0.060     0.060     0.060     0.060"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.060     0.000     0.060     0.060"
" 33          CATCHMENT 102"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         102   South to MTO Lands"
"       0.100   % Impervious"
"       0.891   Total Area"
"      50.000   Flow length"
"       4.000   Overland Slope"
"       0.890   Pervious Area"
"      50.000   Pervious length"
"       4.000   Pervious slope"
"       0.001   Impervious Area"
"      50.000   Impervious length"
"       4.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.229   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.867   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.025     0.000     0.060     0.060 c.m/sec"
"             Catchment 102          Pervious   Impervious Total Area "
"             Surface Area           0.890      0.001      0.891      hectare"
"             Time of concentration  22.306     2.182      22.230     minutes"
"             Time to Centroid       128.990    90.150     128.844    minutes"
"             Rainfall depth         42.540     42.540     42.540     mm"
"             Rainfall volume        378.65     0.38       379.03     c.m"
"             Rainfall losses        32.781     5.679      32.754     mm"
"             Runoff depth           9.759      36.862     9.786      mm"
"             Runoff volume          86.86      0.33       87.19      c.m"
"             Runoff coefficient     0.229      0.867      0.230      "
"             Maximum flow           0.025      0.000      0.025      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.025     0.025     0.060     0.060"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.025     0.025     0.025     0.060"
" 40          HYDROGRAPH   Combine    3"
```

```
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume            87.192    c.m"
"                    0.025     0.025     0.025     0.025"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume            87.192    c.m"
"                    0.025     0.025     0.025     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.025     0.025     0.025     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.085    c.m/sec"
"             Hydrograph volume           319.112    c.m"
"                    0.025     0.025     0.025     0.085"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.085    c.m/sec"
"             Hydrograph volume           319.112    c.m"
"                    0.025     0.085     0.025     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 19          EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                          Version 2.25  rev. 473"
"               MIDUSS created                       Sunday, February 7, 2010"
"           10  Units used:                                    ie METRIC"
"               Job folder:                    Q:\65860_001\SWM\2026-09-22"
"               Output filename:                              10 Year Pre.out"
"               Licensee name:                                            A"
"               Company                                                   "
"               Date & Time last used:            9/28/2026 at 2:10:09 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    1174.184   Coefficient A"
"       6.014   Constant B"
"       0.816   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          165.771    mm/hr"
"            Total depth                 49.535    mm"
"           6   010hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         101   North to Feedmill Creek"
"       0.500   % Impervious"
"       2.342   Total Area"
"      50.000   Flow length"
"       2.500   Overland Slope"
"       2.330   Pervious Area"
"      50.000   Pervious length"
"       2.500   Pervious slope"
"       0.012   Impervious Area"
"      50.000   Impervious length"
"       2.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.270   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.880   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.094     0.000     0.000     0.000 c.m/sec"
"            Catchment 101          Pervious   Impervious Total Area "
"            Surface Area           2.330      0.012      2.342      hectare"
"            Time of concentration  22.026     2.344      21.710     minutes"
"            Time to Centroid       127.951    89.957     127.340    minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
"            Rainfall volume        1154.30    5.80       1160.10    c.m"
"            Rainfall losses        36.139     5.963      35.988     mm"
"            Runoff depth           13.396     43.571     13.547     mm"
"            Runoff volume          312.16     5.10       317.26     c.m"
"            Runoff coefficient     0.270      0.880      0.273      "
"            Maximum flow           0.093      0.004      0.094      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.094     0.094     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.094     0.094     0.094     0.000"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                  0.094    c.m/sec"
"            Hydrograph volume           317.260    c.m"
"                   0.094     0.094     0.094     0.094"
" 40          HYDROGRAPH   Confluence    1"
"           7   Confluence "
"           1   Node #"
"               To North"
"            Maximum flow                  0.094    c.m/sec"
"            Hydrograph volume           317.260    c.m"
"                   0.094     0.094     0.094     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.094     0.094     0.094     0.000"
" 40          HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.094    c.m/sec"
"            Hydrograph volume           317.260    c.m"
"                   0.094     0.094     0.094     0.094"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.094     0.000     0.094     0.094"
" 33          CATCHMENT 102"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         102   South to MTO Lands"
"       0.100   % Impervious"
"       0.891   Total Area"
"      50.000   Flow length"
"       4.000   Overland Slope"
"       0.890   Pervious Area"
"      50.000   Pervious length"
"       4.000   Pervious slope"
"       0.001   Impervious Area"
"      50.000   Impervious length"
"       4.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.270   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.883   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.038     0.000     0.094     0.094 c.m/sec"
"            Catchment 102          Pervious   Impervious Total Area "
"            Surface Area           0.890      0.001      0.891      hectare"
"            Time of concentration  19.130     2.036      19.074     minutes"
"            Time to Centroid       124.150    89.463     124.037    minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
"            Rainfall volume        440.91     0.44       441.35     c.m"
"            Rainfall losses        36.152     5.809      36.121     mm"
"            Runoff depth           13.383     43.726     13.413     mm"
"            Runoff volume          119.12     0.39       119.51     c.m"
"            Runoff coefficient     0.270      0.883      0.271      "
"            Maximum flow           0.038      0.000      0.038      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.038     0.038     0.094     0.094"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.038     0.038     0.038     0.094"
" 40          HYDROGRAPH   Combine    3"
```

```
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.038    c.m/sec"
"             Hydrograph volume           119.511    c.m"
"                    0.038     0.038     0.038     0.038"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.038    c.m/sec"
"             Hydrograph volume           119.511    c.m"
"                    0.038     0.038     0.038     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.038     0.038     0.038     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.132    c.m/sec"
"             Hydrograph volume           436.771    c.m"
"                    0.038     0.038     0.038     0.132"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.132    c.m/sec"
"             Hydrograph volume           436.771    c.m"
"                    0.038     0.132     0.038     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 19          EXIT"
```

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"           10   Units used:                                        ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                                25 Year Pre.out"
"                Licensee name:                                              A"
"                Company                                                     "
"                Date & Time last used:             9/28/2026 at 2:09:28 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    1402.884   Coefficient A"
"       6.018   Constant B"
"       0.819   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          196.580    mm/hr"
"            Total depth                 58.261    mm"
"           6   025hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         101   North to Feedmill Creek"
"       0.500   % Impervious"
"       2.342   Total Area"
"      50.000   Flow length"
"       2.500   Overland Slope"
"       2.330   Pervious Area"
"      50.000   Pervious length"
"       2.500   Pervious slope"
"       0.012   Impervious Area"
"      50.000   Impervious length"
"       2.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.316   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.896   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.143     0.000     0.000     0.000 c.m/sec"
"            Catchment 101          Pervious   Impervious Total Area "
"            Surface Area           2.330      0.012      2.342      hectare"
"            Time of concentration  18.969     2.180      18.733     minutes"
"            Time to Centroid       123.089    89.207     122.613    minutes"
"            Rainfall depth         58.261     58.261     58.261     mm"
"            Rainfall volume        1357.65    6.82       1364.47    c.m"
"            Rainfall losses        39.854     6.044      39.685     mm"
"            Runoff depth           18.406     52.217     18.576     mm"
"            Runoff volume          428.92     6.11       435.04     c.m"
"            Runoff coefficient     0.316      0.896      0.319      "
"            Maximum flow           0.142      0.005      0.143      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.143     0.143     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.143     0.143     0.143     0.000"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                 0.143    c.m/sec"
"            Hydrograph volume          435.039    c.m"
"                   0.143     0.143     0.143     0.143"
" 40          HYDROGRAPH   Confluence    1"
"           7   Confluence "
"           1   Node #"
"               To North"
"            Maximum flow                 0.143    c.m/sec"
"            Hydrograph volume          435.038    c.m"
"                   0.143     0.143     0.143     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.143     0.143     0.143     0.000"
" 40          HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                 0.143    c.m/sec"
"            Hydrograph volume          435.038    c.m"
"                   0.143     0.143     0.143     0.143"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.143     0.000     0.143     0.143"
" 33          CATCHMENT 102"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         102   South to MTO Lands"
"       0.100   % Impervious"
"       0.891   Total Area"
"      50.000   Flow length"
"       4.000   Overland Slope"
"       0.890   Pervious Area"
"      50.000   Pervious length"
"       4.000   Pervious slope"
"       0.001   Impervious Area"
"      50.000   Impervious length"
"       4.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.316   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.898   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.060     0.000     0.143     0.143 c.m/sec"
"            Catchment 102          Pervious   Impervious Total Area "
"            Surface Area           0.890      0.001      0.891      hectare"
"            Time of concentration  16.475     1.894      16.433     minutes"
"            Time to Centroid       119.764    88.766     119.676    minutes"
"            Rainfall depth         58.261     58.261     58.261     mm"
"            Rainfall volume        518.59     0.52       519.11     c.m"
"            Rainfall losses        39.865     5.956      39.831     mm"
"            Runoff depth           18.396     52.305     18.430     mm"
"            Runoff volume          163.75     0.47       164.21     c.m"
"            Runoff coefficient     0.316      0.898      0.316      "
"            Maximum flow           0.060      0.000      0.060      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.060     0.060     0.143     0.143"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.060     0.060     0.060     0.143"
" 40          HYDROGRAPH   Combine    3"
```

```
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.060    c.m/sec"
"             Hydrograph volume           164.213    c.m"
"                    0.060     0.060     0.060     0.060"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.060    c.m/sec"
"             Hydrograph volume           164.213    c.m"
"                    0.060     0.060     0.060     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.060     0.060     0.060     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.202    c.m/sec"
"             Hydrograph volume           599.252    c.m"
"                    0.060     0.060     0.060     0.202"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.202    c.m/sec"
"             Hydrograph volume           599.252    c.m"
"                    0.060     0.202     0.060     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 19          EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                          Version 2.25  rev. 473"
"               MIDUSS created                       Sunday, February 7, 2010"
"           10  Units used:                                        ie METRIC"
"               Job folder:                      Q:\65860_001\SWM\2026-09-22"
"               Output filename:                                50 Year Pre.out"
"               Licensee name:                                              A"
"               Company                                                     "
"               Date & Time last used:             9/28/2026 at 2:08:30 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    1569.580   Coefficient A"
"       6.014   Constant B"
"       0.820   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"              Maximum intensity          219.477    mm/hr"
"              Total depth                 64.845    mm"
"           6  050hyd   Hydrograph extension used in this file"
" 33           CATCHMENT 101"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         101   North to Feedmill Creek"
"       0.500   % Impervious"
"       2.342   Total Area"
"      50.000   Flow length"
"       2.500   Overland Slope"
"       2.330   Pervious Area"
"      50.000   Pervious length"
"       2.500   Pervious slope"
"       0.012   Impervious Area"
"      50.000   Impervious length"
"       2.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.347   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.906   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.189     0.000     0.000     0.000 c.m/sec"
"              Catchment 101          Pervious   Impervious Total Area "
"              Surface Area           2.330      0.012      2.342      hectare"
"              Time of concentration  17.312     2.082      17.115     minutes"
"              Time to Centroid       120.355    88.784     119.947    minutes"
"              Rainfall depth         64.845     64.845     64.845     mm"
"              Rainfall volume        1511.08    7.59       1518.67    c.m"
"              Rainfall losses        42.322     6.119      42.141     mm"
"              Runoff depth           22.523     58.726     22.704     mm"
"              Runoff volume          524.84     6.88       531.72     c.m"
"              Runoff coefficient     0.347      0.906      0.350      "
"              Maximum flow           0.188      0.005      0.189      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"            4  Add Runoff "
"                   0.189     0.189     0.000     0.000"
" 40           HYDROGRAPH Copy to Outflow"
"            8  Copy to Outflow"
"                   0.189     0.189     0.189     0.000"
" 40           HYDROGRAPH   Combine    1"
"            6  Combine "
"            1  Node #"
"               To North"
"              Maximum flow                 0.189    c.m/sec"
"              Hydrograph volume          531.721    c.m"
"                   0.189     0.189     0.189     0.189"
" 40           HYDROGRAPH   Confluence    1"
"            7  Confluence "
"            1  Node #"
"               To North"
"              Maximum flow                 0.189    c.m/sec"
"              Hydrograph volume          531.721    c.m"
"                   0.189     0.189     0.189     0.000"
" 40           HYDROGRAPH Copy to Outflow"
"            8  Copy to Outflow"
"                   0.189     0.189     0.189     0.000"
" 40           HYDROGRAPH   Combine    2"
"            6  Combine "
"            2  Node #"
"               Total Site"
"              Maximum flow                 0.189    c.m/sec"
"              Hydrograph volume          531.721    c.m"
"                   0.189     0.189     0.189     0.189"
" 40           HYDROGRAPH Start - New Tributary"
"            2  Start - New Tributary"
"                   0.189     0.000     0.189     0.189"
" 33           CATCHMENT 102"
"            1  Triangular SCS"
"            1  Equal length"
"            1  SCS method"
"          102  South to MTO Lands"
"        0.100  % Impervious"
"        0.891  Total Area"
"       50.000  Flow length"
"        4.000  Overland Slope"
"        0.890  Pervious Area"
"       50.000  Pervious length"
"        4.000  Pervious slope"
"        0.001  Impervious Area"
"       50.000  Impervious length"
"        4.000  Impervious slope"
"        0.250  Pervious Manning 'n'"
"       75.000  Pervious SCS Curve No."
"        0.347  Pervious Runoff coefficient"
"        0.100  Pervious Ia/S coefficient"
"        8.467  Pervious Initial abstraction"
"        0.015  Impervious Manning 'n'"
"       98.000  Impervious SCS Curve No."
"        0.906  Impervious Runoff coefficient"
"        0.100  Impervious Ia/S coefficient"
"        0.518  Impervious Initial abstraction"
"                   0.078     0.000     0.189     0.189 c.m/sec"
"              Catchment 102          Pervious   Impervious Total Area "
"              Surface Area           0.890      0.001      0.891      hectare"
"              Time of concentration  15.036     1.808      15.001     minutes"
"              Time to Centroid       117.281    88.353     117.205    minutes"
"              Rainfall depth         64.845     64.845     64.845     mm"
"              Rainfall volume        577.19     0.58       577.77     c.m"
"              Rainfall losses        42.335     6.087      42.298     mm"
"              Runoff depth           22.510     58.759     22.547     mm"
"              Runoff volume          200.37     0.52       200.89     c.m"
"              Runoff coefficient     0.347      0.906      0.348      "
"              Maximum flow           0.078      0.000      0.078      c.m/sec"
" 40           HYDROGRAPH Add Runoff "
"            4  Add Runoff "
"                   0.078     0.078     0.189     0.189"
" 40           HYDROGRAPH Copy to Outflow"
"            8  Copy to Outflow"
"                   0.078     0.078     0.078     0.189"
" 40           HYDROGRAPH   Combine    3"
```

```
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.078    c.m/sec"
"             Hydrograph volume           200.892    c.m"
"                    0.078     0.078     0.078     0.078"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.078    c.m/sec"
"             Hydrograph volume           200.892    c.m"
"                    0.078     0.078     0.078     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.078     0.078     0.078     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.267    c.m/sec"
"             Hydrograph volume           732.612    c.m"
"                    0.078     0.078     0.078     0.267"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.267    c.m/sec"
"             Hydrograph volume           732.612    c.m"
"                    0.078     0.267     0.078     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 19          EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                          Version 2.25  rev. 473"
"               MIDUSS created                       Sunday, February 7, 2010"
"          10   Units used:                                        ie METRIC"
"               Job folder:                      Q:\65860_001\SWM\2026-09-22"
"               Output filename:                              100 Year Pre.out"
"               Licensee name:                                             A"
"               Company                                                    "
"               Date & Time last used:             9/28/2026 at 2:01:05 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    1735.688   Coefficient A"
"       6.014   Constant B"
"       0.820   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          242.704    mm/hr"
"            Total depth                 71.708    mm"
"           6   100hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 101"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         101   North to Feedmill Creek"
"       0.500   % Impervious"
"       2.342   Total Area"
"      50.000   Flow length"
"       2.500   Overland Slope"
"       2.330   Pervious Area"
"      50.000   Pervious length"
"       2.500   Pervious slope"
"       0.012   Impervious Area"
"      50.000   Impervious length"
"       2.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.376   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.913   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.242     0.000     0.000     0.000 c.m/sec"
"            Catchment 101          Pervious   Impervious Total Area "
"            Surface Area           2.330      0.012      2.342      hectare"
"            Time of concentration  15.967     1.996      15.799     minutes"
"            Time to Centroid       118.144    88.437     117.786    minutes"
"            Rainfall depth         71.708     71.708     71.708     mm"
"            Rainfall volume        1671.00    8.40       1679.39    c.m"
"            Rainfall losses        44.748     6.246      44.556     mm"
"            Runoff depth           26.960     65.462     27.152     mm"
"            Runoff volume          628.24     7.67       635.90     c.m"
"            Runoff coefficient     0.376      0.913      0.379      "
"            Maximum flow           0.241      0.006      0.242      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.242     0.242     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.242     0.242     0.242     0.000"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                 0.242    c.m/sec"
"            Hydrograph volume          635.903    c.m"
"                   0.242     0.242     0.242     0.242"
" 40          HYDROGRAPH   Confluence    1"
"           7   Confluence "
"           1   Node #"
"               To North"
"            Maximum flow                 0.242    c.m/sec"
"            Hydrograph volume          635.903    c.m"
"                   0.242     0.242     0.242     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.242     0.242     0.242     0.000"
" 40          HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                 0.242    c.m/sec"
"            Hydrograph volume          635.903    c.m"
"                   0.242     0.242     0.242     0.242"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.242     0.000     0.242     0.242"
" 33          CATCHMENT 102"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         102   South to MTO Lands"
"       0.100   % Impervious"
"       0.891   Total Area"
"      50.000   Flow length"
"       4.000   Overland Slope"
"       0.890   Pervious Area"
"      50.000   Pervious length"
"       4.000   Pervious slope"
"       0.001   Impervious Area"
"      50.000   Impervious length"
"       4.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.377   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.913   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.100     0.000     0.242     0.242 c.m/sec"
"            Catchment 102          Pervious   Impervious Total Area "
"            Surface Area           0.890      0.001      0.891      hectare"
"            Time of concentration  13.867     1.733      13.838     minutes"
"            Time to Centroid       115.230    88.007     115.165    minutes"
"            Rainfall depth         71.708     71.708     71.708     mm"
"            Rainfall volume        638.28     0.64       638.92     c.m"
"            Rainfall losses        44.708     6.272      44.670     mm"
"            Runoff depth           26.999     65.436     27.038     mm"
"            Runoff volume          240.32     0.58       240.91     c.m"
"            Runoff coefficient     0.377      0.913      0.377      "
"            Maximum flow           0.100      0.000      0.100      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.100     0.100     0.242     0.242"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.100     0.100     0.100     0.242"
" 40          HYDROGRAPH   Combine    3"
```

```
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.100    c.m/sec"
"             Hydrograph volume           240.907    c.m"
"                    0.100     0.100     0.100     0.100"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.100    c.m/sec"
"             Hydrograph volume           240.907    c.m"
"                    0.100     0.100     0.100     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.100     0.100     0.100     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.340    c.m/sec"
"             Hydrograph volume           876.810    c.m"
"                    0.100     0.100     0.100     0.340"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.340    c.m/sec"
"             Hydrograph volume           876.810    c.m"
"                    0.100     0.340     0.100     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     0.013    hectare"
"             Total % impervious                        0.390"
" 19          EXIT"
```

Post-Development

```
"                MIDUSS Output ---------------------------------------------->"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                    Q:\65860_001\SWM\2026-09-22"
"                Output filename:                          2 Year Post C.out"
"                Licensee name:                                            A"
"                Company                                                   "
"                Date & Time last used:           9/28/2026 at 4:24:52 PM"
" 31          TIME PARAMETERS"
"         5.000  Time Step"
"       180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
" 32          STORM Chicago storm"
"             1  Chicago storm"
"       732.950  Coefficient A"
"         6.199  Constant B"
"         0.810  Exponent C"
"         0.400  Fraction R"
"       180.000  Duration"
"         1.000  Time step multiplier"
"              Maximum intensity          103.571    mm/hr"
"              Total depth                 31.880    mm"
"             6  002hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"             1  Triangular SCS"
"             1  Equal length"
"             1  SCS method"
"           201  Controlled Area (To North)"
"        86.300  % Impervious"
"         2.560  Total Area"
"        15.000  Flow length"
"         1.500  Overland Slope"
"         0.351  Pervious Area"
"        15.000  Pervious length"
"         1.500  Pervious slope"
"         2.209  Impervious Area"
"        15.000  Impervious length"
"         1.500  Impervious slope"
"         0.250  Pervious Manning 'n'"
"        75.000  Pervious SCS Curve No."
"         0.159  Pervious Runoff coefficient"
"         0.100  Pervious Ia/S coefficient"
"         8.467  Pervious Initial abstraction"
"         0.015  Impervious Manning 'n'"
"        98.000  Impervious SCS Curve No."
"         0.831  Impervious Runoff coefficient"
"         0.100  Impervious Ia/S coefficient"
"         0.518  Impervious Initial abstraction"
"                     0.470     0.000     0.000     0.000 c.m/sec"
"              Catchment 201          Pervious   Impervious Total Area "
"              Surface Area           0.351      2.209      2.560      hectare"
"              Time of concentration  20.628     1.630      2.190      minutes"
"              Time to Centroid       128.029    90.214     91.328     minutes"
"              Rainfall depth         31.880     31.880     31.880     mm"
"              Rainfall volume        111.81     704.31     816.12     c.m"
"              Rainfall losses        26.812     5.373      8.310      mm"
"              Runoff depth           5.067      26.507     23.569     mm"
"              Runoff volume          17.77      585.61     603.38     c.m"
"              Runoff coefficient     0.159      0.831      0.739      "
"              Maximum flow           0.005      0.469      0.470      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"             4  Add Runoff "
"                     0.470     0.470     0.000     0.000"
" 54          POND DESIGN"
"         0.470  Current peak flow    c.m/sec"
"         0.235  Target outflow    c.m/sec"
"         603.4  Hydrograph volume    c.m"
"            9.  Number of stages"
"        99.045  Minimum water level    metre"
"       101.900  Maximum water level    metre"
"        99.045  Starting water level    metre"
"             0  Keep Design Data: 1 = True; 0 = False"
"                  Level Discharge    Volume"
"                 99.045     0.000     0.000"
"                101.550   0.03422   555.290"
"                101.600   0.03457   556.570"
"                101.650   0.03492   564.200"
"                101.700   0.03526   587.720"
"                101.750   0.03560   637.500"
"                101.800   0.03594   726.670"
"                101.850   0.03627   862.530"
"                101.900    0.5513  1036.830"
"            1.  WEIRS"
"                   Crest      Weir     Crest      Left     Right"
"                elevation coefficie   breadth sideslope sideslope"
"                  101.850     0.900    30.000     0.000     0.000"
"            1.  ORIFICES"
"                Orifice   Orifice   Orifice Number of"
"                 invert coefficie  diameter  orifices"
"                 99.045     0.630    0.1000     1.000"
"              Peak outflow                  0.028    c.m/sec"
"              Maximum level               101.062    metre"
"              Maximum storage             447.051    c.m"
"              Centroidal lag                5.900   hours"
"                   0.470     0.470     0.028     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"             6  Combine "
"             1  Node #"
"                To North"
"              Maximum flow                  0.028    c.m/sec"
"              Hydrograph volume           600.091    c.m"
"                     0.470     0.470     0.028     0.028"
" 40          HYDROGRAPH Start - New Tributary"
"             2  Start - New Tributary"
"                     0.470     0.000     0.028     0.028"
" 33          CATCHMENT 204"
"             1  Triangular SCS"
"             1  Equal length"
"             1  SCS method"
"           204  Uncontrolled Area (To North)"
"        11.100  % Impervious"
"         0.242  Total Area"
"        10.000  Flow length"
"        15.000  Overland Slope"
"         0.215  Pervious Area"
"        10.000  Pervious length"
"        15.000  Pervious slope"
"         0.027  Impervious Area"
"        10.000  Impervious length"
"        15.000  Impervious slope"
"         0.250  Pervious Manning 'n'"
"        75.000  Pervious SCS Curve No."
"         0.159  Pervious Runoff coefficient"
"         0.100  Pervious Ia/S coefficient"
"         8.467  Pervious Initial abstraction"
"         0.015  Impervious Manning 'n'"
"        98.000  Impervious SCS Curve No."
"         0.786  Impervious Runoff coefficient"
"         0.100  Impervious Ia/S coefficient"
"         0.518  Impervious Initial abstraction"
"                     0.007     0.000     0.028     0.028 c.m/sec"
"              Catchment 204          Pervious   Impervious Total Area "
"              Surface Area           0.215      0.027      0.242      hectare"
"              Time of concentration  8.106      0.641      5.252      minutes"
"              Time to Centroid       113.146    89.325     104.039    minutes"
"              Rainfall depth         31.880     31.880     31.880     mm"
"              Rainfall volume        68.59      8.56       77.15      c.m"
```

```
"            Rainfall losses        26.823     6.813      24.602     mm"
"            Runoff depth           5.057      25.067     7.278      mm"
"            Runoff volume          10.88      6.73       17.61      c.m"
"            Runoff coefficient     0.159      0.786      0.228      "
"            Maximum flow           0.005      0.006      0.007      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.007     0.007     0.028     0.028"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.007     0.007     0.007     0.028"
" 40         HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                  0.029    c.m/sec"
"            Hydrograph volume           617.704    c.m"
"                   0.007     0.007     0.007     0.029"
" 40         HYDROGRAPH   Confluence    1"
"           7   Confluence "
"           1   Node #"
"               To North"
"            Maximum flow                  0.029    c.m/sec"
"            Hydrograph volume           617.704    c.m"
"                   0.007     0.029     0.007     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.007     0.029     0.029     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.029    c.m/sec"
"            Hydrograph volume           617.704    c.m"
"                   0.007     0.029     0.029     0.029"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.007     0.000     0.029     0.029"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.158   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.004     0.000     0.029     0.029 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  4.906      0.388      4.906      minutes"
"            Time to Centroid       109.293    88.965     109.293    minutes"
"            Rainfall depth         31.880     31.880     31.880     mm"
"            Rainfall volume        58.34      0.00       58.34      c.m"
"            Rainfall losses        26.839     8.025      26.839     mm"
"            Runoff depth           5.041      23.855     5.041      mm"
"            Runoff volume          9.22       0.00       9.22       c.m"
"            Runoff coefficient     0.158      0.000      0.158      "
"            Maximum flow           0.004      0.000      0.004      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.004     0.004     0.029     0.029"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.004     0.004     0.004     0.029"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                  0.004    c.m/sec"
"            Hydrograph volume             9.225    c.m"
"                   0.004     0.004     0.004     0.004"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                  0.004    c.m/sec"
"            Hydrograph volume             9.225    c.m"
"                   0.004     0.004     0.004     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.004     0.004     0.004     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.032    c.m/sec"
"            Hydrograph volume           626.929    c.m"
"                   0.004     0.004     0.004     0.032"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.032    c.m/sec"
"            Hydrograph volume           626.929    c.m"
"                   0.004     0.032     0.004     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                      2.985    hectare"
"            Total Impervious area                     2.236    hectare"
"            Total % impervious                       74.913"
" 19         EXIT"
```

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"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                          Version 2.25  rev. 473"
"               MIDUSS created                        Sunday, February 7, 2010"
"          10   Units used:                                        ie METRIC"
"               Job folder:                       Q:\65860_001\SWM\2026-09-10"
"               Output filename:               2 Year Post - Catchment 202.out"
"               Licensee name:                                              A"
"               Company                                                     "
"               Date & Time last used:                9/11/2026 at 4:03:00 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"     732.951   Coefficient A"
"       6.199   Constant B"
"       0.810   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"             Maximum intensity          103.571    mm/hr"
"             Total depth                 31.880    mm"
"           6   002hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 202"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         202   Partially Controlled West Area (To North)"
"      67.500   % Impervious"
"       0.108   Total Area"
"       5.000   Flow length"
"       2.000   Overland Slope"
"       0.035   Pervious Area"
"       5.000   Pervious length"
"       2.000   Pervious slope"
"       0.073   Impervious Area"
"       5.000   Impervious length"
"       2.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.158   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.801   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.017     0.000     0.000     0.000 c.m/sec"
"             Catchment 202          Pervious   Impervious Total Area "
"             Surface Area           0.035      0.073      0.108      hectare"
"             Time of concentration  9.788      0.774      1.556      minutes"
"             Time to Centroid       115.178    89.205     91.460     minutes"
"             Rainfall depth         31.880     31.880     31.880     mm"
"             Rainfall volume        11.19      23.24      34.43      c.m"
"             Rainfall losses        26.839     6.356      13.013     mm"
"             Runoff depth           5.040      25.524     18.867     mm"
"             Runoff volume          1.77       18.61      20.38      c.m"
"             Runoff coefficient     0.158      0.801      0.592      "
"             Maximum flow           0.001      0.017      0.017      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.017     0.017     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.017     0.017     0.017     0.000"
" 38          START/RE-START TOTALS 202"
"           3   Runoff Totals on EXIT"
"             Total Catchment area                   0.108    hectare"
"             Total Impervious area                  0.073    hectare"
"             Total % impervious                    67.500"
" 19          EXIT"
```

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"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"           10   Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-10"
"                Output filename:              2 Year Post - Catchment 203.out"
"                Licensee name:                                             A"
"                Company                                                    "
"                Date & Time last used:               9/11/2026 at 4:20:57 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"      732.951   Coefficient A"
"        6.199   Constant B"
"        0.810   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          103.571    mm/hr"
"             Total depth                 31.880    mm"
"            6   002hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 203"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          203   Partially Controlled North Area (To North)"
"       58.000   % Impervious"
"        0.140   Total Area"
"       15.000   Flow length"
"        3.500   Overland Slope"
"        0.059   Pervious Area"
"       15.000   Pervious length"
"        3.500   Pervious slope"
"        0.081   Impervious Area"
"       15.000   Impervious length"
"        3.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.159   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.827   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.018     0.000     0.000     0.000 c.m/sec"
"             Catchment 203          Pervious   Impervious Total Area "
"             Surface Area           0.059      0.081      0.140      hectare"
"             Time of concentration  15.998     1.264      3.063      minutes"
"             Time to Centroid       122.547    89.751     93.754     minutes"
"             Rainfall depth         31.880     31.880     31.880     mm"
"             Rainfall volume        18.75      25.89      44.63      c.m"
"             Rainfall losses        26.820     5.527      14.470     mm"
"             Runoff depth           5.060      26.352     17.410     mm"
"             Runoff volume          2.98       21.40      24.37      c.m"
"             Runoff coefficient     0.159      0.827      0.546      "
"             Maximum flow           0.001      0.018      0.018      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.018     0.018     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.018     0.018     0.018     0.000"
" 38          START/RE-START TOTALS 203"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                   0.140    hectare"
"             Total Impervious area                  0.081    hectare"
"             Total % impervious                    58.000"
" 19          EXIT"
```

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                            5 Year Post C.out"
"                Licensee name:                                             A"
"                Company                                                    "
"                Date & Time last used:            9/28/2026 at 3:34:29 PM"
" 31          TIME PARAMETERS"
"         5.000  Time Step"
"       180.000  Max. Storm length"
"      1500.000  Max. Hydrograph"
" 32          STORM Chicago storm"
"             1  Chicago storm"
"       998.071  Coefficient A"
"         6.053  Constant B"
"         0.814  Exponent C"
"         0.400  Fraction R"
"       180.000  Duration"
"         1.000  Time step multiplier"
"              Maximum intensity          141.178    mm/hr"
"              Total depth                 42.540    mm"
"             6  005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"             1  Triangular SCS"
"             1  Equal length"
"             1  SCS method"
"           201  Controlled Area (To North)"
"        86.300  % Impervious"
"         2.560  Total Area"
"        15.000  Flow length"
"         1.500  Overland Slope"
"         0.351  Pervious Area"
"        15.000  Pervious length"
"         1.500  Pervious slope"
"         2.209  Impervious Area"
"        15.000  Impervious length"
"         1.500  Impervious slope"
"         0.250  Pervious Manning 'n'"
"        75.000  Pervious SCS Curve No."
"         0.230  Pervious Runoff coefficient"
"         0.100  Pervious Ia/S coefficient"
"         8.467  Pervious Initial abstraction"
"         0.015  Impervious Manning 'n'"
"        98.000  Impervious SCS Curve No."
"         0.865  Impervious Runoff coefficient"
"         0.100  Impervious Ia/S coefficient"
"         0.518  Impervious Initial abstraction"
"                    0.679     0.000     0.000     0.000 c.m/sec"
"              Catchment 201          Pervious   Impervious Total Area "
"              Surface Area           0.351      2.209      2.560      hectare"
"              Time of concentration  14.538     1.422      1.952      minutes"
"              Time to Centroid       118.992    88.963     90.178     minutes"
"              Rainfall depth         42.540     42.540     42.540     mm"
"              Rainfall volume        149.20     939.83     1089.03    c.m"
"              Rainfall losses        32.771     5.759      9.460      mm"
"              Runoff depth           9.769      36.781     33.080     mm"
"              Runoff volume          34.26      812.59     846.85     c.m"
"              Runoff coefficient     0.230      0.865      0.778      "
"              Maximum flow           0.013      0.677      0.679      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"             4  Add Runoff "
"                    0.679     0.679     0.000     0.000"
" 54          POND DESIGN"
"         0.679  Current peak flow    c.m/sec"
"         0.626  Target outflow    c.m/sec"
"         846.8  Hydrograph volume    c.m"
"            9.  Number of stages"
"        99.045  Minimum water level    metre"
"       101.900  Maximum water level    metre"
"        99.045  Starting water level    metre"
"             0  Keep Design Data: 1 = True; 0 = False"
"                  Level Discharge    Volume"
"                 99.045     0.000     0.000"
"                101.550   0.03422   555.290"
"                101.600   0.03457   556.570"
"                101.650   0.03492   564.200"
"                101.700   0.03526   587.720"
"                101.750   0.03560   637.500"
"                101.800   0.03594   726.670"
"                101.850   0.03627   862.530"
"                101.900    0.5513  1036.830"
"            2.  WEIRS"
"                   Crest      Weir     Crest      Left     Right"
"                elevation coefficie   breadth sideslope sideslope"
"                101.850      0.900    22.000     0.000     0.000"
"                101.850      0.900     8.000     0.000     0.000"
"            1.  ORIFICES"
"                Orifice   Orifice   Orifice Number of"
"                 invert coefficie  diameter  orifices"
"                 99.045     0.630    0.1000     1.000"
"              Peak outflow                  0.036    c.m/sec"
"              Maximum level               101.748    metre"
"              Maximum storage             635.198    c.m"
"              Centroidal lag                5.970   hours"
"                   0.679     0.679     0.036     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"             6  Combine "
"             1  Node #"
"                To North"
"              Maximum flow                  0.036    c.m/sec"
"              Hydrograph volume           842.130    c.m"
"                      0.679     0.679     0.036     0.036"
" 40          HYDROGRAPH Start - New Tributary"
"             2  Start - New Tributary"
"                      0.679     0.000     0.036     0.036"
" 33          CATCHMENT 202"
"             1  Triangular SCS"
"             1  Equal length"
"             1  SCS method"
"           202  Partially Controlled West Area (To North)"
"        67.500  % Impervious"
"         0.108  Total Area"
"         5.000  Flow length"
"         2.000  Overland Slope"
"         0.035  Pervious Area"
"         5.000  Pervious length"
"         2.000  Pervious slope"
"         0.073  Impervious Area"
"         5.000  Impervious length"
"         2.000  Impervious slope"
"         0.250  Pervious Manning 'n'"
"        75.000  Pervious SCS Curve No."
"         0.228  Pervious Runoff coefficient"
"         0.100  Pervious Ia/S coefficient"
"         8.467  Pervious Initial abstraction"
"         0.015  Impervious Manning 'n'"
"        98.000  Impervious SCS Curve No."
"         0.823  Impervious Runoff coefficient"
"         0.100  Impervious Ia/S coefficient"
"         0.518  Impervious Initial abstraction"
"                    0.024     0.000     0.036     0.036 c.m/sec"
"              Catchment 202          Pervious   Impervious Total Area "
"              Surface Area           0.035      0.073      0.108      hectare"
"              Time of concentration  6.898      0.675      1.406      minutes"
"              Time to Centroid       109.366    88.231     90.714     minutes"
"              Rainfall depth         42.540     42.540     42.540     mm"
```

```
"            Rainfall volume        14.93      31.01      45.94      c.m"
"            Rainfall losses        32.856     7.510      15.748     mm"
"            Runoff depth           9.684      35.030     26.793     mm"
"            Runoff volume          3.40       25.54      28.94      c.m"
"            Runoff coefficient     0.228      0.823      0.630      "
"            Maximum flow           0.002      0.023      0.024      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.024     0.024     0.036     0.036"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.024     0.024     0.024     0.036"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.039    c.m/sec"
"            Hydrograph volume          871.066    c.m"
"                 0.024     0.024     0.024     0.039"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.024     0.000     0.024     0.039"
" 33         CATCHMENT 203"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        203   Partially Controlled North Area (To North)"
"     58.000   % Impervious"
"      0.140   Total Area"
"     15.000   Flow length"
"      3.500   Overland Slope"
"      0.059   Pervious Area"
"     15.000   Pervious length"
"      3.500   Pervious slope"
"      0.081   Impervious Area"
"     15.000   Impervious length"
"      3.500   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.229   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.855   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                 0.026     0.000     0.024     0.039 c.m/sec"
"           Catchment 203          Pervious   Impervious Total Area "
"           Surface Area           0.059      0.081      0.140      hectare"
"           Time of concentration  11.274     1.103      2.756      minutes"
"           Time to Centroid       114.807    88.479     92.757     minutes"
"           Rainfall depth         42.540     42.540     42.540     mm"
"           Rainfall volume        25.01      34.54      59.56      c.m"
"           Rainfall losses        32.795     6.176      17.356     mm"
"           Runoff depth           9.745      36.364     25.184     mm"
"           Runoff volume          5.73       29.53      35.26      c.m"
"           Runoff coefficient     0.229      0.855      0.592      "
"           Maximum flow           0.002      0.026      0.026      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.026     0.026     0.024     0.039"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.026     0.026     0.026     0.039"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.065    c.m/sec"
"            Hydrograph volume          906.323    c.m"
"                 0.026     0.026     0.026     0.065"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.026     0.000     0.026     0.065"
" 33         CATCHMENT 204"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        204   Uncontrolled Area (To North)"
"     11.100   % Impervious"
"      0.242   Total Area"
"     10.000   Flow length"
"     15.000   Overland Slope"
"      0.215   Pervious Area"
"     10.000   Pervious length"
"     15.000   Pervious slope"
"      0.027   Impervious Area"
"     10.000   Impervious length"
"     15.000   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.228   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.806   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                 0.015     0.000     0.026     0.065 c.m/sec"
"           Catchment 204          Pervious   Impervious Total Area "
"           Surface Area           0.215      0.027      0.242      hectare"
"           Time of concentration  5.713      0.559      4.135      minutes"
"           Time to Centroid       107.762    88.266     101.794    minutes"
"           Rainfall depth         42.540     42.540     42.540     mm"
"           Rainfall volume        91.52      11.43      102.95     c.m"
"           Rainfall losses        32.840     8.264      30.112     mm"
"           Runoff depth           9.700      34.276     12.428     mm"
"           Runoff volume          20.87      9.21       30.08      c.m"
"           Runoff coefficient     0.228      0.806      0.292      "
"           Maximum flow           0.011      0.009      0.015      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.015     0.015     0.026     0.065"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.015     0.015     0.015     0.065"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.077    c.m/sec"
"            Hydrograph volume          936.398    c.m"
"                 0.015     0.015     0.015     0.077"
" 40         HYDROGRAPH   Confluence    1"
"          7   Confluence "
"          1   Node #"
"              To North"
"            Maximum flow                 0.077    c.m/sec"
"            Hydrograph volume          936.398    c.m"
"                 0.015     0.077     0.015     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.015     0.077     0.077     0.000"
" 40         HYDROGRAPH   Combine    2"
"          6   Combine "
"          2   Node #"
```

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"               Total Site"
"            Maximum flow                0.077    c.m/sec"
"            Hydrograph volume         936.398    c.m"
"                  0.015     0.077     0.077     0.077"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                  0.015     0.000     0.077     0.077"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.225   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                  0.011     0.000     0.077     0.077 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  3.457      0.338      3.457      minutes"
"            Time to Centroid       104.999    87.691     104.999    minutes"
"            Rainfall depth         42.540     42.540     42.540     mm"
"            Rainfall volume        77.85      0.00       77.85      c.m"
"            Rainfall losses        32.985     9.693      32.985     mm"
"            Runoff depth           9.555      32.847     9.555      mm"
"            Runoff volume          17.49      0.00       17.49      c.m"
"            Runoff coefficient     0.225      0.000      0.225      "
"            Maximum flow           0.011      0.000      0.011      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                  0.011     0.011     0.077     0.077"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.011     0.011     0.011     0.077"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                0.011    c.m/sec"
"            Hydrograph volume          17.486    c.m"
"                  0.011     0.011     0.011     0.011"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                0.011    c.m/sec"
"            Hydrograph volume          17.486    c.m"
"                  0.011     0.011     0.011     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.011     0.011     0.011     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                0.084    c.m/sec"
"            Hydrograph volume         953.885    c.m"
"                  0.011     0.011     0.011     0.084"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                0.084    c.m/sec"
"            Hydrograph volume         953.885    c.m"
"                  0.011     0.084     0.011     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                    3.233    hectare"
"            Total Impervious area                   2.390    hectare"
"            Total % impervious                     73.933"
" 19         EXIT"
```

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"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                            10 Year Post C.out"
"                Licensee name:                                              A"
"                Company                                                     "
"                Date & Time last used:             9/28/2026 at 3:33:47 PM"
" 31          TIME PARAMETERS"
"       5.000  Time Step"
"     180.000  Max. Storm length"
"    1500.000  Max. Hydrograph"
" 32          STORM Chicago storm"
"           1  Chicago storm"
"    1174.184  Coefficient A"
"       6.014  Constant B"
"       0.816  Exponent C"
"       0.400  Fraction R"
"     180.000  Duration"
"       1.000  Time step multiplier"
"            Maximum intensity          165.771    mm/hr"
"            Total depth                 49.535    mm"
"           6  010hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"           1  Triangular SCS"
"           1  Equal length"
"           1  SCS method"
"         201  Controlled Area (To North)"
"      86.300  % Impervious"
"       2.560  Total Area"
"      15.000  Flow length"
"       1.500  Overland Slope"
"       0.351  Pervious Area"
"      15.000  Pervious length"
"       1.500  Pervious slope"
"       2.209  Impervious Area"
"      15.000  Impervious length"
"       1.500  Impervious slope"
"       0.250  Pervious Manning 'n'"
"      75.000  Pervious SCS Curve No."
"       0.270  Pervious Runoff coefficient"
"       0.100  Pervious Ia/S coefficient"
"       8.467  Pervious Initial abstraction"
"       0.015  Impervious Manning 'n'"
"      98.000  Impervious SCS Curve No."
"       0.878  Impervious Runoff coefficient"
"       0.100  Impervious Ia/S coefficient"
"       0.518  Impervious Initial abstraction"
"                   0.816     0.000     0.000     0.000 c.m/sec"
"            Catchment 201          Pervious   Impervious Total Area "
"            Surface Area           0.351      2.209      2.560      hectare"
"            Time of concentration  12.467     1.327      1.846      minutes"
"            Time to Centroid       115.375    88.388     89.645     minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
"            Rainfall volume        173.73     1094.36    1268.08    c.m"
"            Rainfall losses        36.150     6.047      10.171     mm"
"            Runoff depth           13.385     43.487     39.363     mm"
"            Runoff volume          46.94      960.76     1007.70    c.m"
"            Runoff coefficient     0.270      0.878      0.795      "
"            Maximum flow           0.019      0.812      0.816      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4  Add Runoff "
"                   0.816     0.816     0.000     0.000"
" 54          POND DESIGN"
"       0.816  Current peak flow    c.m/sec"
"       0.626  Target outflow    c.m/sec"
"      1007.7  Hydrograph volume    c.m"
"          9.  Number of stages"
"      99.045  Minimum water level    metre"
"     101.900  Maximum water level    metre"
"      99.045  Starting water level    metre"
"           0  Keep Design Data: 1 = True; 0 = False"
"                Level Discharge    Volume"
"               99.045     0.000     0.000"
"              101.550   0.03422   555.290"
"              101.600   0.03457   556.570"
"              101.650   0.03492   564.200"
"              101.700   0.03526   587.720"
"              101.750   0.03560   637.500"
"              101.800   0.03594   726.670"
"              101.850   0.03627   862.530"
"              101.900    0.5513  1036.830"
"          2.  WEIRS"
"                Crest      Weir     Crest      Left     Right"
"           elevation coefficie   breadth sideslope sideslope"
"              101.850     0.900    22.000     0.000     0.000"
"              101.850     0.900     8.000     0.000     0.000"
"          1.  ORIFICES"
"              Orifice   Orifice   Orifice Number of"
"               invert coefficie  diameter  orifices"
"              99.045     0.630    0.1000     1.000"
"            Peak outflow                  0.036    c.m/sec"
"            Maximum level               101.818    metre"
"            Maximum storage             776.350    c.m"
"            Centroidal lag                6.271    hours"
"                 0.816     0.816     0.036     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"           6  Combine "
"           1  Node #"
"              To North"
"            Maximum flow                  0.036    c.m/sec"
"            Hydrograph volume          1001.514    c.m"
"                   0.816     0.816     0.036     0.036"
" 40          HYDROGRAPH Start - New Tributary"
"           2  Start - New Tributary"
"                   0.816     0.000     0.036     0.036"
" 33          CATCHMENT 202"
"           1  Triangular SCS"
"           1  Equal length"
"           1  SCS method"
"         202  Partially Controlled West Area (To North)"
"      67.500  % Impervious"
"       0.108  Total Area"
"       5.000  Flow length"
"       2.000  Overland Slope"
"       0.035  Pervious Area"
"       5.000  Pervious length"
"       2.000  Pervious slope"
"       0.073  Impervious Area"
"       5.000  Impervious length"
"       2.000  Impervious slope"
"       0.250  Pervious Manning 'n'"
"      75.000  Pervious SCS Curve No."
"       0.269  Pervious Runoff coefficient"
"       0.100  Pervious Ia/S coefficient"
"       8.467  Pervious Initial abstraction"
"       0.015  Impervious Manning 'n'"
"      98.000  Impervious SCS Curve No."
"       0.832  Impervious Runoff coefficient"
"       0.100  Impervious Ia/S coefficient"
"       0.518  Impervious Initial abstraction"
"                   0.029     0.000     0.036     0.036 c.m/sec"
"            Catchment 202          Pervious   Impervious Total Area "
"            Surface Area           0.035      0.073      0.108      hectare"
"            Time of concentration  5.916      0.630      1.341      minutes"
"            Time to Centroid       106.820    87.755     90.321     minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
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"            Rainfall volume        17.39      36.11      53.50      c.m"
"            Rainfall losses        36.224     8.329      17.395     mm"
"            Runoff depth           13.310     41.205     32.140     mm"
"            Runoff volume          4.67       30.04      34.71      c.m"
"            Runoff coefficient     0.269      0.832      0.649      "
"            Maximum flow           0.003      0.028      0.029      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.029     0.029     0.036     0.036"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.029     0.029     0.029     0.036"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.047    c.m/sec"
"            Hydrograph volume         1036.225    c.m"
"                 0.029     0.029     0.029     0.047"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.029     0.000     0.029     0.047"
" 33         CATCHMENT 203"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        203   Partially Controlled North Area (To North)"
"      58.000  % Impervious"
"       0.140  Total Area"
"      15.000  Flow length"
"       3.500  Overland Slope"
"       0.059  Pervious Area"
"      15.000  Pervious length"
"       3.500  Pervious slope"
"       0.081  Impervious Area"
"      15.000  Impervious length"
"       3.500  Impervious slope"
"       0.250  Pervious Manning 'n'"
"      75.000  Pervious SCS Curve No."
"       0.269  Pervious Runoff coefficient"
"       0.100  Pervious Ia/S coefficient"
"       8.467  Pervious Initial abstraction"
"       0.015  Impervious Manning 'n'"
"      98.000  Impervious SCS Curve No."
"       0.866  Impervious Runoff coefficient"
"       0.100  Impervious Ia/S coefficient"
"       0.518  Impervious Initial abstraction"
"                 0.031     0.000     0.029     0.047 c.m/sec"
"            Catchment 203          Pervious   Impervious Total Area "
"            Surface Area           0.059      0.081      0.140      hectare"
"            Time of concentration  9.669      1.029      2.618      minutes"
"            Time to Centroid       111.721    87.882     92.265     minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
"            Rainfall volume        29.13      40.22      69.35      c.m"
"            Rainfall losses        36.186     6.634      19.045     mm"
"            Runoff depth           13.349     42.901     30.489     mm"
"            Runoff volume          7.85       34.84      42.68      c.m"
"            Runoff coefficient     0.269      0.866      0.616      "
"            Maximum flow           0.004      0.031      0.031      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.031     0.031     0.029     0.047"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.031     0.031     0.031     0.047"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.078    c.m/sec"
"            Hydrograph volume         1078.910    c.m"
"                 0.031     0.031     0.031     0.078"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.031     0.000     0.031     0.078"
" 33         CATCHMENT 204"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        204   Uncontrolled Area (To North)"
"      11.100  % Impervious"
"       0.242  Total Area"
"      10.000  Flow length"
"      15.000  Overland Slope"
"       0.215  Pervious Area"
"      10.000  Pervious length"
"      15.000  Pervious slope"
"       0.027  Impervious Area"
"      10.000  Impervious length"
"      15.000  Impervious slope"
"       0.250  Pervious Manning 'n'"
"      75.000  Pervious SCS Curve No."
"       0.269  Pervious Runoff coefficient"
"       0.100  Pervious Ia/S coefficient"
"       8.467  Pervious Initial abstraction"
"       0.015  Impervious Manning 'n'"
"      98.000  Impervious SCS Curve No."
"       0.813  Impervious Runoff coefficient"
"       0.100  Impervious Ia/S coefficient"
"       0.518  Impervious Initial abstraction"
"                 0.021     0.000     0.031     0.078 c.m/sec"
"            Catchment 204          Pervious   Impervious Total Area "
"            Surface Area           0.215      0.027      0.242      hectare"
"            Time of concentration  4.899      0.521      3.701      minutes"
"            Time to Centroid       105.433    87.748     100.594    minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
"            Rainfall volume        106.57     13.31      119.87     c.m"
"            Rainfall losses        36.192     9.283      33.205     mm"
"            Runoff depth           13.343     40.252     16.330     mm"
"            Runoff volume          28.71      10.81      39.52      c.m"
"            Runoff coefficient     0.269      0.813      0.330      "
"            Maximum flow           0.017      0.010      0.021      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.021     0.021     0.031     0.078"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.021     0.021     0.021     0.078"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.097    c.m/sec"
"            Hydrograph volume         1118.428    c.m"
"                 0.021     0.021     0.021     0.097"
" 40         HYDROGRAPH   Confluence    1"
"          7   Confluence "
"          1   Node #"
"              To North"
"            Maximum flow                 0.097    c.m/sec"
"            Hydrograph volume         1118.428    c.m"
"                 0.021     0.097     0.021     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.021     0.097     0.097     0.000"
" 40         HYDROGRAPH   Combine    2"
"          6   Combine "
"          2   Node #"
```

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"               Total Site"
"            Maximum flow                  0.097    c.m/sec"
"            Hydrograph volume          1118.428    c.m"
"                  0.021     0.097     0.097     0.097"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                  0.021     0.000     0.097     0.097"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.265   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                  0.016     0.000     0.097     0.097 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  2.965      0.316      2.965      minutes"
"            Time to Centroid       102.995    87.068     102.995    minutes"
"            Rainfall depth         49.535     49.535     49.535     mm"
"            Rainfall volume        90.65      0.00       90.65      c.m"
"            Rainfall losses        36.406     10.729     36.406     mm"
"            Runoff depth           13.129     38.806     13.129     mm"
"            Runoff volume          24.03      0.00       24.03      c.m"
"            Runoff coefficient     0.265      0.000      0.265      "
"            Maximum flow           0.016      0.000      0.016      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                  0.016     0.016     0.097     0.097"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.016     0.016     0.016     0.097"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                  0.016    c.m/sec"
"            Hydrograph volume            24.026    c.m"
"                  0.016     0.016     0.016     0.016"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                  0.016    c.m/sec"
"            Hydrograph volume            24.026    c.m"
"                  0.016     0.016     0.016     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.016     0.016     0.016     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.108    c.m/sec"
"            Hydrograph volume          1142.453    c.m"
"                  0.016     0.016     0.016     0.108"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.108    c.m/sec"
"            Hydrograph volume          1142.453    c.m"
"                  0.016     0.108     0.016     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                      3.233    hectare"
"            Total Impervious area                     2.390    hectare"
"            Total % impervious                       73.933"
" 19         EXIT"
```

```
"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                            25 Year Post C.out"
"                Licensee name:                                              A"
"                Company                                                     "
"                Date & Time last used:             9/28/2026 at 3:32:49 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    1402.884   Coefficient A"
"       6.018   Constant B"
"       0.819   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          196.580    mm/hr"
"            Total depth                 58.261    mm"
"           6   025hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         201   Controlled Area (To North)"
"      86.300   % Impervious"
"       2.560   Total Area"
"      15.000   Flow length"
"       1.500   Overland Slope"
"       0.351   Pervious Area"
"      15.000   Pervious length"
"       1.500   Pervious slope"
"       2.209   Impervious Area"
"      15.000   Impervious length"
"       1.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.315   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.890   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.990     0.000     0.000     0.000 c.m/sec"
"            Catchment 201          Pervious   Impervious Total Area "
"            Surface Area           0.351      2.209      2.560      hectare"
"            Time of concentration  10.737     1.234      1.740      minutes"
"            Time to Centroid       112.046    87.777     89.069     minutes"
"            Rainfall depth         58.261     58.261     58.261     mm"
"            Rainfall volume        204.33     1287.15    1491.48    c.m"
"            Rainfall losses        39.896     6.424      11.010     mm"
"            Runoff depth           18.364     51.837     47.251     mm"
"            Runoff volume          64.41      1145.22    1209.63    c.m"
"            Runoff coefficient     0.315      0.890      0.811      "
"            Maximum flow           0.030      0.982      0.990      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.990     0.990     0.000     0.000"
" 54          POND DESIGN"
"       0.990   Current peak flow    c.m/sec"
"       0.626   Target outflow    c.m/sec"
"      1209.6   Hydrograph volume    c.m"
"          9.   Number of stages"
"      99.045   Minimum water level    metre"
"     101.900   Maximum water level    metre"
"      99.045   Starting water level    metre"
"           0   Keep Design Data: 1 = True; 0 = False"
"                 Level Discharge    Volume"
"                99.045     0.000     0.000"
"               101.550   0.03422   555.290"
"               101.600   0.03457   556.570"
"               101.650   0.03492   564.200"
"               101.700   0.03526   587.720"
"               101.750   0.03560   637.500"
"               101.800   0.03594   726.670"
"               101.850   0.03627   862.530"
"               101.900    0.5513  1036.830"
"         2.    WEIRS"
"                 Crest      Weir     Crest      Left     Right"
"             elevation coefficie   breadth sideslope sideslope"
"               101.850     0.900    22.000     0.000     0.000"
"               101.850     0.900     8.000     0.000     0.000"
"         1.    ORIFICES"
"               Orifice   Orifice   Orifice Number of"
"                invert coefficie  diameter  orifices"
"               99.045     0.630    0.1000     1.000"
"            Peak outflow                  0.095    c.m/sec"
"            Maximum level               101.856    metre"
"            Maximum storage             882.357    c.m"
"            Centroidal lag                6.112    hours"
"                 0.990     0.990     0.095     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                  0.095    c.m/sec"
"            Hydrograph volume          1203.435    c.m"
"                   0.990     0.990     0.095     0.095"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.990     0.000     0.095     0.095"
" 33          CATCHMENT 202"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         202   Partially Controlled West Area (To North)"
"      67.500   % Impervious"
"       0.108   Total Area"
"       5.000   Flow length"
"       2.000   Overland Slope"
"       0.035   Pervious Area"
"       5.000   Pervious length"
"       2.000   Pervious slope"
"       0.073   Impervious Area"
"       5.000   Impervious length"
"       2.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.315   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.838   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.035     0.000     0.095     0.095 c.m/sec"
"            Catchment 202          Pervious   Impervious Total Area "
"            Surface Area           0.035      0.073      0.108      hectare"
"            Time of concentration  5.095      0.586      1.276      minutes"
"            Time to Centroid       104.495    87.250     89.891     minutes"
"            Rainfall depth         58.261     58.261     58.261     mm"
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"            Rainfall volume        20.45      42.47      62.92      c.m"
"            Rainfall losses        39.916     9.421      19.332     mm"
"            Runoff depth           18.345     48.840     38.929     mm"
"            Runoff volume          6.44       35.60      42.04      c.m"
"            Runoff coefficient     0.315      0.838      0.668      "
"            Maximum flow           0.004      0.033      0.035      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                  0.035     0.035     0.095     0.095"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.035     0.035     0.035     0.095"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.099    c.m/sec"
"            Hydrograph volume         1245.478    c.m"
"                  0.035     0.035     0.035     0.099"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                  0.035     0.000     0.035     0.099"
" 33         CATCHMENT 203"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        203   Partially Controlled North Area (To North)"
"     58.000   % Impervious"
"      0.140   Total Area"
"     15.000   Flow length"
"      3.500   Overland Slope"
"      0.059   Pervious Area"
"     15.000   Pervious length"
"      3.500   Pervious slope"
"      0.081   Impervious Area"
"     15.000   Impervious length"
"      3.500   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.315   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.876   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                  0.038     0.000     0.035     0.099 c.m/sec"
"           Catchment 203          Pervious   Impervious Total Area "
"           Surface Area           0.059      0.081      0.140      hectare"
"           Time of concentration  8.327      0.957      2.481      minutes"
"           Time to Centroid       108.872    87.275     91.742     minutes"
"           Rainfall depth         58.261     58.261     58.261     mm"
"           Rainfall volume        34.26      47.31      81.57      c.m"
"           Rainfall losses        39.890     7.238      20.952     mm"
"           Runoff depth           18.371     51.023     37.309     mm"
"           Runoff volume          10.80      41.43      52.23      c.m"
"           Runoff coefficient     0.315      0.876      0.640      "
"           Maximum flow           0.006      0.037      0.038      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                  0.038     0.038     0.035     0.099"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.038     0.038     0.038     0.099"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.104    c.m/sec"
"            Hydrograph volume         1297.711    c.m"
"                  0.038     0.038     0.038     0.104"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                  0.038     0.000     0.038     0.104"
" 33         CATCHMENT 204"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        204   Uncontrolled Area (To North)"
"     11.100   % Impervious"
"      0.242   Total Area"
"     10.000   Flow length"
"     15.000   Overland Slope"
"      0.215   Pervious Area"
"     10.000   Pervious length"
"     15.000   Pervious slope"
"      0.027   Impervious Area"
"     10.000   Impervious length"
"     15.000   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.313   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.822   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                  0.031     0.000     0.038     0.104 c.m/sec"
"           Catchment 204          Pervious   Impervious Total Area "
"           Surface Area           0.215      0.027      0.242      hectare"
"           Time of concentration  4.219      0.485      3.297      minutes"
"           Time to Centroid       103.394    87.166     99.388     minutes"
"           Rainfall depth         58.261     58.261     58.261     mm"
"           Rainfall volume        125.34     15.65      140.99     c.m"
"           Rainfall losses        40.016     10.366     36.725     mm"
"           Runoff depth           18.245     47.895     21.536     mm"
"           Runoff volume          39.25      12.87      52.12      c.m"
"           Runoff coefficient     0.313      0.822      0.370      "
"           Maximum flow           0.026      0.012      0.031      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                  0.031     0.031     0.038     0.104"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.031     0.031     0.031     0.104"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                 0.122    c.m/sec"
"            Hydrograph volume         1349.829    c.m"
"                  0.031     0.031     0.031     0.122"
" 40         HYDROGRAPH   Confluence    1"
"          7   Confluence "
"          1   Node #"
"              To North"
"            Maximum flow                 0.122    c.m/sec"
"            Hydrograph volume         1349.829    c.m"
"                  0.031     0.122     0.031     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.031     0.122     0.122     0.000"
" 40         HYDROGRAPH   Combine    2"
"          6   Combine "
"          2   Node #"
```

```
"              Total Site"
"            Maximum flow                0.122    c.m/sec"
"            Hydrograph volume          1349.829    c.m"
"                  0.031     0.122     0.122     0.122"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                  0.031     0.000     0.122     0.122"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.312   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                  0.023     0.000     0.122     0.122 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  2.553      0.293      2.553      minutes"
"            Time to Centroid       101.079    86.427     101.079    minutes"
"            Rainfall depth         58.261     58.261     58.261     mm"
"            Rainfall volume        106.62     0.00       106.62     c.m"
"            Rainfall losses        40.101     12.026     40.101     mm"
"            Runoff depth           18.160     46.235     18.160     mm"
"            Runoff volume          33.23      0.00       33.23      c.m"
"            Runoff coefficient     0.312      0.000      0.312      "
"            Maximum flow           0.023      0.000      0.023      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                  0.023     0.023     0.122     0.122"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.023     0.023     0.023     0.122"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                0.023    c.m/sec"
"            Hydrograph volume          33.233    c.m"
"                  0.023     0.023     0.023     0.023"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                0.023    c.m/sec"
"            Hydrograph volume          33.233    c.m"
"                  0.023     0.023     0.023     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.023     0.023     0.023     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                0.141    c.m/sec"
"            Hydrograph volume          1383.062    c.m"
"                  0.023     0.023     0.023     0.141"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                0.141    c.m/sec"
"            Hydrograph volume          1383.062    c.m"
"                  0.023     0.141     0.023     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                    3.233    hectare"
"            Total Impervious area                   2.390    hectare"
"            Total % impervious                     73.933"
" 19         EXIT"
```

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"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                          50 Year Post C.out"
"                Licensee name:                                            A"
"                Company                                                   "
"                Date & Time last used:              9/28/2026 at 3:32:03 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    1569.580   Coefficient A"
"       6.014   Constant B"
"       0.820   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          219.477    mm/hr"
"            Total depth                 64.845    mm"
"           6   050hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         201   Controlled Area (To North)"
"      86.300   % Impervious"
"       2.560   Total Area"
"      15.000   Flow length"
"       1.500   Overland Slope"
"       0.351   Pervious Area"
"      15.000   Pervious length"
"       1.500   Pervious slope"
"       2.209   Impervious Area"
"      15.000   Impervious length"
"       1.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.345   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.896   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   1.119     0.000     0.000     0.000 c.m/sec"
"            Catchment 201          Pervious   Impervious Total Area "
"            Surface Area           0.351      2.209      2.560      hectare"
"            Time of concentration  9.799      1.178      1.675      minutes"
"            Time to Centroid       110.213    87.419     88.734     minutes"
"            Rainfall depth         64.845     64.845     64.845     mm"
"            Rainfall volume        227.42     1432.61    1660.03    c.m"
"            Rainfall losses        42.445     6.751      11.641     mm"
"            Runoff depth           22.401     58.094     53.204     mm"
"            Runoff volume          78.56      1283.47    1362.03    c.m"
"            Runoff coefficient     0.345      0.896      0.820      "
"            Maximum flow           0.039      1.108      1.119      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   1.119     1.119     0.000     0.000"
" 54          POND DESIGN"
"       1.119   Current peak flow    c.m/sec"
"       0.626   Target outflow    c.m/sec"
"      1362.0   Hydrograph volume    c.m"
"          9.   Number of stages"
"      99.045   Minimum water level    metre"
"     101.900   Maximum water level    metre"
"      99.045   Starting water level    metre"
"           0   Keep Design Data: 1 = True; 0 = False"
"                 Level Discharge    Volume"
"                99.045     0.000     0.000"
"               101.550   0.03422   555.290"
"               101.600   0.03457   556.570"
"               101.650   0.03492   564.200"
"               101.700   0.03526   587.720"
"               101.750   0.03560   637.500"
"               101.800   0.03594   726.670"
"               101.850   0.03627   862.530"
"               101.900    0.5513  1036.830"
"         2.    WEIRS"
"                 Crest      Weir     Crest      Left     Right"
"             elevation coefficie   breadth sideslope sideslope"
"               101.850     0.900    22.000     0.000     0.000"
"               101.850     0.900     8.000     0.000     0.000"
"         1.    ORIFICES"
"               Orifice   Orifice   Orifice Number of"
"                invert coefficie  diameter  orifices"
"               99.045     0.630    0.1000     1.000"
"            Peak outflow                  0.182    c.m/sec"
"            Maximum level               101.864    metre"
"            Maximum storage             912.010    c.m"
"            Centroidal lag                5.642   hours"
"                 1.119     1.119     0.182     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                  0.182    c.m/sec"
"            Hydrograph volume          1356.966    c.m"
"                   1.119     1.119     0.182     0.182"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   1.119     0.000     0.182     0.182"
" 33          CATCHMENT 202"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         202   Partially Controlled West Area (To North)"
"      67.500   % Impervious"
"       0.108   Total Area"
"       5.000   Flow length"
"       2.000   Overland Slope"
"       0.035   Pervious Area"
"       5.000   Pervious length"
"       2.000   Pervious slope"
"       0.073   Impervious Area"
"       5.000   Impervious length"
"       2.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.345   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.841   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.040     0.000     0.182     0.182 c.m/sec"
"            Catchment 202          Pervious   Impervious Total Area "
"            Surface Area           0.035      0.073      0.108      hectare"
"            Time of concentration  4.650      0.559      1.234      minutes"
"            Time to Centroid       103.227    86.952     89.636     minutes"
"            Rainfall depth         64.845     64.845     64.845     mm"
```

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"            Rainfall volume        22.76      47.27      70.03      c.m"
"            Rainfall losses        42.463     10.280     20.740     mm"
"            Runoff depth           22.382     54.565     44.106     mm"
"            Runoff volume          7.86       39.78      47.63      c.m"
"            Runoff coefficient     0.345      0.841      0.680      "
"            Maximum flow           0.005      0.037      0.040      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                  0.040     0.040     0.182     0.182"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.040     0.040     0.040     0.182"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.189    c.m/sec"
"            Hydrograph volume          1404.600    c.m"
"                  0.040     0.040     0.040     0.189"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                  0.040     0.000     0.040     0.189"
" 33         CATCHMENT 203"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        203   Partially Controlled North Area (To North)"
"     58.000   % Impervious"
"      0.140   Total Area"
"     15.000   Flow length"
"      3.500   Overland Slope"
"      0.059   Pervious Area"
"     15.000   Pervious length"
"      3.500   Pervious slope"
"      0.081   Impervious Area"
"     15.000   Impervious length"
"      3.500   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.346   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.881   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                  0.043     0.000     0.040     0.189 c.m/sec"
"           Catchment 203          Pervious   Impervious Total Area "
"           Surface Area           0.059      0.081      0.140      hectare"
"           Time of concentration  7.600      0.914      2.394      minutes"
"           Time to Centroid       107.273    86.930     91.433     minutes"
"           Rainfall depth         64.845     64.845     64.845     mm"
"           Rainfall volume        38.13      52.65      90.78      c.m"
"           Rainfall losses        42.417     7.715      22.290     mm"
"           Runoff depth           22.428     57.130     42.555     mm"
"           Runoff volume          13.19      46.39      59.58      c.m"
"           Runoff coefficient     0.346      0.881      0.656      "
"           Maximum flow           0.008      0.041      0.043      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                  0.043     0.043     0.040     0.189"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.043     0.043     0.043     0.189"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.198    c.m/sec"
"            Hydrograph volume          1464.177    c.m"
"                  0.043     0.043     0.043     0.198"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                  0.043     0.000     0.043     0.198"
" 33         CATCHMENT 204"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        204   Uncontrolled Area (To North)"
"     11.100   % Impervious"
"      0.242   Total Area"
"     10.000   Flow length"
"     15.000   Overland Slope"
"      0.215   Pervious Area"
"     10.000   Pervious length"
"     15.000   Pervious slope"
"      0.027   Impervious Area"
"     10.000   Impervious length"
"     15.000   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.341   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.827   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                  0.038     0.000     0.043     0.198 c.m/sec"
"           Catchment 204          Pervious   Impervious Total Area "
"           Surface Area           0.215      0.027      0.242      hectare"
"           Time of concentration  3.851      0.463      3.064      minutes"
"           Time to Centroid       102.270    86.823     98.682     minutes"
"           Rainfall depth         64.845     64.845     64.845     mm"
"           Rainfall volume        139.51     17.42      156.93     c.m"
"           Rainfall losses        42.705     11.199     39.208     mm"
"           Runoff depth           22.140     53.646     25.637     mm"
"           Runoff volume          47.63      14.41      62.04      c.m"
"           Runoff coefficient     0.341      0.827      0.395      "
"           Maximum flow           0.033      0.014      0.038      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                  0.038     0.038     0.043     0.198"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.038     0.038     0.038     0.198"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.209    c.m/sec"
"            Hydrograph volume          1526.218    c.m"
"                  0.038     0.038     0.038     0.209"
" 40         HYDROGRAPH   Confluence    1"
"          7   Confluence "
"          1   Node #"
"              To North"
"            Maximum flow                  0.209    c.m/sec"
"            Hydrograph volume          1526.218    c.m"
"                  0.038     0.209     0.038     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                  0.038     0.209     0.209     0.000"
" 40         HYDROGRAPH   Combine    2"
"          6   Combine "
"          2   Node #"
```

```
"               Total Site"
"            Maximum flow                0.209    c.m/sec"
"            Hydrograph volume         1526.218    c.m"
"                  0.038     0.209     0.209     0.209"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                  0.038     0.000     0.209     0.209"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.343   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                  0.028     0.000     0.209     0.209 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  2.330      0.280      2.330      minutes"
"            Time to Centroid       99.984     86.053     99.984     minutes"
"            Rainfall depth         64.845     64.845     64.845     mm"
"            Rainfall volume        118.67     0.00       118.67     c.m"
"            Rainfall losses        42.636     13.008     42.635     mm"
"            Runoff depth           22.210     51.837     22.210     mm"
"            Runoff volume          40.64      0.00       40.64      c.m"
"            Runoff coefficient     0.343      0.000      0.343      "
"            Maximum flow           0.028      0.000      0.028      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                  0.028     0.028     0.209     0.209"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.028     0.028     0.028     0.209"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                0.028    c.m/sec"
"            Hydrograph volume          40.644    c.m"
"                  0.028     0.028     0.028     0.028"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                0.028    c.m/sec"
"            Hydrograph volume          40.644    c.m"
"                  0.028     0.028     0.028     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                  0.028     0.028     0.028     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                0.216    c.m/sec"
"            Hydrograph volume          1566.862    c.m"
"                  0.028     0.028     0.028     0.216"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                0.216    c.m/sec"
"            Hydrograph volume          1566.862    c.m"
"                  0.028     0.216     0.028     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                    3.233    hectare"
"            Total Impervious area                   2.390    hectare"
"            Total % impervious                     73.933"
" 19         EXIT"
```

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"                MIDUSS Output ------------------------------------------------>"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                      ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                         100 Year Post C.out"
"                Licensee name:                                             A"
"                Company                                                    "
"                Date & Time last used:             9/28/2026 at 3:30:54 PM"
" 31          TIME PARAMETERS"
"       5.000  Time Step"
"     180.000  Max. Storm length"
"    1500.000  Max. Hydrograph"
" 32          STORM Chicago storm"
"           1  Chicago storm"
"    1735.690  Coefficient A"
"       6.014  Constant B"
"       0.820  Exponent C"
"       0.400  Fraction R"
"     180.000  Duration"
"       1.000  Time step multiplier"
"              Maximum intensity          242.704    mm/hr"
"              Total depth                 71.708    mm"
"            6  100hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"           1  Triangular SCS"
"           1  Equal length"
"           1  SCS method"
"         201  Controlled Area (To North)"
"      86.300  % Impervious"
"       2.560  Total Area"
"      15.000  Flow length"
"       1.500  Overland Slope"
"       0.351  Pervious Area"
"      15.000  Pervious length"
"       1.500  Pervious slope"
"       2.209  Impervious Area"
"      15.000  Impervious length"
"       1.500  Impervious slope"
"       0.250  Pervious Manning 'n'"
"      75.000  Pervious SCS Curve No."
"       0.376  Pervious Runoff coefficient"
"       0.100  Pervious Ia/S coefficient"
"       8.467  Pervious Initial abstraction"
"       0.015  Impervious Manning 'n'"
"      98.000  Impervious SCS Curve No."
"       0.901  Impervious Runoff coefficient"
"       0.100  Impervious Ia/S coefficient"
"       0.518  Impervious Initial abstraction"
"                   1.251     0.000     0.000     0.000 c.m/sec"
"              Catchment 201          Pervious   Impervious Total Area "
"              Surface Area           0.351      2.209      2.560      hectare"
"              Time of concentration  9.038      1.130      1.621      minutes"
"              Time to Centroid       108.612    87.112     88.449     minutes"
"              Rainfall depth         71.708     71.708     71.708     mm"
"              Rainfall volume        251.49     1584.22    1835.72    c.m"
"              Rainfall losses        44.731     7.092      12.249     mm"
"              Runoff depth           26.977     64.616     59.459     mm"
"              Runoff volume          94.61      1427.54    1522.15    c.m"
"              Runoff coefficient     0.376      0.901      0.829      "
"              Maximum flow           0.049      1.236      1.251      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4  Add Runoff "
"                   1.251     1.251     0.000     0.000"
" 54          POND DESIGN"
"       1.251  Current peak flow    c.m/sec"
"       0.626  Target outflow    c.m/sec"
"      1522.2  Hydrograph volume    c.m"
"          9.  Number of stages"
"      99.045  Minimum water level    metre"
"     101.900  Maximum water level    metre"
"      99.045  Starting water level    metre"
"           0  Keep Design Data: 1 = True; 0 = False"
"                Level Discharge    Volume"
"               99.045     0.000     0.000"
"              101.550   0.03422   555.290"
"              101.600   0.03457   556.570"
"              101.650   0.03492   564.200"
"              101.700   0.03526   587.720"
"              101.750   0.03560   637.500"
"              101.800   0.03594   726.670"
"              101.850   0.03627   862.530"
"              101.900    0.5513  1036.830"
"          2.  WEIRS"
"                 Crest      Weir     Crest      Left     Right"
"            elevation coefficie   breadth sideslope sideslope"
"              101.850     0.900    22.000     0.000     0.000"
"              101.850     0.900     8.000     0.000     0.000"
"          1.  ORIFICES"
"              Orifice   Orifice   Orifice Number of"
"               invert coefficie  diameter  orifices"
"               99.045     0.630    0.1000     1.000"
"            Peak outflow                  0.284    c.m/sec"
"            Maximum level               101.874    metre"
"            Maximum storage             946.519    c.m"
"            Centroidal lag                5.223    hours"
"                 1.251     1.251     0.284     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"           6  Combine "
"           1  Node #"
"              To North"
"            Maximum flow                  0.284    c.m/sec"
"            Hydrograph volume          1522.469    c.m"
"                   1.251     1.251     0.284     0.284"
" 40          HYDROGRAPH Start - New Tributary"
"           2  Start - New Tributary"
"                   1.251     0.000     0.284     0.284"
" 33          CATCHMENT 202"
"           1  Triangular SCS"
"           1  Equal length"
"           1  SCS method"
"         202  Partially Controlled West Area (To North)"
"      67.500  % Impervious"
"       0.108  Total Area"
"       5.000  Flow length"
"       2.000  Overland Slope"
"       0.035  Pervious Area"
"       5.000  Pervious length"
"       2.000  Pervious slope"
"       0.073  Impervious Area"
"       5.000  Impervious length"
"       2.000  Impervious slope"
"       0.250  Pervious Manning 'n'"
"      75.000  Pervious SCS Curve No."
"       0.373  Pervious Runoff coefficient"
"       0.100  Pervious Ia/S coefficient"
"       8.467  Pervious Initial abstraction"
"       0.015  Impervious Manning 'n'"
"      98.000  Impervious SCS Curve No."
"       0.844  Impervious Runoff coefficient"
"       0.100  Impervious Ia/S coefficient"
"       0.518  Impervious Initial abstraction"
"                   0.045     0.000     0.284     0.284 c.m/sec"
"              Catchment 202          Pervious   Impervious Total Area "
"              Surface Area           0.035      0.073      0.108      hectare"
"              Time of concentration  4.288      0.536      1.195      minutes"
"              Time to Centroid       102.196    86.708     89.428     minutes"
"              Rainfall depth         71.708     71.708     71.708     mm"
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"            Rainfall volume        25.17      52.27      77.44      c.m"
"            Rainfall losses        44.943     11.201     22.167     mm"
"            Runoff depth           26.765     60.506     49.540     mm"
"            Runoff volume          9.39       44.11      53.50      c.m"
"            Runoff coefficient     0.373      0.844      0.691      "
"            Maximum flow           0.006      0.041      0.045      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.045     0.045     0.284     0.284"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.045     0.045     0.045     0.284"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.294    c.m/sec"
"            Hydrograph volume          1575.972    c.m"
"                 0.045     0.045     0.045     0.294"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.045     0.000     0.045     0.294"
" 33         CATCHMENT 203"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        203   Partially Controlled North Area (To North)"
"     58.000   % Impervious"
"      0.140   Total Area"
"     15.000   Flow length"
"      3.500   Overland Slope"
"      0.059   Pervious Area"
"     15.000   Pervious length"
"      3.500   Pervious slope"
"      0.081   Impervious Area"
"     15.000   Impervious length"
"      3.500   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.374   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.885   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                 0.049     0.000     0.045     0.294 c.m/sec"
"           Catchment 203          Pervious   Impervious Total Area "
"           Surface Area           0.059      0.081      0.140      hectare"
"           Time of concentration  7.009      0.876      2.313      minutes"
"           Time to Centroid       105.964    86.657     91.180     minutes"
"           Rainfall depth         71.708     71.708     71.708     mm"
"           Rainfall volume        42.16      58.23      100.39     c.m"
"           Rainfall losses        44.884     8.225      23.622     mm"
"           Runoff depth           26.824     63.483     48.086     mm"
"           Runoff volume          15.77      51.55      67.32      c.m"
"           Runoff coefficient     0.374      0.885      0.671      "
"           Maximum flow           0.010      0.046      0.049      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.049     0.049     0.045     0.294"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.049     0.049     0.049     0.294"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.308    c.m/sec"
"            Hydrograph volume          1643.292    c.m"
"                 0.049     0.049     0.049     0.308"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.049     0.000     0.049     0.308"
" 33         CATCHMENT 204"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        204   Uncontrolled Area (To North)"
"     11.100   % Impervious"
"      0.242   Total Area"
"     10.000   Flow length"
"     15.000   Overland Slope"
"      0.215   Pervious Area"
"     10.000   Pervious length"
"     15.000   Pervious slope"
"      0.027   Impervious Area"
"     10.000   Impervious length"
"     15.000   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.369   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.831   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                 0.046     0.000     0.049     0.308 c.m/sec"
"           Catchment 204          Pervious   Impervious Total Area "
"           Surface Area           0.215      0.027      0.242      hectare"
"           Time of concentration  3.551      0.444      2.869      minutes"
"           Time to Centroid       101.340    86.542     98.088     minutes"
"           Rainfall depth         71.708     71.708     71.708     mm"
"           Rainfall volume        154.27     19.26      173.53     c.m"
"           Rainfall losses        45.276     12.088     41.592     mm"
"           Runoff depth           26.431     59.620     30.115     mm"
"           Runoff volume          56.86      16.02      72.88      c.m"
"           Runoff coefficient     0.369      0.831      0.420      "
"           Maximum flow           0.041      0.015      0.046      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.046     0.046     0.049     0.308"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.046     0.046     0.046     0.308"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.325    c.m/sec"
"            Hydrograph volume          1716.171    c.m"
"                 0.046     0.046     0.046     0.325"
" 40         HYDROGRAPH   Confluence    1"
"          7   Confluence "
"          1   Node #"
"              To North"
"            Maximum flow                  0.325    c.m/sec"
"            Hydrograph volume          1716.171    c.m"
"                 0.046     0.325     0.046     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.046     0.325     0.325     0.000"
" 40         HYDROGRAPH   Combine    2"
"          6   Combine "
"          2   Node #"
```

```
"               Total Site"
"            Maximum flow                  0.325    c.m/sec"
"            Hydrograph volume          1716.171    c.m"
"                   0.046     0.325     0.325     0.325"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.046     0.000     0.325     0.325"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.372   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.033     0.000     0.325     0.325 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  2.149      0.269      2.149      minutes"
"            Time to Centroid       99.066     85.747     99.066     minutes"
"            Rainfall depth         71.708     71.708     71.708     mm"
"            Rainfall volume        131.23     0.00       131.23     c.m"
"            Rainfall losses        45.028     14.014     45.028     mm"
"            Runoff depth           26.680     57.693     26.680     mm"
"            Runoff volume          48.82      0.00       48.82      c.m"
"            Runoff coefficient     0.372      0.000      0.372      "
"            Maximum flow           0.033      0.000      0.033      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.033     0.033     0.325     0.325"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.033     0.033     0.033     0.325"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                  0.033    c.m/sec"
"            Hydrograph volume            48.825    c.m"
"                   0.033     0.033     0.033     0.033"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                  0.033    c.m/sec"
"            Hydrograph volume            48.825    c.m"
"                   0.033     0.033     0.033     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.033     0.033     0.033     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.336    c.m/sec"
"            Hydrograph volume          1764.995    c.m"
"                   0.033     0.033     0.033     0.336"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.336    c.m/sec"
"            Hydrograph volume          1764.995    c.m"
"                   0.033     0.336     0.033     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                      3.233    hectare"
"            Total Impervious area                     2.390    hectare"
"            Total % impervious                       73.933"
" 19         EXIT"
```

```
"               MIDUSS Output ------------------------------------------------>"
"               MIDUSS version                          Version 2.25  rev. 473"
"               MIDUSS created                        Sunday, February 7, 2010"
"          10   Units used:                                        ie METRIC"
"               Job folder:                       Q:\65860_001\SWM\2026-09-22"
"               Output filename:                    100 Year Post C - MTO.out"
"               Licensee name:                                              A"
"               Company                                                     "
"               Date & Time last used:              9/28/2026 at 4:26:30 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 85          IDF CURVE FIT"
"           1   Number of Storms"
"           1   Storm no."
"         100   Return interval"
"          12   Data Pairs"
"                 5.000    10.000    15.000    30.000    60.000"
"               120.000   180.000   240.000   360.000   720.000"
"              1080.000  1440.000   minutes"
"                20.875    25.717    29.050    35.800    44.100"
"                54.400     0.000     0.000    75.600    93.600"
"                 0.000   115.200   mm"
"               250.500   154.300   116.200    71.600    44.100"
"                27.200     0.000     0.000    12.600     7.800"
"                 0.000     4.800   mm/hr"
"     778.381    mm/hr 'A' coeff."
"      0.0933    minutes 'B' coeff."
"     0.70009       'C' exponent"
"      0.1469       Std.error of estimate"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"     778.380   Coefficient A"
"       0.093   Constant B"
"       0.700   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          249.023    mm/hr"
"            Total depth                 61.552    mm"
"           6   100hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         201   Controlled Area (To North)"
"      86.300   % Impervious"
"       2.560   Total Area"
"      15.000   Flow length"
"       1.500   Overland Slope"
"       0.351   Pervious Area"
"      15.000   Pervious length"
"       1.500   Pervious slope"
"       2.209   Impervious Area"
"      15.000   Impervious length"
"       1.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.331   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.884   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   1.207     0.000     0.000     0.000 c.m/sec"
"            Catchment 201          Pervious   Impervious Total Area "
"            Surface Area           0.351      2.209      2.560      hectare"
"            Time of concentration  9.498      1.122      1.591      minutes"
"            Time to Centroid       115.148    89.291     90.740     minutes"
"            Rainfall depth         61.552     61.552     61.552     mm"
"            Rainfall volume        215.87     1359.85    1575.72    c.m"
"            Rainfall losses        41.190     7.118      11.786     mm"
"            Runoff depth           20.361     54.434     49.766     mm"
"            Runoff volume          71.41      1202.59    1274.00    c.m"
"            Runoff coefficient     0.331      0.884      0.809      "
"            Maximum flow           0.032      1.196      1.207      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   1.207     1.207     0.000     0.000"
" 54          POND DESIGN"
"       1.207   Current peak flow    c.m/sec"
"       0.626   Target outflow    c.m/sec"
"      1274.0   Hydrograph volume    c.m"
"          9.   Number of stages"
"      99.045   Minimum water level    metre"
"     101.900   Maximum water level    metre"
"      99.045   Starting water level    metre"
"           0   Keep Design Data: 1 = True; 0 = False"
"                 Level Discharge    Volume"
"                99.045     0.000     0.000"
"               101.550   0.03422   555.290"
"               101.600   0.03457   556.570"
"               101.650   0.03492   564.200"
"               101.700   0.03526   587.720"
"               101.750   0.03560   637.500"
"               101.800   0.03594   726.670"
"               101.850   0.03627   862.530"
"               101.900    0.5513  1036.830"
"          2.   WEIRS"
"                 Crest      Weir     Crest      Left     Right"
"             elevation coefficie   breadth sideslope sideslope"
"               101.850     0.900    22.000     0.000     0.000"
"               101.850     0.900     8.000     0.000     0.000"
"          1.   ORIFICES"
"               Orifice   Orifice   Orifice Number of"
"                invert coefficie  diameter  orifices"
"                99.045     0.630    0.1000     1.000"
"             Peak outflow                  0.094    c.m/sec"
"             Maximum level               101.856    metre"
"             Maximum storage             882.430    c.m"
"             Centroidal lag                5.987    hours"
"                   1.207     1.207     0.094     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"             Maximum flow                  0.094    c.m/sec"
"             Hydrograph volume          1268.044    c.m"
"                   1.207     1.207     0.094     0.094"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   1.207     0.000     0.094     0.094"
" 33          CATCHMENT 202"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         202   Partially Controlled West Area (To North)"
"      67.500   % Impervious"
"       0.108   Total Area"
"       5.000   Flow length"
"       2.000   Overland Slope"
"       0.035   Pervious Area"
"       5.000   Pervious length"
"       2.000   Pervious slope"
"       0.073   Impervious Area"
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"        5.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.330   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.842   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                  0.045     0.000     0.094     0.094 c.m/sec"
"             Catchment 202          Pervious   Impervious Total Area "
"             Surface Area           0.035      0.073      0.108      hectare"
"             Time of concentration  4.507      0.532      1.163      minutes"
"             Time to Centroid       107.750    88.982     91.959     minutes"
"             Rainfall depth         61.552     61.552     61.552     mm"
"             Rainfall volume        21.60      44.87      66.48      c.m"
"             Rainfall losses        41.252     9.708      19.960     mm"
"             Runoff depth           20.300     51.844     41.592     mm"
"             Runoff volume          7.13       37.79      44.92      c.m"
"             Runoff coefficient     0.330      0.842      0.676      "
"             Maximum flow           0.005      0.042      0.045      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                  0.045     0.045     0.094     0.094"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                  0.045     0.045     0.045     0.094"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To North"
"             Maximum flow                  0.098    c.m/sec"
"             Hydrograph volume          1312.963    c.m"
"                  0.045     0.045     0.045     0.098"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                  0.045     0.000     0.045     0.098"
" 33          CATCHMENT 203"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          203   Partially Controlled North Area (To North)"
"       58.000   % Impervious"
"        0.140   Total Area"
"       15.000   Flow length"
"        3.500   Overland Slope"
"        0.059   Pervious Area"
"       15.000   Pervious length"
"        3.500   Pervious slope"
"        0.081   Impervious Area"
"       15.000   Impervious length"
"        3.500   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.331   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.872   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                  0.047     0.000     0.045     0.098 c.m/sec"
"             Catchment 203          Pervious   Impervious Total Area "
"             Surface Area           0.059      0.081      0.140      hectare"
"             Time of concentration  7.366      0.870      2.269      minutes"
"             Time to Centroid       112.067    88.748     93.772     minutes"
"             Rainfall depth         61.552     61.552     61.552     mm"
"             Rainfall volume        36.19      49.98      86.17      c.m"
"             Rainfall losses        41.194     7.861      21.861     mm"
"             Runoff depth           20.358     53.691     39.691     mm"
"             Runoff volume          11.97      43.60      55.57      c.m"
"             Runoff coefficient     0.331      0.872      0.645      "
"             Maximum flow           0.007      0.045      0.047      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                  0.047     0.047     0.045     0.098"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                  0.047     0.047     0.047     0.098"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To North"
"             Maximum flow                  0.116    c.m/sec"
"             Hydrograph volume          1368.530    c.m"
"                  0.047     0.047     0.047     0.116"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                  0.047     0.000     0.047     0.116"
" 33          CATCHMENT 204"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          204   Uncontrolled Area (To North)"
"       11.100   % Impervious"
"        0.242   Total Area"
"       10.000   Flow length"
"       15.000   Overland Slope"
"        0.215   Pervious Area"
"       10.000   Pervious length"
"       15.000   Pervious slope"
"        0.027   Impervious Area"
"       10.000   Impervious length"
"       15.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.325   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.835   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                  0.037     0.000     0.047     0.116 c.m/sec"
"             Catchment 204          Pervious   Impervious Total Area "
"             Surface Area           0.215      0.027      0.242      hectare"
"             Time of concentration  3.732      0.441      2.933      minutes"
"             Time to Centroid       106.891    88.752     102.485    minutes"
"             Rainfall depth         61.552     61.552     61.552     mm"
"             Rainfall volume        132.42     16.53      148.95     c.m"
"             Rainfall losses        41.557     10.178     38.074     mm"
"             Runoff depth           19.995     51.374     23.478     mm"
"             Runoff volume          43.02      13.80      56.82      c.m"
"             Runoff coefficient     0.325      0.835      0.381      "
"             Maximum flow           0.029      0.015      0.037      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                  0.037     0.037     0.047     0.116"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                  0.037     0.037     0.037     0.116"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To North"
"             Maximum flow                  0.153    c.m/sec"
"             Hydrograph volume          1425.346    c.m"
"                     0.037     0.037     0.037     0.153"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To North"
"             Maximum flow                  0.153    c.m/sec"
"             Hydrograph volume          1425.346    c.m"
"                     0.037     0.153     0.037     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.037     0.153     0.153     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.153    c.m/sec"
"             Hydrograph volume          1425.346    c.m"
"                     0.037     0.153     0.153     0.153"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                     0.037     0.000     0.153     0.153"
" 33          CATCHMENT 205"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          205   Uncontrolled Area (To South)"
"        0.000   % Impervious"
"        0.183   Total Area"
"        5.000   Flow length"
"       20.000   Overland Slope"
"        0.183   Pervious Area"
"        5.000   Pervious length"
"       20.000   Pervious slope"
"        0.000   Impervious Area"
"        5.000   Impervious length"
"       20.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.328   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                     0.025     0.000     0.153     0.153 c.m/sec"
"             Catchment 205          Pervious   Impervious Total Area "
"             Surface Area           0.183      0.000      0.183      hectare"
"             Time of concentration  2.259      0.267      2.259      minutes"
"             Time to Centroid       104.205    87.877     104.205    minutes"
"             Rainfall depth         61.552     61.552     61.552     mm"
"             Rainfall volume        112.64     0.00       112.64     c.m"
"             Rainfall losses        41.382     12.163     41.382     mm"
"             Runoff depth           20.170     49.389     20.170     mm"
"             Runoff volume          36.91      0.00       36.91      c.m"
"             Runoff coefficient     0.328      0.000      0.328      "
"             Maximum flow           0.025      0.000      0.025      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                     0.025     0.025     0.153     0.153"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.025     0.025     0.025     0.153"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To South"
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume            36.911    c.m"
"                     0.025     0.025     0.025     0.025"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To South"
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume            36.911    c.m"
"                     0.025     0.025     0.025     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.025     0.025     0.025     0.000"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.178    c.m/sec"
"             Hydrograph volume          1462.257    c.m"
"                     0.025     0.025     0.025     0.178"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                Total Site"
"             Maximum flow                  0.178    c.m/sec"
"             Hydrograph volume          1462.257    c.m"
"                     0.025     0.178     0.025     0.000"
" 38          START/RE-START TOTALS 2"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      3.233    hectare"
"             Total Impervious area                     2.390    hectare"
"             Total % impervious                       73.933"
" 19          EXIT"
```

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"                MIDUSS Output ---------------------------------------------->"
"                MIDUSS version                          Version 2.25  rev. 473"
"                MIDUSS created                       Sunday, February 7, 2010"
"            10  Units used:                                    ie METRIC"
"                Job folder:                      Q:\65860_001\SWM\2026-09-22"
"                Output filename:                   100 Year Post C + 20%.out"
"                Licensee name:                                            A"
"                Company                                                   "
"                Date & Time last used:              9/28/2026 at 3:36:22 PM"
" 31          TIME PARAMETERS"
"       5.000   Time Step"
"     180.000   Max. Storm length"
"    1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"           1   Chicago storm"
"    2082.820   Coefficient A"
"       5.890   Constant B"
"       0.824   Exponent C"
"       0.400   Fraction R"
"     180.000   Duration"
"       1.000   Time step multiplier"
"            Maximum intensity          291.166    mm/hr"
"            Total depth                 84.315    mm"
"           8   10020hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 201"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         201   Controlled Area (To North)"
"      86.300   % Impervious"
"       2.560   Total Area"
"      15.000   Flow length"
"       1.500   Overland Slope"
"       0.351   Pervious Area"
"      15.000   Pervious length"
"       1.500   Pervious slope"
"       2.209   Impervious Area"
"      15.000   Impervious length"
"       1.500   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.423   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.907   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   1.517     0.000     0.000     0.000 c.m/sec"
"            Catchment 201          Pervious   Impervious Total Area "
"            Surface Area           0.351      2.209      2.560      hectare"
"            Time of concentration  7.922      1.048      1.522      minutes"
"            Time to Centroid       106.134    86.520     87.872     minutes"
"            Rainfall depth         84.315     84.315     84.315     mm"
"            Rainfall volume        295.71     1862.76    2158.47    c.m"
"            Rainfall losses        48.637     7.837      13.427     mm"
"            Runoff depth           35.678     76.478     70.889     mm"
"            Runoff volume          125.13     1689.62    1814.75    c.m"
"            Runoff coefficient     0.423      0.907      0.841      "
"            Maximum flow           0.077      1.498      1.517      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   1.517     1.517     0.000     0.000"
" 54          POND DESIGN"
"       1.517   Current peak flow    c.m/sec"
"       0.626   Target outflow    c.m/sec"
"      1814.8   Hydrograph volume    c.m"
"          9.   Number of stages"
"      99.045   Minimum water level    metre"
"     101.900   Maximum water level    metre"
"      99.045   Starting water level    metre"
"           0   Keep Design Data: 1 = True; 0 = False"
"                 Level Discharge    Volume"
"               99.045     0.000     0.000"
"              101.550   0.03422   555.290"
"              101.600   0.03457   556.570"
"              101.650   0.03492   564.200"
"              101.700   0.03526   587.720"
"              101.750   0.03560   637.500"
"              101.800   0.03594   726.670"
"              101.850   0.03627   862.530"
"              101.900    0.5513  1036.830"
"         2.   WEIRS"
"                Crest      Weir     Crest      Left     Right"
"           elevation coefficie   breadth sideslope sideslope"
"              101.850     0.900    22.000     0.000     0.000"
"              101.850     0.900     8.000     0.000     0.000"
"         1.   ORIFICES"
"              Orifice   Orifice   Orifice Number of"
"               invert coefficie  diameter  orifices"
"               99.045     0.630    0.1000     1.000"
"            Peak outflow                  0.479    c.m/sec"
"            Maximum level               101.893    metre"
"            Maximum storage            1012.252    c.m"
"            Centroidal lag                4.666   hours"
"                 1.517     1.517     0.479     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"           6   Combine "
"           1   Node #"
"               To North"
"            Maximum flow                  0.479    c.m/sec"
"            Hydrograph volume          1806.260    c.m"
"                   1.517     1.517     0.479     0.479"
" 40          HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   1.517     0.000     0.479     0.479"
" 33          CATCHMENT 202"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         202   Partially Controlled West Area (To North)"
"      67.500   % Impervious"
"       0.108   Total Area"
"       5.000   Flow length"
"       2.000   Overland Slope"
"       0.035   Pervious Area"
"       5.000   Pervious length"
"       2.000   Pervious slope"
"       0.073   Impervious Area"
"       5.000   Impervious length"
"       2.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.416   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.848   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.056     0.000     0.479     0.479 c.m/sec"
"            Catchment 202          Pervious   Impervious Total Area "
"            Surface Area           0.035      0.073      0.108      hectare"
"            Time of concentration  3.759      0.497      1.121      minutes"
"            Time to Centroid       100.474    86.165     88.902     minutes"
"            Rainfall depth         84.315     84.315     84.315     mm"
```

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"            Rainfall volume        29.59      61.47      91.06      c.m"
"            Rainfall losses        49.204     12.831     24.652     mm"
"            Runoff depth           35.111     71.484     59.663     mm"
"            Runoff volume          12.32      52.11      64.44      c.m"
"            Runoff coefficient     0.416      0.848      0.708      "
"            Maximum flow           0.009      0.050      0.056      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.056     0.056     0.479     0.479"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.056     0.056     0.056     0.479"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.495    c.m/sec"
"            Hydrograph volume          1870.696    c.m"
"                 0.056     0.056     0.056     0.495"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.056     0.000     0.056     0.495"
" 33         CATCHMENT 203"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        203   Partially Controlled North Area (To North)"
"     58.000   % Impervious"
"      0.140   Total Area"
"     15.000   Flow length"
"      3.500   Overland Slope"
"      0.059   Pervious Area"
"     15.000   Pervious length"
"      3.500   Pervious slope"
"      0.081   Impervious Area"
"     15.000   Impervious length"
"      3.500   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.422   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.890   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                 0.061     0.000     0.056     0.495 c.m/sec"
"           Catchment 203          Pervious   Impervious Total Area "
"           Surface Area           0.059      0.081      0.140      hectare"
"           Time of concentration  6.144      0.813      2.175      minutes"
"           Time to Centroid       103.666    86.137     90.618     minutes"
"           Rainfall depth         84.315     84.315     84.315     mm"
"           Rainfall volume        49.58      68.46      118.04     c.m"
"           Rainfall losses        48.734     9.278      25.849     mm"
"           Runoff depth           35.581     75.038     58.466     mm"
"           Runoff volume          20.92      60.93      81.85      c.m"
"           Runoff coefficient     0.422      0.890      0.693      "
"           Maximum flow           0.013      0.056      0.061      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.061     0.061     0.056     0.495"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.061     0.061     0.061     0.495"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.522    c.m/sec"
"            Hydrograph volume          1952.548    c.m"
"                 0.061     0.061     0.061     0.522"
" 40         HYDROGRAPH Start - New Tributary"
"          2   Start - New Tributary"
"                 0.061     0.000     0.061     0.522"
" 33         CATCHMENT 204"
"          1   Triangular SCS"
"          1   Equal length"
"          1   SCS method"
"        204   Uncontrolled Area (To North)"
"     11.100   % Impervious"
"      0.242   Total Area"
"     10.000   Flow length"
"     15.000   Overland Slope"
"      0.215   Pervious Area"
"     10.000   Pervious length"
"     15.000   Pervious slope"
"      0.027   Impervious Area"
"     10.000   Impervious length"
"     15.000   Impervious slope"
"      0.250   Pervious Manning 'n'"
"     75.000   Pervious SCS Curve No."
"      0.417   Pervious Runoff coefficient"
"      0.100   Pervious Ia/S coefficient"
"      8.467   Pervious Initial abstraction"
"      0.015   Impervious Manning 'n'"
"     98.000   Impervious SCS Curve No."
"      0.836   Impervious Runoff coefficient"
"      0.100   Impervious Ia/S coefficient"
"      0.518   Impervious Initial abstraction"
"                 0.063     0.000     0.061     0.522 c.m/sec"
"           Catchment 204          Pervious   Impervious Total Area "
"           Surface Area           0.215      0.027      0.242      hectare"
"           Time of concentration  3.113      0.412      2.572      minutes"
"           Time to Centroid       99.482     85.963     96.774     minutes"
"           Rainfall depth         84.315     84.315     84.315     mm"
"           Rainfall volume        181.39     22.65      204.04     c.m"
"           Rainfall losses        49.160     13.814     45.237     mm"
"           Runoff depth           35.155     70.501     39.078     mm"
"           Runoff volume          75.63      18.94      94.57      c.m"
"           Runoff coefficient     0.417      0.836      0.463      "
"           Maximum flow           0.056      0.018      0.063      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"          4   Add Runoff "
"                 0.063     0.063     0.061     0.522"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.063     0.063     0.063     0.522"
" 40         HYDROGRAPH   Combine    1"
"          6   Combine "
"          1   Node #"
"              To North"
"            Maximum flow                  0.553    c.m/sec"
"            Hydrograph volume          2047.118    c.m"
"                 0.063     0.063     0.063     0.553"
" 40         HYDROGRAPH   Confluence    1"
"          7   Confluence "
"          1   Node #"
"              To North"
"            Maximum flow                  0.553    c.m/sec"
"            Hydrograph volume          2047.118    c.m"
"                 0.063     0.553     0.063     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"          8   Copy to Outflow"
"                 0.063     0.553     0.553     0.000"
" 40         HYDROGRAPH   Combine    2"
"          6   Combine "
"          2   Node #"
```

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"              Total Site"
"            Maximum flow                  0.553    c.m/sec"
"            Hydrograph volume          2047.118    c.m"
"                   0.063     0.553     0.553     0.553"
" 40         HYDROGRAPH Start - New Tributary"
"           2   Start - New Tributary"
"                   0.063     0.000     0.553     0.553"
" 33         CATCHMENT 205"
"           1   Triangular SCS"
"           1   Equal length"
"           1   SCS method"
"         205   Uncontrolled Area (To South)"
"       0.000   % Impervious"
"       0.183   Total Area"
"       5.000   Flow length"
"      20.000   Overland Slope"
"       0.183   Pervious Area"
"       5.000   Pervious length"
"      20.000   Pervious slope"
"       0.000   Impervious Area"
"       5.000   Impervious length"
"      20.000   Impervious slope"
"       0.250   Pervious Manning 'n'"
"      75.000   Pervious SCS Curve No."
"       0.419   Pervious Runoff coefficient"
"       0.100   Pervious Ia/S coefficient"
"       8.467   Pervious Initial abstraction"
"       0.015   Impervious Manning 'n'"
"      98.000   Impervious SCS Curve No."
"       0.000   Impervious Runoff coefficient"
"       0.100   Impervious Ia/S coefficient"
"       0.518   Impervious Initial abstraction"
"                   0.046     0.000     0.553     0.553 c.m/sec"
"            Catchment 205          Pervious   Impervious Total Area "
"            Surface Area           0.183      0.000      0.183      hectare"
"            Time of concentration  1.884      0.249      1.884      minutes"
"            Time to Centroid       97.481     85.150     97.481     minutes"
"            Rainfall depth         84.315     84.315     84.315     mm"
"            Rainfall volume        154.30     0.00       154.30     c.m"
"            Rainfall losses        49.029     15.873     49.029     mm"
"            Runoff depth           35.287     68.442     35.287     mm"
"            Runoff volume          64.57      0.00       64.57      c.m"
"            Runoff coefficient     0.419      0.000      0.419      "
"            Maximum flow           0.046      0.000      0.046      c.m/sec"
" 40         HYDROGRAPH Add Runoff "
"           4   Add Runoff "
"                   0.046     0.046     0.553     0.553"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.046     0.046     0.046     0.553"
" 40         HYDROGRAPH   Combine    3"
"           6   Combine "
"           3   Node #"
"               To South"
"            Maximum flow                  0.046    c.m/sec"
"            Hydrograph volume            64.575    c.m"
"                   0.046     0.046     0.046     0.046"
" 40         HYDROGRAPH   Confluence    3"
"           7   Confluence "
"           3   Node #"
"               To South"
"            Maximum flow                  0.046    c.m/sec"
"            Hydrograph volume            64.575    c.m"
"                   0.046     0.046     0.046     0.000"
" 40         HYDROGRAPH Copy to Outflow"
"           8   Copy to Outflow"
"                   0.046     0.046     0.046     0.000"
" 40         HYDROGRAPH   Combine    2"
"           6   Combine "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.577    c.m/sec"
"            Hydrograph volume          2111.692    c.m"
"                   0.046     0.046     0.046     0.577"
" 40         HYDROGRAPH   Confluence    2"
"           7   Confluence "
"           2   Node #"
"               Total Site"
"            Maximum flow                  0.577    c.m/sec"
"            Hydrograph volume          2111.692    c.m"
"                   0.046     0.577     0.046     0.000"
" 38         START/RE-START TOTALS 2"
"           3   Runoff Totals on EXIT"
"            Total Catchment area                      3.233    hectare"
"            Total Impervious area                     2.390    hectare"
"            Total % impervious                       73.933"
" 19         EXIT"
```

Appendix F

OGS Sizing Report

Stormceptor®

Stormceptor® EF Sizing Report

Rinker MATERIALS™

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

09/24/2026

Province:	Ontario
City:	Ottawa
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20

Site Name:	

Drainage Area (ha):	2.560
% Imperviousness:	86.30

Runoff Coefficient 'c': 0.81

Project Name:	Huntmar
Project Number:	70345
Designer Name:	Dain Na
Designer Company:	MTE Consultants Inc.
Designer Email:	dna@mte85.com
Designer Phone:	519-743-6500
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	67.57
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	2465
Estimated Average Annual Sediment Volume (L/yr):	2004

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	57
EFO5	66
EFO6	73
EFO8	82
EFO10	88
EFO12	91

Recommended Stormceptor EFO Model: EFO8

Estimated Net Annual Sediment (TSS) Load Reduction (%): 82

Water Quality Runoff Volume Capture (%): > 90

imbrium

THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

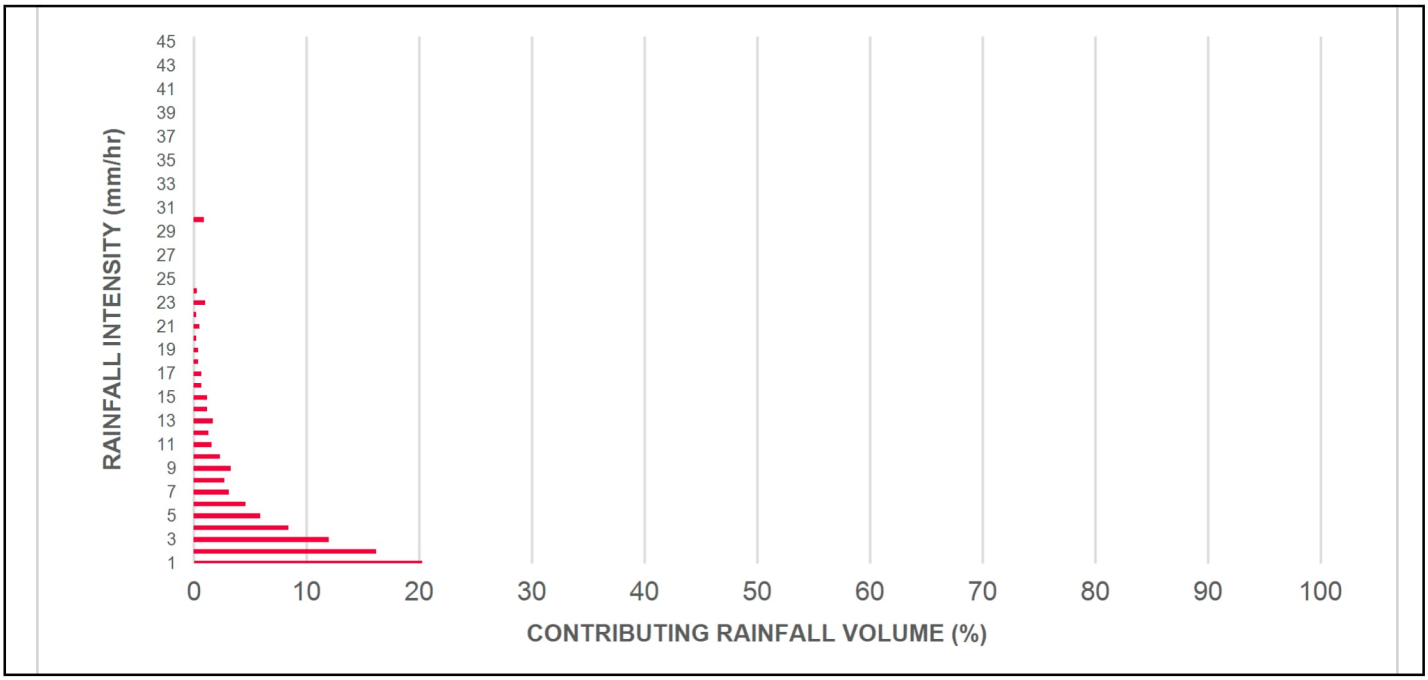
►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

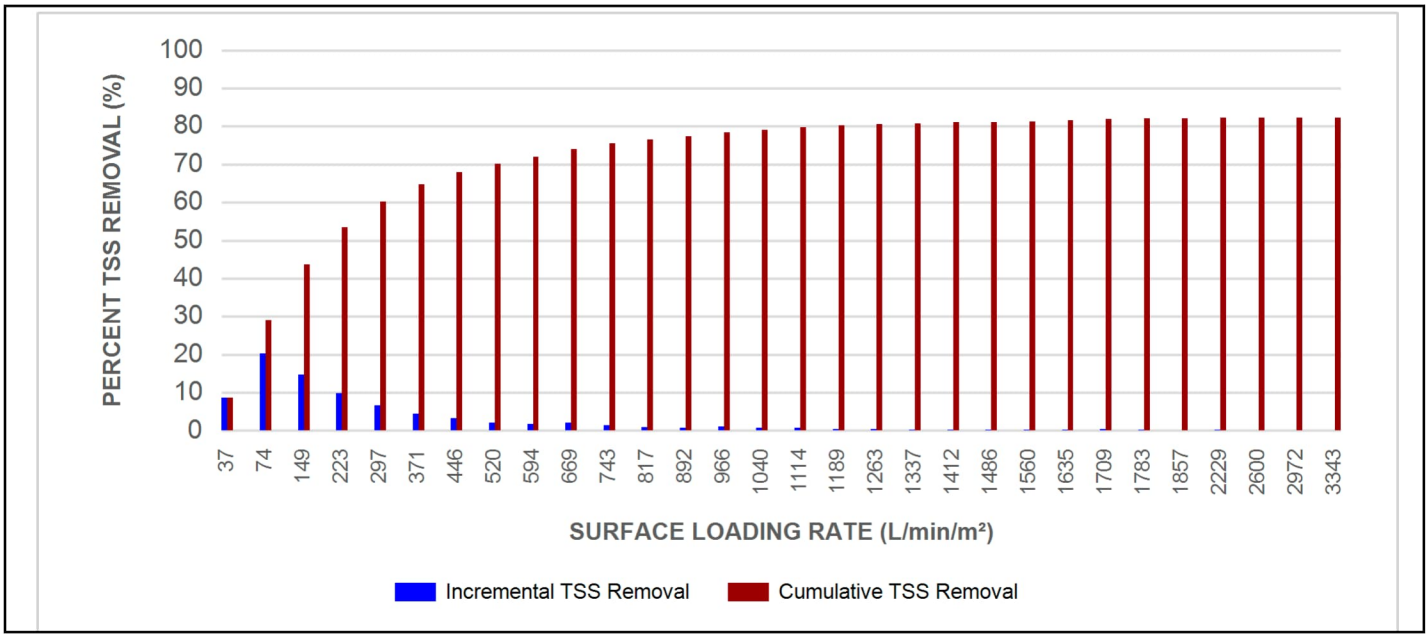
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	2.91	175.0	37.0	100	8.6	8.6
1.00	20.3	29.0	5.82	349.0	74.0	100	20.3	29.0
2.00	16.2	45.2	11.64	698.0	149.0	91	14.7	43.7
3.00	12.0	57.2	17.46	1048.0	223.0	82	9.9	53.5
4.00	8.4	65.6	23.28	1397.0	297.0	79	6.7	60.2
5.00	5.9	71.6	29.10	1746.0	371.0	75	4.5	64.7
6.00	4.6	76.2	34.92	2095.0	446.0	72	3.3	68.0
7.00	3.1	79.3	40.74	2444.0	520.0	68	2.1	70.1
8.00	2.7	82.0	46.56	2794.0	594.0	65	1.8	71.9
9.00	3.3	85.3	52.38	3143.0	669.0	64	2.1	74.0
10.00	2.3	87.6	58.20	3492.0	743.0	64	1.5	75.5
11.00	1.6	89.2	64.02	3841.0	817.0	63	1.0	76.5
12.00	1.3	90.5	69.84	4190.0	892.0	62	0.8	77.3
13.00	1.7	92.2	75.66	4540.0	966.0	62	1.1	78.4
14.00	1.2	93.5	81.48	4889.0	1040.0	61	0.7	79.1
15.00	1.2	94.6	87.30	5238.0	1114.0	59	0.7	79.8
16.00	0.7	95.3	93.12	5587.0	1189.0	57	0.4	80.2
17.00	0.7	96.1	98.94	5937.0	1263.0	56	0.4	80.6
18.00	0.4	96.5	104.76	6286.0	1337.0	54	0.2	80.8
19.00	0.4	96.9	110.58	6635.0	1412.0	52	0.2	81.0
20.00	0.2	97.1	116.40	6984.0	1486.0	49	0.1	81.1
21.00	0.5	97.5	122.22	7333.0	1560.0	47	0.2	81.3
22.00	0.2	97.8	128.04	7683.0	1635.0	45	0.1	81.5
23.00	1.0	98.8	133.86	8032.0	1709.0	43	0.4	81.9
24.00	0.3	99.1	139.68	8381.0	1783.0	41	0.1	82.0
25.00	0.0	99.1	145.50	8730.0	1857.0	40	0.0	82.0
30.00	0.9	100.0	174.60	10476.0	2229.0	33	0.3	82.3
35.00	0.0	100.0	203.70	12222.0	2600.0	28	0.0	82.3
40.00	0.0	100.0	232.80	13968.0	2972.0	25	0.0	82.3
45.00	0.0	100.0	261.91	15714.0	3343.0	22	0.0	82.3
Estimated Net Annual Sediment (TSS) Load Reduction =								**82 %**

Climate Station ID: 6105978 *Years of Rainfall Data*: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

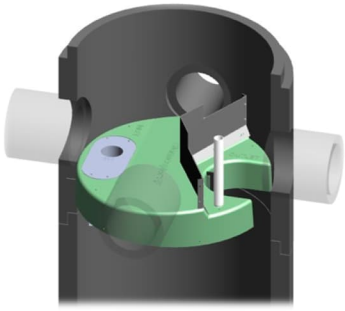
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

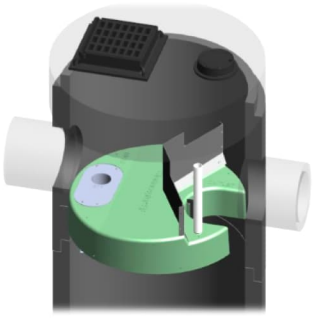
DESIGN FLEXIBILITY

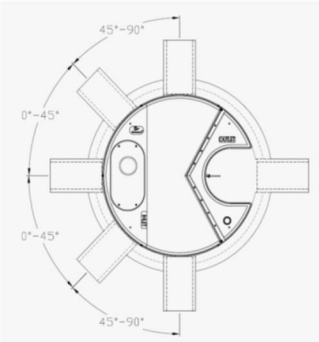
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m^3 sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

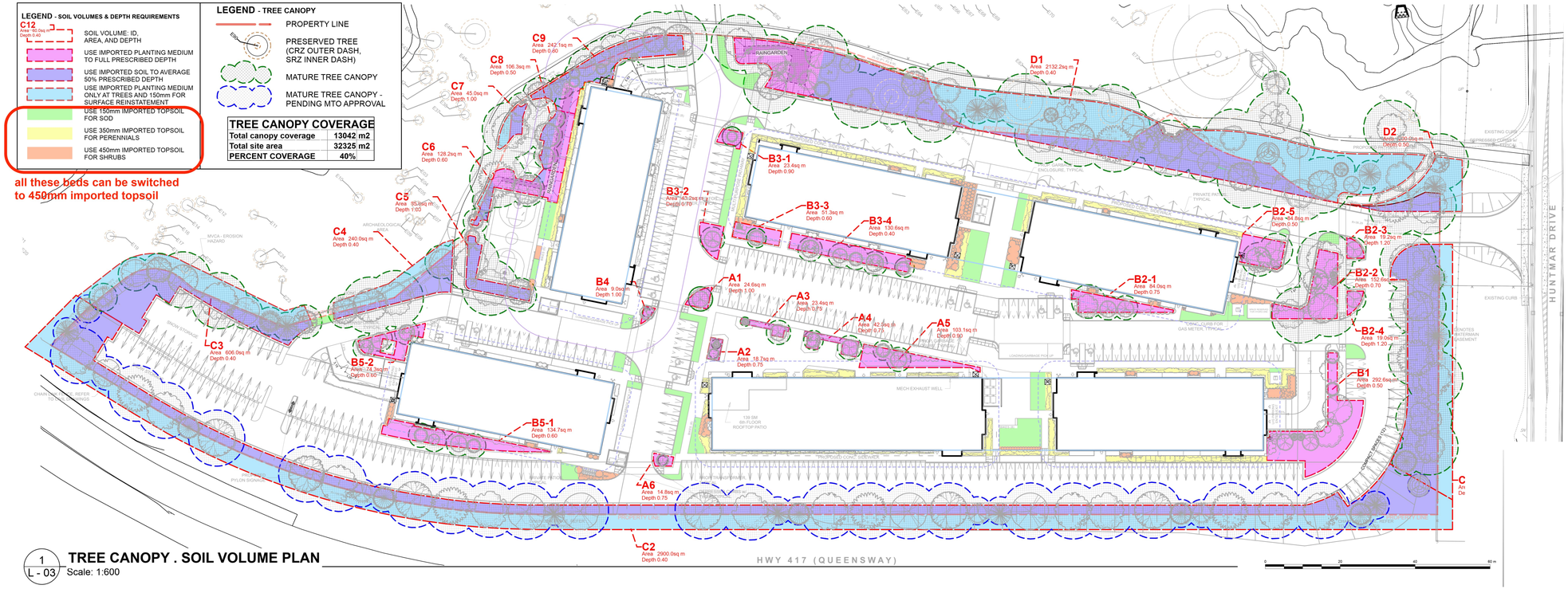
The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid

Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Appendix G

Infiltration Calculations



1 L - 03 **TREE CANOPY . SOIL VOLUME PLAN**
Scale: 1:600

Soil Volume Area, Tree Quantity and Size	Tree Quantity	OTTAWA Target Soil Volume (m^3)	Design Soil Volume	% of target	Contractor soil requirement
AREA A1 - 1 small tree					
plant bed (24.6 sq m x 1m ave deep)	1	25.0	24.6	98%	
AREA A2 - 2 small ornamental tree (15cm DBH)*					
plant bed (18.7 sq m x 0.75m ave deep)	2	11.2	14.0	125%	
AREA A3 - 1 small tree, 1 small ornamental tree (15cm DBH)*					
plant bed (23.4 sq m x 0.75m ave deep)	2	18.7	17.6	94%	
AREA A4 - 2 small trees					
plant bed (42.5 sq m x 0.75m ave deep)	2	24.0	31.9	133%	
AREA A5 - 2 small trees, 4 ornamental trees					
plant bed (103.1 sq m x 0.9m ave deep)	6	78.0	92.8	119%	
AREA A6 - 1 small ornamental tree (15cm DBH)*					
plant bed (14.8 sq m x 0.7m ave deep)	1	9.6	10.4	108%	
AREA B1 - 2 large tree, 1 medium trees, 4 small trees, 2 small conifers*					
plant bed (292.6 sq m x 0.5m ave deep)	9	131.2	146.3	112%	
AREA B2-1 - 1 medium tree, 2 small trees, 1 ornamental tree					
plant bed (84 sq m x 0.75m ave deep)	4	60.0	63.0	105%	
AREA B2-2 - 3 large trees, 1 medium tree, 2 small conifers*					
plant bed (152.6 sq m x 0.7m ave deep)	6	96.4	106.8	111%	
AREA B2-3 - 1 small tree					
plant bed (19.2 sq m x 1.2m ave deep)	1	25.0	23.0	92%	
AREA B2-4 - 1 small tree					
plant bed (19 sq m x 1.2m ave deep)	1	25.0	22.8	91%	
AREA B2-5 - 2 medium trees					
plant bed (84.8 sq m x 0.5m ave deep)	2	36.0	42.4	118%	
AREA B3-1 - 1 ornamental tree					
plant bed (23.4 sq m x 0.9m ave deep)	1	20.0	21.1	105%	
AREA B3-2 - 1 small tree, 1 ornamental tree					
plant bed (43.2 sq m x 0.7m ave deep)	2	27.0	30.2	112%	
AREA B3-3 - 1 ornamental tree					
plant bed (51.3 sq m x 0.5m ave deep)	1	25.0	25.7	103%	
AREA B3-4 - 4 small trees, 2 ornamental trees					
plant bed (130.6 sq m x 0.6m ave deep)	5	75.0	78.4	104%	
AREA B4 - 1 small ornamental tree (15cm DBH)*					
plant bed (9 sq m x 1.1m ave deep)	1	9.6	9.9	103%	
AREA B5-1 - 3 small trees, 2 ornamental trees					
plant bed (135.8 sq m x 0.6m ave deep)	5	75.0	81.5	109%	
AREA B5-2 - 3 small trees					
plant bed (74.3 sq m x 0.6m ave deep)	3	45.0	44.6	99%	
AREA C1 - 6 large trees, 3 large conifers, 2 small conifers*					
plant bed (840 sq m x 0.4m ave deep)	9	205.2	336.0	164%	
AREA C2 - 24 large trees, 1 medium tree, 15 large conifers					
plant bed (2900 sq m x 0.4m ave deep)	40	892.8	1160.0	130%	
AREA C3 - 2 large trees, 4 medium trees, 3 large conifers					
plant bed (606 sq m x 0.4m ave deep)	7	140.4	242.4	173%	
AREA C4 - 2 large trees, 2 medium trees					
plant bed (240 sq m x 0.4m ave deep)	4	86.4	96.0	111%	
AREA C5 - 2 large trees, 1 medium tree, 1 small tree					
plant bed (85 sq m x 1m ave deep)	4	83.4	85.0	102%	
AREA C6 - 1 large tree, 1 medium tree, 1 small tree					
plant bed (128.2 sq m x 0.6m ave deep)	3	66.0	76.9	117%	
AREA C7 - 1 large tree, 1 medium tree					
plant bed (45 sq m x 1m ave deep)	2	43.2	45.0	104%	
AREA C8 - 3 small trees					
plant bed (106.3 sq m x 0.5m ave deep)	3	48.0	53.2	111%	
AREA C9 - 2 large trees, 4 medium trees, 1 small tree, 3 ornamental trees, 2 small conifers*					
plant bed (241.6 sq m x 0.8m ave deep)	12	186.8	193.3	103%	
AREA D1 - 20 large trees (incl. 3 existing), 6 medium trees, 4 small trees, 8 large conifers					
plant bed (2132.2 sq m x 0.4m ave deep)	38	816.0	852.9	105%	
AREA D2 - 2 large trees, 1 medium tree, 1 large conifer					
plant bed (200 sq m x 0.5m ave deep)	4	86.4	100.0	116%	

* Smaller columnar trees, small ornamental trees with growth to 8-15cm DBH, and large shrubs calculated using 'How much soil to grow a big tree' by DeepRoot as a guide

IRONCLAD DEVELOPMENTS INC.
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GENERAL NOTES:

1. ALL GENERAL SITE INFORMATION AND CONDITIONS COMPILED FROM EXISTING PLANS, SURVEYS AND CONSULTANT'S FIELD NOTES. REPORT ALL DISCREPANCIES PRIOR TO ANY WORK. NO RESPONSIBILITY IS BORNE BY THE CONSULTANT FOR UNKNOWN SUBSURFACE CONDITIONS.
2. THE LOCATION OF THE UTILITIES IF SHOWN ON THE DKEY PLANRAWINGS SET, TO BE CONSIDERED AS APPROXIMATE ONLY, AND THE EXACT LOCATIONS SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE.
3. CONTRACTOR TO REVIEW PROJECT WITH CONSULTANT(S) AND OWNER'S REPRESENTATIVE(S) PRIOR TO COMMENCING ANY ON SITE WORK.
4. CONTRACTOR TO VERIFY ALL DIMENSIONS, EXISTING ELEMENTS TO BE REMOVED / RETAINED / SALVAGED / REINSTATED AS SHOWN ON THE DRAWINGS SET, PRIOR TO ANY CONSTRUCTION.
5. CONTRACTOR IS RESPONSIBLE TO PRESERVE AND PROTECT EXISTING ELEMENTS TO BE RETAINED / SALVAGED.
6. CONTRACTOR TO MAINTAIN POSITIVE SURFACE RUNOFF THROUGH THE ENTIRE CONSTRUCTION PERIOD.
7. CONTRACTOR TO OBTAIN APPROVAL OF CONSULTANT FOR FINAL SUBGRADE PRIOR TO INSTALLATION OF BASE LAYER(S).
8. CONTRACTOR TO OBTAIN APPROVAL OF CONSULTANT FOR GRANULAR BASE AND LAYOUT OF ALL PAVEMENT AREAS PRIOR TO INSTALLATION OF SURFACE LAYER(S).
9. CONTRACTOR TO REINSTATE ALL AREAS AND ITEMS DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES.

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landscape architecture • urban design • site planning
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3	Issued for SPC resubmission	2026-10-23	
2	Issued for SPC resubmission	2026-09-11	
1	Issued For SPC Submission	2026-04-01	

number/numéro | milestone / fait saillant | date: (y/m/d) (a/m/j) | initials initiales

designed by / concu par: V. Odusanya
checked by / verifie par: M. Ruhland
drawn by / dessine par: T.Frost
scale / echelle:

architect | consultant | consultant | consultant

project / location

319 HUNTMAR RD

319 Huntmar Rd, Ottawa, ON

drawing

SOIL VOLUMES, TREE CANOPY PLAN, RESTORATION PLANTING

project no. 25-1773

sheet no. **L - 03**

D07-12-26-0037

#19483

319 Huntmar Road

Infiltration Retention Volume Calculations

Ottawa, Ontario

Project #: 65860_001
Date: October 23, 2026
Date Printed: October 23, 2026
Designed By: DXN

	Catchment Name	Area (m^2)	Prescribed Depth (m)	Depth to Use (m)	Void Ratio	Storage Volume (m^3)
Imported Planting Medium, Full Prescribed Depth	West Rain Garden	Refer to Separate Calculations in Appendix D				27.2
Imported Planting Medium, Full Prescribed Depth	East Rain Garden	Refer to Separate Calculations in Appendix D				28.4
Imported Planting Medium, Full Prescribed Depth	B3-1	23.4	0.90	0.90	0.2	4.2
Imported Planting Medium, Full Prescribed Depth	B3-2	43.2	0.70	0.70	0.2	6.0
Imported Planting Medium, Full Prescribed Depth	B3-3	51.3	0.60	0.60	0.2	6.2
Imported Planting Medium, Full Prescribed Depth	B3-4	130.6	0.40	0.40	0.2	10.4
Imported Planting Medium, Full Prescribed Depth	B4	9.0	1.00	1.00	0.2	1.8
Imported Planting Medium, Full Prescribed Depth	A1	24.6	1.00	1.00	0.2	4.9
Imported Planting Medium, Full Prescribed Depth	A2	18.7	0.75	0.75	0.2	2.8
Imported Planting Medium, Full Prescribed Depth	A3	23.4	0.75	0.75	0.2	3.5
Imported Planting Medium, Full Prescribed Depth	A4	42.5	0.75	0.75	0.2	6.4
Imported Planting Medium, Full Prescribed Depth	A5	103.1	0.90	0.90	0.2	18.6
Imported Planting Medium, Full Prescribed Depth	A6	14.8	0.75	0.75	0.2	2.2
Imported Planting Medium, Full Prescribed Depth	B2-1	84.0	0.75	0.75	0.2	12.6
Imported Planting Medium, Full Prescribed Depth	B2-2	152.6	0.70	0.70	0.2	21.4
Imported Planting Medium, Full Prescribed Depth	B2-3	19.2	1.20	1.20	0.2	4.6
Imported Planting Medium, Full Prescribed Depth	B2-4	19.0	1.20	1.20	0.2	4.6
Imported Planting Medium, Full Prescribed Depth	B2-5	84.8	0.50	0.50	0.2	8.5
Imported Planting Medium, Full Prescribed Depth	B1	292.6	0.50	0.50	0.2	29.3
Imported Planting Medium, Full Prescribed Depth	B5-1	134.7	0.60	0.60	0.2	16.2
Imported Planting Medium, Full Prescribed Depth	B5-2	74.3	0.60	0.60	0.2	8.9
Imported Soil, 50% Prescribed Depth	C1	590.7	0.40	0.20	0.2	23.6
Imported Soil, 50% Prescribed Depth	C2	1244.1	0.40	0.20	0.2	49.8
Imported Soil, 50% Prescribed Depth	C3	320.8	0.40	0.20	0.2	12.8
Imported Soil, 50% Prescribed Depth	C4	117.7	0.40	0.20	0.2	4.7
Imported Soil, 50% Prescribed Depth	C5	85.0	1.00	0.50	0.2	8.5
Imported Soil, 50% Prescribed Depth	C6	30.4	0.60	0.30	0.2	1.8
Imported Soil, 50% Prescribed Depth	C7	25.0	1.00	0.50	0.2	2.5
Imported Soil, 50% Prescribed Depth	C8	34.1	0.50	0.25	0.2	1.7
Imported Soil, 50% Prescribed Depth	C9	207.0	0.80	0.40	0.2	16.6
Imported Soil, 50% Prescribed Depth	D1	835.5	0.40	0.20	0.2	33.4
Imported Soil, 50% Prescribed Depth	D2	58.5	0.50	0.25	0.2	2.9
No Imported Soil	Not Applicable - Areas are Beyond Property Line					0.0
150mm Imported Topsoil	All	641.8	0.15	0.15	0.2	19.3
350mm Imported Topsoil	All	663.6	0.35	0.35	0.2	46.5
450mm Imported Topsoil	All	304.9	0.45	0.45	0.2	27.4

Refer to the Soil Volumes, Canopy Plan, Restoration Planting Plan by RALA for catchment details.

Total Amended Topsoil and Rain Garden Storage Volume	**480.1**	**m^3**
Site Area	3.233	ha
Equivalent Retention Depth	**14.9**	**mm**

Appendix H

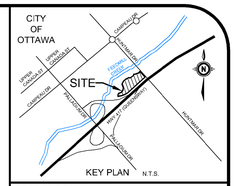
Engineering Drawings

MTE File Path: P:\P65860_001\65860_001-C1

LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- MVCA SHAPEFILE (APPROX. ONLY) – REGULATION LIMIT
- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
- PATERSON GROUP – LIMIT OF HAZARD LANDS
- MVCA CROSS SECTION MAP PDF (APPROX. ONLY) –STREAM
- EXISTING CONTOURS
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING FENCE
- REMOVALS
- RELOCATE
- HARD SURFACE REMOVALS
- SAW CUT

CITY OF OTTAWA



GEODETIC BM ELEV. = m

REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m

REFER TO ABOVE.

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

NOTE:

1. **PROPERTY LINE IS APPROXIMATE ONLY AND SHOULD NOT BE USED FOR DETERMINING SETBACKS OR LAYOUT.**
2. **EXISTING TOPOGRAPHICAL INFORMATION PROVIDED BY STANTEC, DATED JANUARY 23, 2026.**
3. **ALL MVCA LINEWORK SHOWN ON THIS PLAN IS TAKEN FROM SHAPEFILE PROVIDED BY STANTEC AND IS APPROXIMATE ONLY.**
4. **INVERTS DENOTED WITH "±" ARE TAKEN FROM AS–BUILT PLAN AND PROFILE DRAWINGS COMPLETED BY ISI GROUP, DATED OCTOBER 7, 2015, AND GENERAL PLAN OF SERVICES PLAN PREPARED BY ISI GROUP, DATED AUGUST 21, 2013 AND ARE CONSIDERED APPROXIMATE ONLY. CONTRACTOR TO FIELD VERIFY AND REPORT ANY DISCREPANCIES TO ENGINEER.**
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No.	REVISION	BY	YYYY-MM-DD
3	RE-ISSUED FOR S/P/ PLAN CONTROL	AXS	2026-10-30
2	ISSUED FOR PRICING	AXS	2026-09-22
1	ISSUED FOR S/P/ PLAN CONTROL	AXS	2026-04-01

MTE Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER — L.E. INGRAM — 100120779 — 2026-10-30 — PROVINCE OF ONTARIO

CLIENT

IRONCLAD DEVELOPMENTS

101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

PROJECT

319 HUNTMAR DRIVE

STITTSVILLE, ON

DRAWING

REMOVALS PLAN

Design By: DXN / LEI	Project Manager: A. SAWATSKY
Drawn By: DAC	Project No.: 65860_001
Checked By: DXN / LEI	Drawing No.: C1.1
Date (YYYY-MM-DD): 2025-06-04	
Scale: 1:400	Sheet 1 of 9

FILE # D07-12-26-0037
PLAN #: 19483

October 30, 2026 - 11:42:34 AM - Plotted By: Dan Ha

LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- MVCA SHAPEFILE (APPROX. ONLY) – REGULATION LIMIT
- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
- PATERSON GROUP – LIMIT OF HAZARD LANDS
- MVCA CROSS SECTION MAP PDF (APPROX. ONLY) –STREAM
- EXISTING CONTOURS (326.00)
- EXISTING SANITARY SEWER (Ex. 300mmø SAN, Ex. MH)
- EXISTING WATERMAIN (Ex. 200mmø WTM, Ex. HYD. SET)
- EXISTING STORM SEWER (Ex. 375mmø STM, Ex. MH)
- EXISTING FENCE

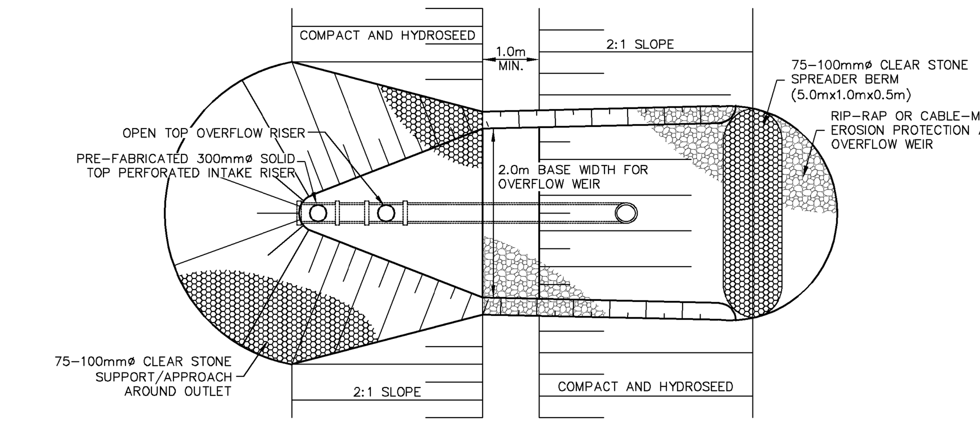
LEGEND OF PROPOSED FEATURES

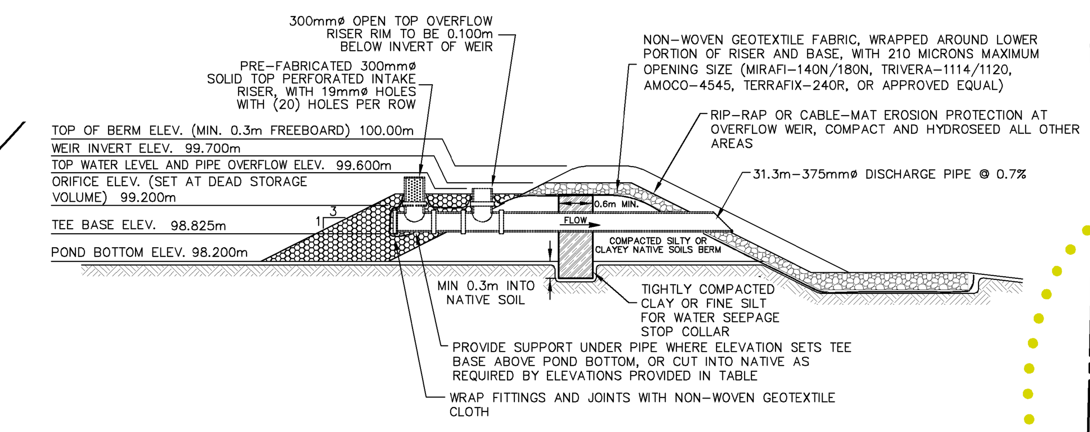
- (326.00) PROPOSED SPOT ELEVATIONS
  EX =MAINTAIN EXISTING
- 1.0% DIRECTION OF DRAINAGE/SWALE
- DRAINAGE SPLIT (RIDGE)
- EMBANKMENT (SLOPE AS NOTED) (TOP) 3:1 (BOTTOM)
- SEDIMENT CONTROL FENCE (SEE DETAIL)
- SEDIMENT CONTROL FABRIC ON PAIGE WIRE FENCE (SEE DETAIL)
- SILT SACK (SEE DETAIL)
- CONSTRUCTION ACCESS (SEE DETAIL)
- FIBRE ROLL CHECK DAM (PER OPSD 219.191)
- RIP RAP (SIZE & TYPE AS NOTED)
- SHALLOW PIPE INSULATION (SEE DETAIL)
- SILTSOXX (SEE DETAIL)
- TREE PROTECTION FENCING

MTE

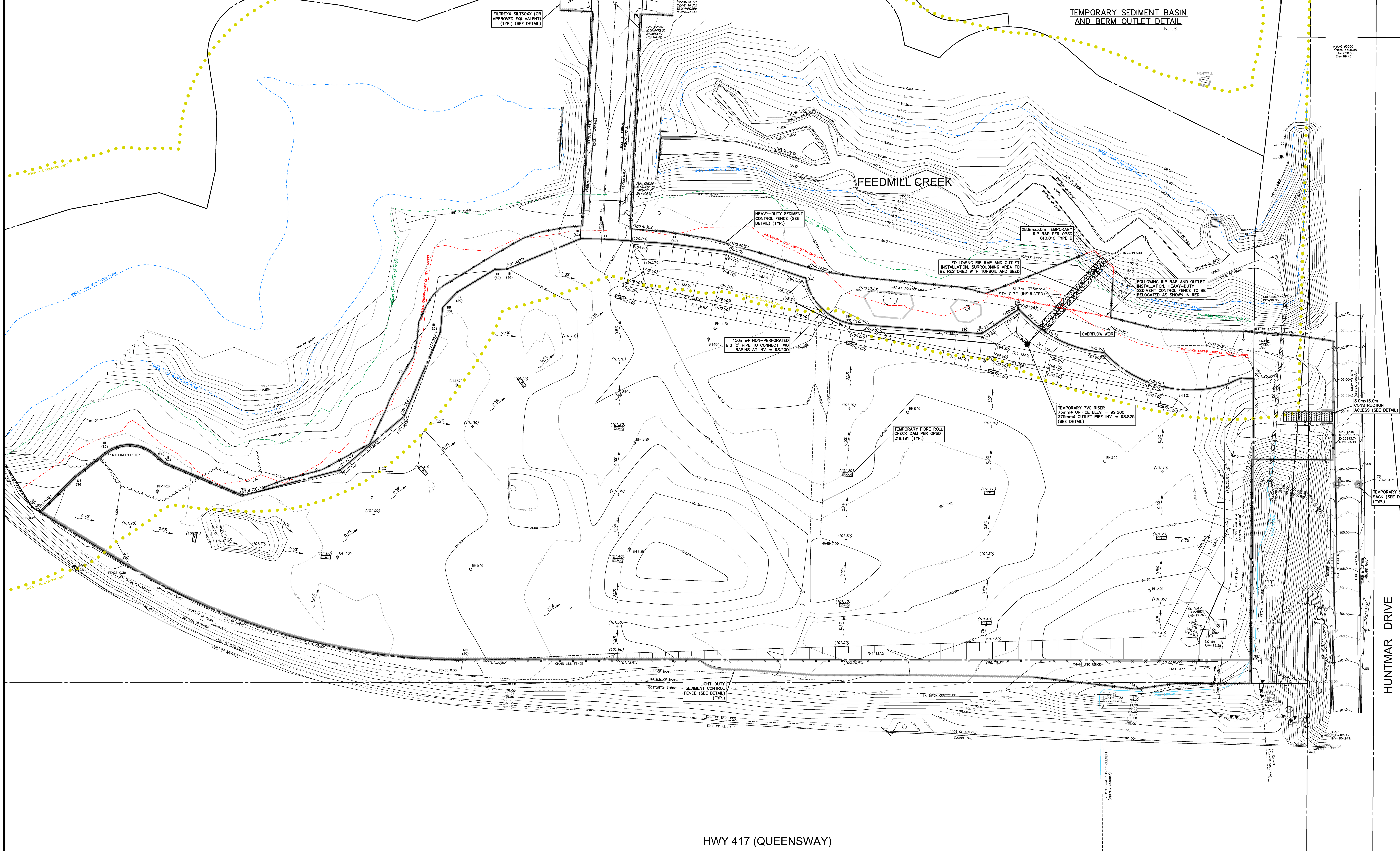
EROSION & SEDIMENT CONTROL SEDIMENT BASIN SIZING & CONSTRUCTION INFORMATION								319 Huntmar Drive Ottawa, Ontario						Date: September 14, 2026 Project Number: 65860_001 Design By: DXN			
ID Tag	Basin Area	Sediment Basin Design Volume (1)			Bottom Area	Bottom of Basin	Bottom Elevation	Tee Base Elevation	Orifice Plate		Top Water Level & Overflow Pipe		Weir Invert	Top Berm Elevation	Orifice Diameter	Maximum Orifice Flow	Live Storage Drawdown Time
		Dead	Live	Total					Elevation	Dead Volume	Elevation	Total Volume					
	ha	m^3	m^3	m^3	m^2	flat/sloped	m	m	m	m^3	m	m^3	m	m	mm	m^3/s	hrs
SB-1	3.233	404	404	808	273.1	flat	98.2	98.825	99.2	582	99.6	1,012	99.7	100.0	75	0.0074	34.4

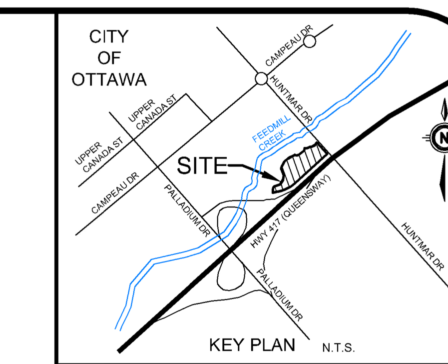
(1) Dead Storage is based upon minimum 125 m^3 volume per ha drainage area; Live Storage is based upon minimum 125 m^3 volume per ha drainage area.
(2) At the Top Water Level (TWL), the maximum design storage level for the Dead+Live runoff volume, an open-top overflow pipe will route excess runoff volume past the orifice control, prior to berm-weir outflow, which begins at 0.100m above the TWL. At up to 0.100m head on the 300mm diameter overflow, the maximum flow from the overflow pipe is about 0.070 m^3/s; any excess volumes will then be routed through the berm overflow weir. Refer to Erosion & Sediment Control Detail drawings.





TEMPORARY SEDIMENT BASIN AND BERM OUTLET DETAIL
N.T.S.





GEODETIC BM ELEV. = m
REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m
REFER TO ABOVE.

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MTE
Engineers, Scientists, Surveyors.

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100120779
2026-10-30
PROVINCE OF ONTARIO

CLIENT
IRONCLAD DEVELOPMENTS
101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

DRAWING
EROSION AND SEDIMENT CONTROL PLAN

Design By DXN / LEI	Project Manager A. SAWATSKY
Drawn By DAC	Project No. 65860_001
Checked By DXN / LEI	Drawing No.
Date (yyyy-mm-dd) 2026-06-04	C1.2
Scale 1:400	Sheet 2 of 9

FILE # D07-12-26-0037
PLAN #: 19483

MTE File Path: P:\P\65860_001\65860_001-C1
October 30, 2026 - 11:42:57 AM - Plotted By: Dain Na

MTE File Path: P:\P65860_001\65860_001-C2

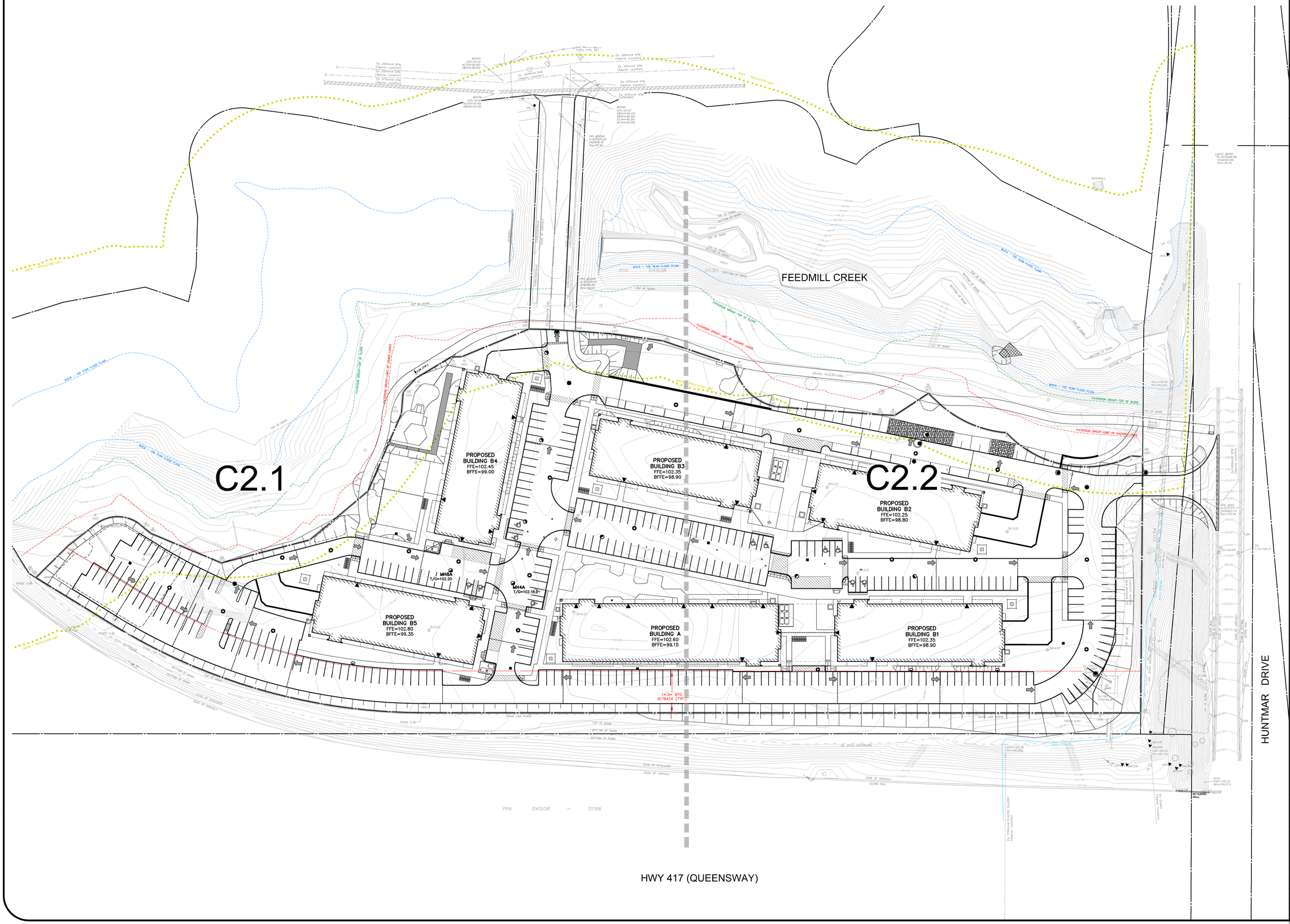
LEGEND OF EXISTING FEATURES

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- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
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- PATERSON GROUP – LIMIT OF HAZARD LANDS
- MVCA CROSS SECTION MAP PDF (APPROX. ONLY) –STREAM
- EXISTING CONTOURS
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING STORM SEWER
- EXISTING FENCE
- 14.0m MTO SETBACK

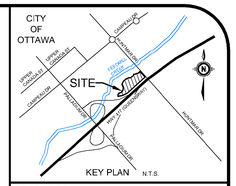
LEGEND OF PROPOSED FEATURES

- DRAINAGE SPLIT (RIDGE)
- EMBANKMENT (SLOPE AS NOTED)
- PROPOSED BUILDING
- OVERHEAD DOOR
- MAN DOOR
- CONCRETE CURB
- RETAINING WALL
- OVERLAND FLOW ROUTE (MAJOR STORM)





CITY OF OTTAWA



GEODETIC BM ELEV. = m

REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m

REFER TO ABOVE.

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3	RE-ISSUED FOR SITE PLAN CONTROL	AXS	2026-10-30
2	ISSUED FOR PRICING	AXS	2026-09-22
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MTE
Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER
L. E. INGRAM
100120779
2026-10-30
PROVINCE OF ONTARIO

CLIENT
IRONCLAD DEVELOPMENTS
101-57158 SYMINGTON RD 2OE SPRINGFIELD, MB

PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

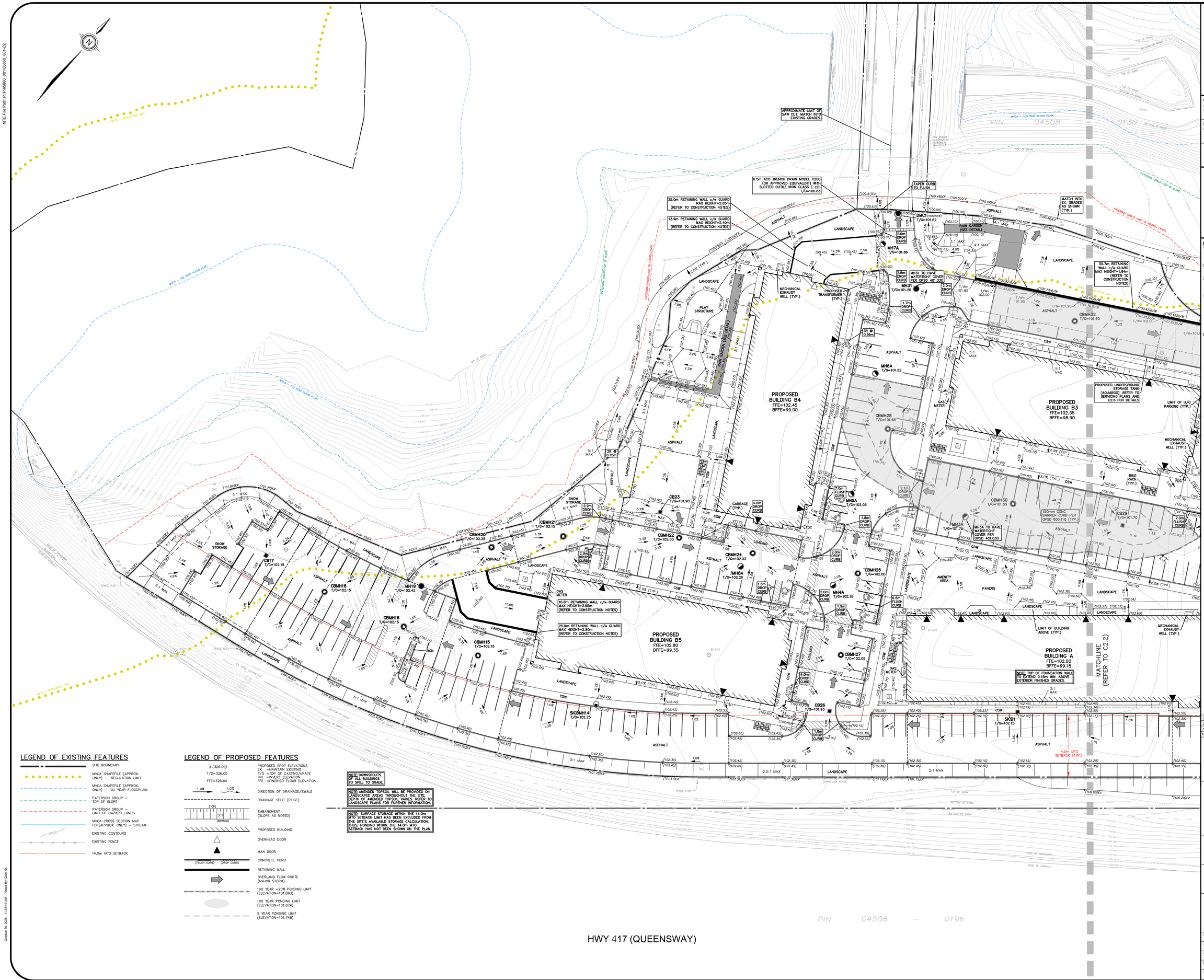
DRAWING
KEY PLAN

Design By: DXN / LEI	Project Manager: A. SAWATSKY
Drawn By: DAC	Project No.: 65860_001
Checked By: DXN / LEI	Drawing No.: C2.0
Date (yyyy-mm-dd): 2025-02-12	
Scale: 1:400	Sheet 3 of 9

FILE # D07-12-26-0037
PLAN #: 19483

October 30, 2025 - 11:38:02 AM - Plotted By: Dan Na

MTE File Path: P:\Pb85860_001\85860_001-C2



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- MVCA CROSS SECTION MAP PDF(APPROX. ONLY) – STREAM
- EXISTING CONTOURS
- EXISTING FENCE
- 14.0m MTO SETBACK

LEGEND OF PROPOSED FEATURES

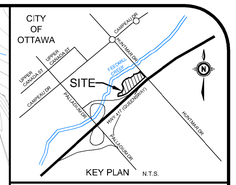
- PROPOSED SPOT ELEVATIONS EX =MAINTAIN EXISTING T/G =TOP OF CASTING/GRATE INV =INVERT ELEVATION FFE =FINISHED FLOOR ELEVATION
- DIRECTION OF DRAINAGE/SWALE
- DRAINAGE SPLIT (RIDGE)
- EMBANKMENT (SLOPE AS NOTED)
- PROPOSED BUILDING
- OVERHEAD DOOR
- MAN DOOR
- CONCRETE CURB (FLUSH CURB) (DROP CURB)
- RETAINING WALL
- OVERLAND FLOW ROUTE (MAJOR STORM)
- 100 YEAR +20% PONDING LIMIT (ELEVATION=101.893)
- 100 YEAR PONDING LIMIT (ELEVATION=101.874)
- 5 YEAR PONDING LIMIT (ELEVATION=101.748)

NOTE: DOWNSPOUTS OF ALL BUILDINGS TO SPILL TO GRADE.

NOTE: AMENDED TOPSOIL WILL BE PROVIDED ON LANDSCAPED AREAS THROUGHOUT THE SITE. DEPTH OF AMENDED TOPSOIL VARIES. REFER TO LANDSCAPE PLANS FOR FURTHER INFORMATION.

NOTE: SURFACE STORAGE WITHIN THE 14.0m MTO SETBACK LIMIT HAS BEEN EXCLUDED FROM THE SITE'S AVAILABLE STORAGE CALCULATION. THUS, PONDING WITHIN THE 14.0m MTO SETBACK HAS NOT BEEN SHOWN ON THE PLAN.

CITY OF OTTAWA



GEODETIC BM ELEV. = m

REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m

REFER TO ABOVE.

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2.	ISSUED FOR PRICING	AXS	2026-09-22
1.	ISSUED FOR SITE PLAN CONTROL	AXS	2026-04-01

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Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER
L. E. INGRAM
100120779
2026-10-30
PROVINCE OF ONTARIO

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IRONCLAD DEVELOPMENTS
101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

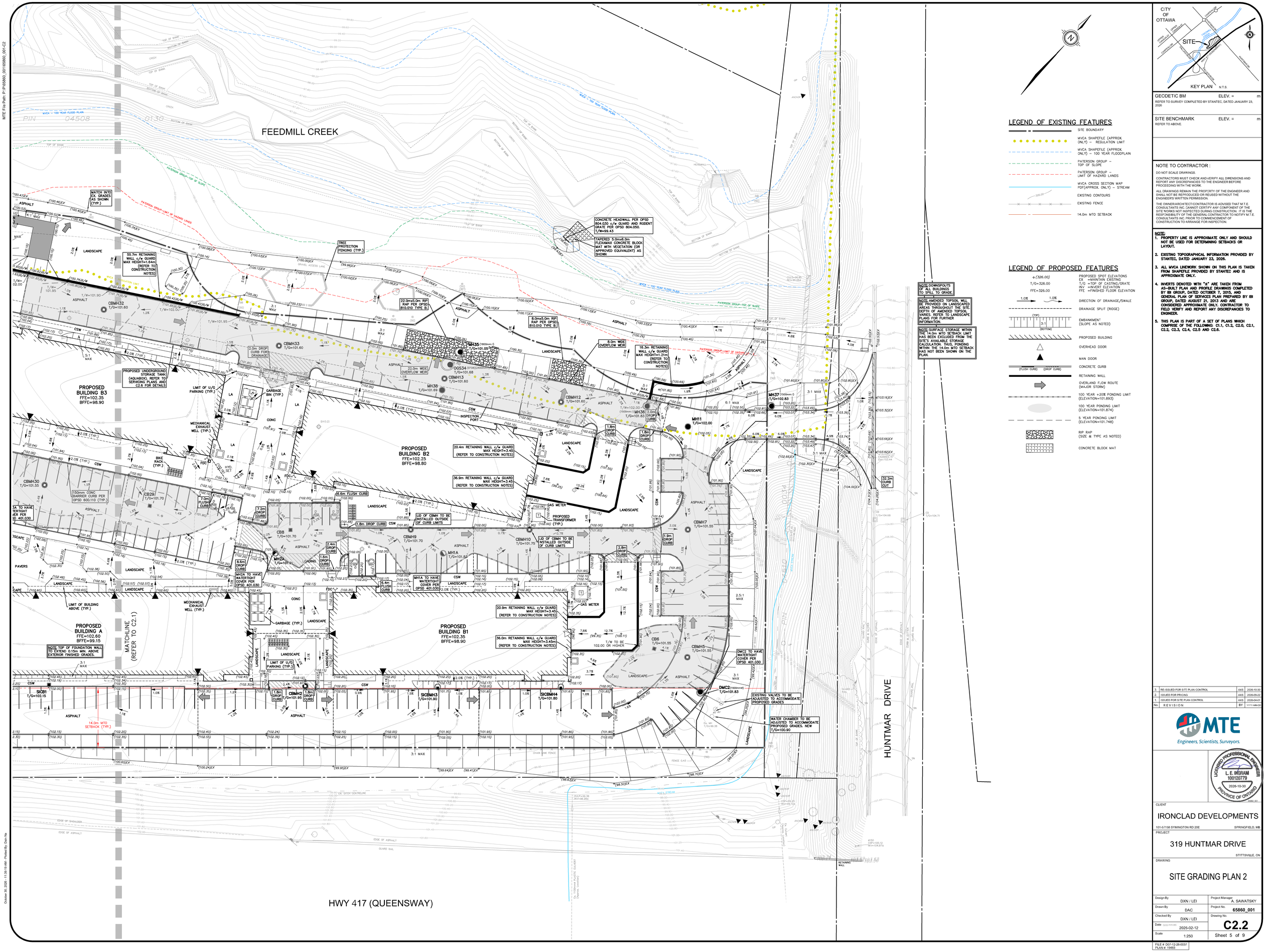
PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

DRAWING
SITE GRADING PLAN 1

Design By	DXN / LEI	Project Manager	A. SAWATSKY
Drawn By	DAC	Project No.	65860_001
Checked By	DXN / LEI	Drawing No.	C2.1
Date (yyyy-mm-dd)	2025-02-12		Sheet 4 of 9
Scale	1:250		

FILE # D07-12-26-0037
PLAN # 19483

October 30, 2026 - 11:59:43 AM - Plotted By: Dan Na



LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- MVCA SHAPEFILE (APPROX. ONLY) – REGULATION LIMIT
- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
- PATERSON GROUP – LIMIT OF HAZARD LANDS
- MVCA CROSS SECTION MAP PDF(APPROX. ONLY) – STREAM
- EXISTING CONTOURS
- EXISTING FENCE
- 14.0m MTO SETBACK

LEGEND OF PROPOSED FEATURES

- PROPOSED SPOT ELEVATIONS (EX =MAINTAIN EXISTING; T/G =TOP OF CASTING/GRATE; INV =INVERT ELEVATION; FFE =FINISHED FLOOR ELEVATION)
- DIRECTION OF DRAINAGE/SWALE
- DRAINAGE SPLIT (RIDGE)
- EMBANKMENT (SLOPE AS NOTED)
- PROPOSED BUILDING
- OVERHEAD DOOR
- MAN DOOR
- CONCRETE CURB (FLUSH CURB) (DROP CURB)
- RETAINING WALL
- OVERLAND FLOW ROUTE (MAJOR STORM)
- 100 YEAR +20% PONDING LIMIT (ELEVATION=101.893)
- 100 YEAR PONDING LIMIT (ELEVATION=101.874)
- 5 YEAR PONDING LIMIT (ELEVATION=101.748)
- RIP RAP (SIZE & TYPE AS NOTED)
- CONCRETE BLOCK MAT

CITY OF OTTAWA

GEODETIC BM ELEV. = m
REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

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1.	ISSUED FOR SITE PLAN CONTROL	AXS	2026-04-01

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Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER L. E. INGRAM 100120779 2026-10-30 PROVINCE OF ONTARIO

CLIENT

IRONCLAD DEVELOPMENTS

101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

PROJECT

319 HUNTMAR DRIVE

STITTSVILLE, ON

DRAWING

SITE GRADING PLAN 2

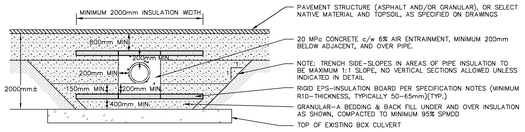
Design By	DXN / LEI	Project Manager	A. SAWATSKY
Drawn By	DAC	Project No.	65860_001
Checked By	DXN / LEI	Drawing No.	C2.2
Date (yyyy-mm-dd)	2026-02-12	Sheet	5 of 9
Scale	1:250		

FILE # D07-12-26-0037
PLAN # 19483

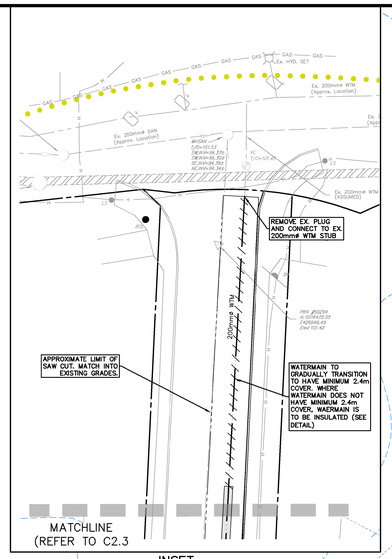
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October 30, 2026 - 11:59:19 AM - Plotted By: Dan Na

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CONCRETE ENCASED WATERMAIN DETAIL
N.T.S.



INSET
1:250

LEGEND OF EXISTING FEATURES

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- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
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- MVCA CROSS SECTION MAP PDF (APPROX. ONLY) – STREAM
- Ex. 300mm# SAN — Ex. MH — EXISTING SANITARY SEWER
- Ex. 200mm# WTM — Ex. HYD. SET — EXISTING WATERMAIN
- Ex. 375mm# STM — Ex. MH — EXISTING STORM SEWER
- EXISTING FENCE
- 14.0m MTO SETBACK

LEGEND OF PROPOSED FEATURES

- EMBANKMENT (TOP / BOTTOM)
- SANITARY SEWER (MH — 14.6m–200mm# SAN @ 1.5%)
- STORM SEWER (MH — 21.3m–300mm# STM @ 1.3%)
- WATERMAIN (200mm# WTM — HYD. SET — TEE)
- PROPOSED BUILDING
- OVERHEAD DOOR
- MAN DOOR
- CONCRETE CURB (FLUSH CURB) (CROP CURB)
- RETAINING WALL
- SHALLOW PIPE INSULATION (SEE DETAIL)
- SEWER CROSSING (REFER TO CROSSING CHART) — X1

SEWER CROSSING CHART

NOTE:
1) Maintain minimum 0.5m vertical clearance between all watermains and sewers Where watermain is deflected, ensure 2.4m cover is achieved or watermain is insulated.
2) Maintain vertical clearance at all other crossings.
3) Elevations are approximate and subject to asymmetric only. Notify Design Engineer of any discrepancies.
4) Contractor to verify all existing invert elev prior to product ordering. Notify Design Engineer of any discrepancies.

CROSSING #	SEWER TYPE	SEWER SIZE (mm#)	CROSSING ELEVATION	NOTES
X1	WTM	200	INV=99.30 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=97.170	
X2	STM	375	INV=100.092	
	SAN	200	OBV=97.185	
X3	STM	375	INV=100.080	ENSURE WTM HAS MIN. 2.4m COVER AND MAINTAIN MIN. 0.5m VERTICAL CLEARANCE FROM STM.
	WTM	200	OBV=99.50 ±	
X4	WTM	150	INV=99.60 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=97.134	
X5	STM	375	INV=100.107	MAINTAIN MIN. 0.5m VERTICAL CLEARANCE BETWEEN STM AND WTM. DEFLECT WTM BELOW STM AS REQUIRED.
	WTM	150	OBV=96.60 ±	
X6	WTM	200	INV=99.50 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=97.464	
X7	STM	375	INV=100.263	
	SAN	200	OBV=97.598	
X8	STM	375	INV=100.297	ENSURE WTM HAS MIN. 2.4m COVER AND MAINTAIN MIN. 0.5m VERTICAL CLEARANCE FROM STM. DEFLECT WTM BELOW STM AS REQUIRED.
	WTM	200	OBV=99.70 ±	
X9	WTM	200	INV=99.70 ±	ENSURE WTM HAS MIN. 2.4m COVER
	SAN	200	OBV=97.960	
X10	STM	375	INV=100.152	
	SAN	200	OBV=98.115	
X11	WTM	200	INV=99.20 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=97.901	
X12	STM	150	INV=100.457	ENSURE WTM HAS MIN. 2.4m COVER AND MAINTAIN MIN. 0.5m VERTICAL CLEARANCE FROM STM.
	WTM	200	OBV=99.15 ±	
X13	STM	150	INV=100.487	
	SAN	200	OBV=97.409	
X14	STM	150	INV=100.258	
	SAN	200	OBV=96.907	
X15	STM	150	INV=100.228	ENSURE WTM HAS MIN. 2.4m COVER AND MAINTAIN MIN. 0.5m VERTICAL CLEARANCE FROM STM.
	WTM	200	OBV=99.25 ±	
X16	STM	TRENCH DRAIN	INV=101.17 ±	
	WTM	200	OBV=98.43 ±	

NOTE: WATERMAIN TO HAVE MINIMUM 2.4m COVER AT ALL LOCATIONS. REFER TO SEWER CROSSING CHART FOR SPECIFIC INVERTS/OBVERTS AT CROSSINGS.

NOTE: PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY CONDITION, DEPTH AND LOCATION OF EXISTING SERVICES AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING STRUCTURES.

NOTE: INSTALL FOUR RUNS OF 3m–100mm# PERFORATED SUBDRAIN AT EACH CB AND CBMH PROPOSED IN HARD SURFACES. REFER TO DETAIL AND RECOMMENDATIONS IN THE LATEST GEOTECHNICAL REPORT BY PATERSON GROUP. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REVIEW THE LATEST COPY OF THE MENTIONED GEOTECHNICAL REPORT.

NOTE: CONTRACTOR TO REFER TO LATEST GEOTECHNICAL REPORT BY PATERSON GROUP FOR ADDITIONAL INFORMATION REGARDING PIPE BEDDING AND BACKFILL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REVIEW THE LATEST COPY OF THE GEOTECHNICAL REPORT.

NOTE: ALL SANITARY STRUCTURES TO BE EXTERNALLY WRAPPED WITH WATERPROOF MEMBRANE PLACED EXTERNALLY AROUND ALL PRECAST JOINTS, INCLUDING JOINTS BELOW THE MH FRAME AND COVER, WITH A MINIMUM 300mm WIDE STRIP. SANITARY SEWER PIPES, PIPE JOINTS, AND CONNECTIONS SHALL BE DESIGNED TO WITHSTAND A PRESSURE OF AT LEAST 45 PSI WITHOUT LEAKAGE. SANITARY SEWERS SHALL MEET REQUIREMENTS OF OPSS 410 FOR LASER PROFILE OR MANDREL DEFLECTION TESTING OF PIPE SEWERS, LOW PRESSURE AIR TESTING (35 kPA) AND INFILTRATION TESTING (ALLOWABLE INFILTRATION SHALL BE 0.075 L/mm DIA/100m OF PIPE SEWER/HOUR).

GEODETIC BM ELEV. = m
REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m
REFER TO ABOVE.

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

NOTE:

1. **PROPERTY LINE IS APPROXIMATE ONLY AND SHOULD NOT BE USED FOR DETERMINING SETBACKS OR LAYOUT.**
2. **EXISTING TOPOGRAPHICAL INFORMATION PROVIDED BY STANTEC, DATED JANUARY 23, 2026.**
3. **ALL MVCA LINEWORK SHOWN ON THIS PLAN IS TAKEN FROM SHAPEFILE PROVIDED BY STANTEC AND IS APPROXIMATE ONLY.**
4. **INVERTS DENOTED WITH "±" ARE TAKEN FROM AS–BUILT PLAN AND PROFILE DRAWINGS COMPLETED BY ISI GROUP, DATED OCTOBER 7, 2015, AND GENERAL PLAN OF SERVICES PLAN PREPARED BY ISI GROUP, DATED AUGUST 21, 2013 AND ARE CONSIDERED APPROXIMATE ONLY. CONTRACTOR TO FIELD VERIFY AND REPORT ANY DISCREPANCIES TO ENGINEER.**
5. **THIS PLAN IS PART OF A SET OF PLANS WHICH COMPRISE OF THE FOLLOWING: C1.1, C1.2, C2.0, C2.1, C2.2, C2.3, C2.4, C2.5 AND C2.6.**

No.	REVISION	BY	YYYY-MM-DD
3	RE-ISSUED FOR SITE PLAN CONTROL	AXS	2026-10-30
2	ISSUED FOR PRICING	AXS	2026-09-22
1	ISSUED FOR SITE PLAN CONTROL	AXS	2026-04-01

MTE Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER L.E. INGRAM 100120779 2026-10-30 PROVINCE OF ONTARIO

CLIENT
IRONCLAD DEVELOPMENTS
101-5715B SYMINGTON RD 2OE SPRINGFIELD, MB

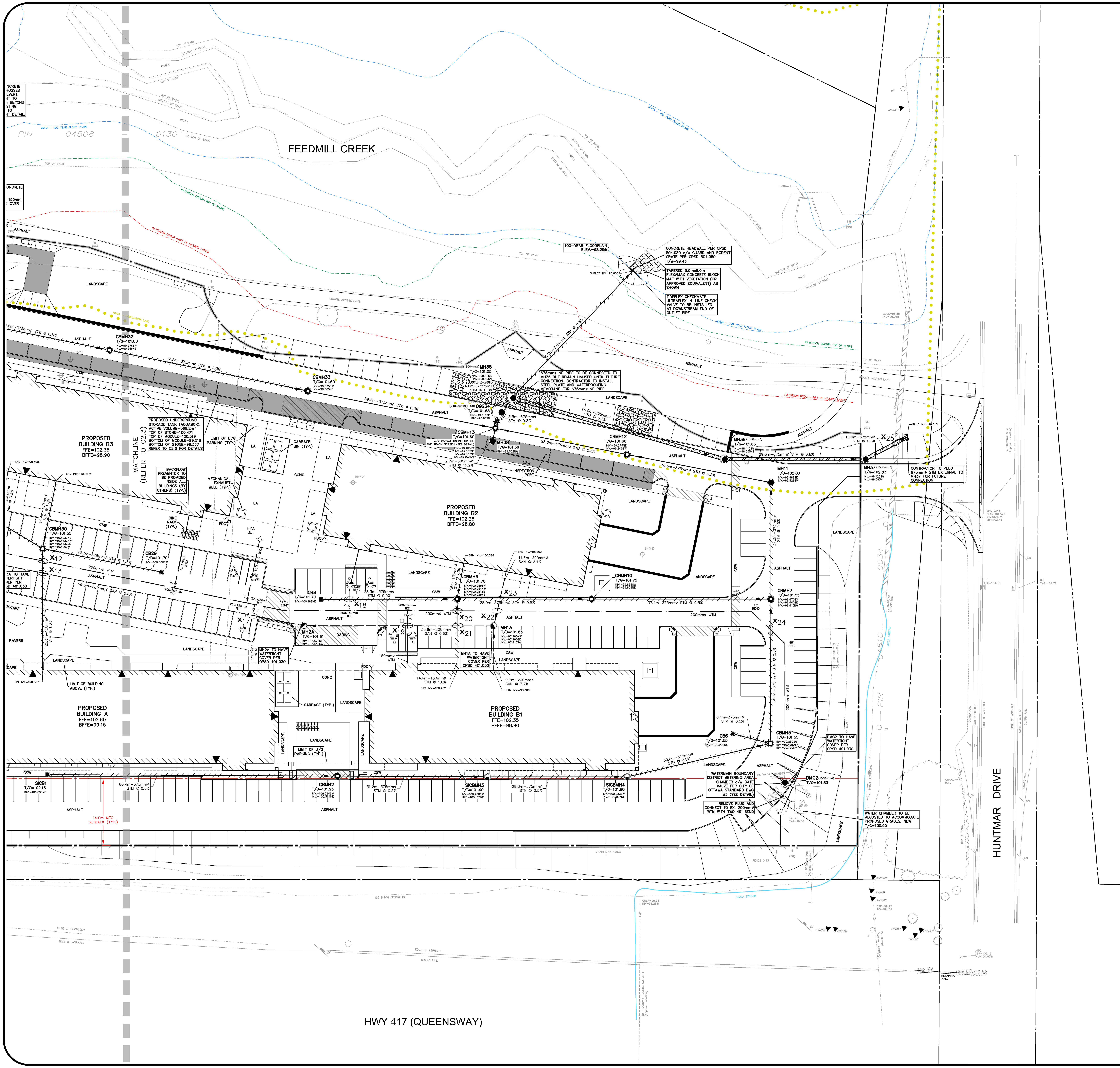
PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

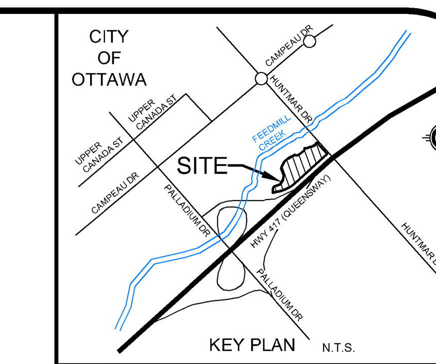
DRAWING
SITE SERVICING PLAN 1

Design By: DXN / LEI	Project Manager: A. SAWATSKY
Drawn By: DAC	Project No.: 65860_001
Checked By: DXN / LEI	Drawing No.: C2.3
Date (yyyy-mm-dd): 2026-02-12	Sheet 6 of 9
Scale: 1:250	

FILE # D07-12-26-0037
PLAN #. 19483

October 30, 2026 - 11:57:07 AM - Plotted By: Dan Na





GEODETIC BM ELEV. = m
REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m
REFER TO ABOVE.

NOTE TO CONTRACTOR :

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THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

NOTE:
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3. ALL MVCA LINEWORK SHOWN ON THIS PLAN IS TAKEN FROM SHAPEFILE PROVIDED BY STANTEC AND IS APPROXIMATE ONLY.
4. INVERTS DENOTED WITH "±" ARE TAKEN FROM AS-BUILT PLAN AND PROFILE DRAWINGS COMPLETED BY IBI GROUP, DATED OCTOBER 7, 2015, AND GENERAL PLAN OF SERVICES PLAN PREPARED BY IBI GROUP, DATED AUGUST 21, 2013 AND ARE CONSIDERED APPROXIMATE ONLY. CONTRACTOR TO FIELD VERIFY AND REPORT ANY DISCREPANCIES TO ENGINEER.
5. THIS PLAN IS PART OF A SET OF PLANS WHICH COMPRISE OF THE FOLLOWING: C1.1, C1.2, C2.0, C2.1, C2.2, C2.3, C2.4, C2.5 AND C2.6.

LEGEND OF EXISTING FEATURES

- SITE BOUNDARY
- MVCA SHAPEFILE (APPROX. ONLY) – REGULATION LIMIT
- MVCA SHAPEFILE (APPROX. ONLY) – 100 YEAR FLOODPLAIN
- PATERSON GROUP – TOP OF SLOPE
- PATERSON GROUP – LIMIT OF HAZARD LANDS
- MVCA CROSS SECTION MAP PDF (APPROX. ONLY) – STREAM
- Ex. 300mmø SAN, Ex. MH — EXISTING SANITARY SEWER
- Ex. 200mmø WTM, Ex. HYD. SET — EXISTING WATERMAIN
- Ex. 375mmø STM, Ex. MH — EXISTING STORM SEWER
- EXISTING FENCE
- 14.0m MTO SETBACK

LEGEND OF PROPOSED FEATURES

- (TOP) (BOTTOM) — EMBANKMENT
- MH 14.6m–200mmø SAN @ 1.5% — SANITARY SEWER
- MH 21.3m–300mmø STM @ 1.3% — STORM SEWER
- 200mmø WTM V. HYD. SET TEE — WATERMAIN
- PROPOSED BUILDING
- OVERHEAD DOOR
- MAN DOOR
- (FLUSH CURB) (DROP CURB) — CONCRETE CURB
- RETAINING WALL
- SHALLOW PIPE INSULATION (SEE DETAIL)
- X_1 — SEWER CROSSING (REFER TO CROSSING CHART)

NOTE: PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY CONDITION, DEPTH AND LOCATION OF EXISTING SERVICES AND NOTIFY DESIGN ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING STRUCTURES.

NOTE: INSTALL FOUR RUNS OF 3m–100mmø PERFORATED SUBDRAIN AT EACH CB AND CBMH PROPOSED IN HARD SURFACES. REFER TO DETAIL AND RECOMMENDATIONS IN THE LATEST GEOTECHNICAL REPORT BY PATERSON GROUP. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REVIEW THE LATEST COPY OF THE MENTIONED GEOTECHNICAL REPORT.

NOTE: WATERMAIN TO HAVE MINIMUM 2.4m COVER AT ALL LOCATIONS. REFER TO SEWER CROSSING CHART FOR SPECIFIC INVERTS/OBVERTS AT CROSSINGS.

NOTE: CONTRACTOR TO REFER TO LATEST GEOTECHNICAL REPORT BY PATERSON GROUP FOR ADDITIONAL INFORMATION REGARDING PIPE BEDDING AND BACKFILL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REVIEW THE LATEST COPY OF THE GEOTECHNICAL REPORT.

SEWER CROSSING CHART

NOTE:
1) Maintain minimum 0.5m vertical clearance between all watermains and sewers. Where watermain is deflected, ensure 2.4m cover is achieved or watermain is insulated.
2) Maintain vertical clearance at all other crossings.
3) Existing and proposed watermain depths are approximate only. Notify Design Engineer of any discrepancies.
4) Contractor to verify all existing inverts prior to product ordering. Notify Design Engineer of any discrepancies.

CROSSING #	SEWER TYPE	SEWER SIZE (mmø)	CROSSING ELEVATION	NOTES
X17	WTM	150	INV=99.50 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=97.676	
X18	STM	375	INV=100.172	ENSURE WTM HAS MIN. 2.4m COVER AND MAINTAIN MIN. 0.5m VERTICAL CLEARANCE FROM STM.
	WTM	150	OBV=99.30 ±	
X19	WTM	150	INV=99.50 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=97.902	
X20	STM	150	INV=100.282	ENSURE WTM HAS MIN. 2.4m COVER AND MAINTAIN MIN. 0.5m VERTICAL CLEARANCE FROM STM.
	WTM	200	OBV=99.30 ±	
X21	STM	150	INV=100.312	
	SAN	200	OBV=97.965	
X22	WTM	200	INV=99.15 ±	ENSURE WTM HAS MIN. 2.4m COVER.
	SAN	200	OBV=98.228	
X23	STM	375	INV=99.985	
	SAN	200	OBV=98.276	
X24	STM	375	INV=99.672	MAINTAIN MIN. 0.5m VERTICAL CLEARANCE BETWEEN STM AND WTM. DEFLECT WTM UNDER STM AS REQUIRED.
	WTM	200	OBV=99.10 ±	
X25	STM	675	INV=98.033	
	Ex. STM	800	Ex. OBV=97.24±	

NOTE: ALL SANITARY STRUCTURES TO BE EXTERNALLY WRAPPED WITH WATERPROOF MEMBRANE PLACED EXTERNALLY AROUND ALL PRECAST JOINTS, INCLUDING JOINTS BELOW THE MH FRAME AND COVER, WITH A MINIMUM 300mm WIDE STRIP. SANITARY SEWER PIPES, PIPE JOINTS, AND CONNECTIONS SHALL BE DESIGNED TO WITHSTAND A PRESSURE OF AT LEAST 45 PSI WITHOUT LEAKAGE. SANITARY SEWERS SHALL MEET REQUIREMENTS OF OPSS 410 FOR LASER PROFILE OR MANDREL DEFLECTION TESTING OF PIPE SEWERS, LOW PRESSURE AIR TESTING (35 KPA) AND INFILTRATION TESTING (ALLOWABLE INFILTRATION SHALL BE 0.075 L/mm DIA/100m OF PIPE SEWER/HOUR).

No.	REVISION	BY	YYYY-MM-DD
3.	RE-ISSUED FOR SITE PLAN CONTROL	AXS	2026-10-30
2.	ISSUED FOR PRICING	AXS	2026-09-22
1.	ISSUED FOR SITE PLAN CONTROL	AXS	2026-04-01

MTE
Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER
L. E. INGRAM
100120779
2026-10-30
PROVINCE OF ONTARIO

CLIENT
IRONCLAD DEVELOPMENTS
101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

DRAWING
SITE SERVICING PLAN 2

Design By	DXN / LEI	Project Manager	A. SAWATSKY
Drawn By	DAC	Project No.	65860_001
Checked By	DXN / LEI	Drawing No.	C2.4
Date (yyyy-mm-dd)	2026-02-12		
Scale	1:250	Sheet 7 of 9	

FILE # D07-12-26-0037
PLAN #: 19483

MTE File Path: P:\P\65860_001\65860_001-C2
October 30, 2026 - 11:40:36 AM - Plotted By: Dain Na

CONSTRUCTION NOTES AND SPECIFICATIONS

1. GENERAL

1.1. THESE PLANS ARE NOT FOR CONSTRUCTION UNTIL SIGNED AND SEALED BY ENGINEER AND APPROVED BY THE CITY OF OTTAWA.

1.2. THESE PLANS ARE TO BE USED FOR SERVICING AND GRADING ONLY; ANY OTHER INFORMATION SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. THESE PLANS MUST NOT BE USED TO SITE THE PROPOSED BUILDING.

1.3. NO CHANGES ARE TO BE MADE WITHOUT THE APPROVAL OF THE DESIGN ENGINEER.

1.4. THESE PLANS ARE NOT TO BE REPRODUCED IN WHOLE OR IN PART WITHOUT THE PERMISSION OF MTE CONSULTANTS INC.

1.5. PRIOR TO CONSTRUCTION, THE CONTRACTOR MUST:

1.5.1. CHECK AND VERIFY ALL EXISTING CONDITIONS, LOCATIONS AND ELEVATIONS WHICH INCLUDES BUT IS NOT LIMITED TO THE BENCHMARK ELEVATIONS, EXISTING SERVICE CONNECTIONS AND EXISTING INVERTS. REPORT ALL DISCREPANCIES TO THE ENGINEER PRIOR TO PROCEEDING.

1.5.2. OBTAIN ALL UTILITY LOCATES AND REQUIRED PERMITS AND LICENSES.

1.5.3. VERIFY THAT THE FINISHED FLOOR ELEVATIONS AND BASEMENT FLOOR ELEVATIONS (WHICH MAY APPEAR ON THIS PLAN) COMPLY WITH THE FINAL ARCHITECTURAL DRAWINGS.

1.5.4. CONFIRM ALL DRAWINGS USED FOR CONSTRUCTION ARE OF THE MOST RECENT REVISION.

1.6. THE CONTRACTOR SHALL ASSUME ALL LIABILITY FOR ANY DAMAGE TO EXISTING WORKS. THE CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ALL DAMAGED AND/OR DISTURBED PROPERTY WITHIN THE MUNICIPAL RIGHT-OF-WAY TO CITY OF OTTAWA STANDARDS.

1.7. ALL WORKS ON A MUNICIPAL RIGHT-OF-WAY WITH THE EXCEPTION OF WATERMAIN TAPPING, TO BE INSTALLED BY THE OWNER'S CONTRACTOR AT OWNER'S EXPENSE IN ACCORDANCE WITH THE CITY OF OTTAWA'S "PROCEDURE FOR OFF-SITE WORKS BY PRIVATE CONTRACTOR". THE OWNER AND CONTRACTOR ARE TO ENSURE OFF-SITE WORKS PERMIT IS IN PLACE PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR RESTORATION OF ALL AFFECTED PROPERTY TO ORIGINAL CONDITION. ALL BOULEVARD AREAS SHALL BE RESTORED WITH 150mm TOPSOIL AND SOD OR AS SPECIFIED BY THE CITY OF OTTAWA.

1.8. ALL UNDERGROUND SERVICES ARE TO BE CONSTRUCTED IN FULL COMPLIANCE WITH THE ONTARIO PROVINCIAL BUILDING CODE (PART 7, PLUMBING), THE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS) AND THE REQUIREMENTS OF THE CITY OF OTTAWA; WHICH CODES AND REGULATIONS SHALL SUPERSEDE ALL OTHERS.

1.9. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ENGINEER 48 HRS PRIOR TO COMMENCING WORK TO ARRANGE FOR INSPECTION. ENGINEER TO DETERMINE DEGREE OF INSPECTION AND TESTING REQUIRED FOR CERTIFICATION OF UNDERGROUND SERVICE INSTALLATION AS MANDATED BY ONTARIO BUILDING CODE, DIVISION C, PART 1, SECTION 1.2.2, GENERAL REVIEW. FAILURE TO NOTIFY ENGINEER WILL RESULT IN EXTENSIVE POST CONSTRUCTION INSPECTION AT CONTRACTORS EXPENSE.

1.10. SANITARY AND STORM SEWERS AND SERVICES TO HAVE A MINIMUM 1.8m COVER TO TOP OF PIPE. WHERE COVER TO TOP OF PIPE IS DEFICIENT, CONTRACTOR SHALL INSTALL SHALLOW BURIED PIPE IN ACCORDANCE WITH APPLICABLE "SEWER PIPE INSULATION DETAIL" INDICATED IN DRAWING DETAILS. CONTACT DESIGN ENGINEER FOR "SEWER PIPE INSULATION DETAIL" IF REQUIRED.

1.11. FLEXIBLE SANITARY AND STORM SEWERS SHALL BE CONNECTED TO MANHOLES USING KOR-N-SEAL BOOTS OR APPROVED EQUIVALENT. RIGID SANITARY AND STORM SEWER CONNECTIONS TO MANHOLES SHALL BE GROUTED IN PLACE. ALL CONNECTIONS TO MANHOLES SHALL BE IN ACCORDANCE WITH OPSS 407. ANY CONNECTIONS TO CATCHBASINS SHALL BE GROUTED IN PLACE.

1.12. PLAN TO BE READ IN CONJUNCTION WITH DRAWING C1.1, C2.0, C2.1, C2.2, C2.3, C2.4, C2.5 AND C2.6 PREPARED BY MTE CONSULTANTS INC.

1.13. SITE PLAN INFORMATION TAKEN FROM PLAN PREPARED BY MCCALLUM SATHER DATED SEPTEMBER 3, 2026.

1.14. EXISTING TOPOGRAPHIC AND LEGAL INFORMATION TAKEN FROM PLAN PREPARED BY STANTEC, DATED JANUARY 23, 2026. MTE ASSUMES THAT ALL TOPOGRAPHICAL INFORMATION IS AN ACCURATE REPRESENTATION OF CURRENT CONDITIONS.

1.15. CONTRACTOR TO OBTAIN WRITTEN PERMISSION FROM ADJACENT PROPERTY OWNER PRIOR TO ENTERING UPON NEIGHBOURING LANDS TO UNDERTAKE ANY WORK. COPIES OF THESE LETTERS OF CONSENT SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS FOR APPROVAL PRIOR TO ANY WORK BEING PERFORMED. FAILURE TO COMPLY WITH THE ABOVE IS AT CONTRACTOR'S OWN RISK.

1.16. RETAINING WALLS TO BE DESIGNED BY OTHERS. FOR WALLS EXCEEDING 1.0m IN HEIGHT, SHOP DRAWINGS MUST BE SUBMITTED FOR REVIEW AND APPROVAL AND BUILDING PERMIT MUST BE OBTAINED. WALLS OVER 0.6m IN HEIGHT REQUIRE HIGH SIDE OF RETAINING WALLS TO BE BACKFILLED WITH FREE DRAINING MATERIAL.

1.17. ALL RETAINING WALLS 1.0m IN HEIGHT AND OVER MUST BE APPROVED BY THE CBO. ALL RETAINING WALLS LESS THAN 1.0m IN HEIGHT MUST BE APPROVED BY PLANNING.

1.18. SITE SERVICING CONTRACTOR TO TERMINATE ALL SERVICES 1 METRE FROM FOUNDATION WALL.

1.19. FILTER FABRIC TO BE TERRAFIX 270R OR APPROVED EQUAL.

1.20. MAXIMUM GRASSED SLOPE TO BE 3:1. SLOPES GREATER THAN 3:1 TO BE LANDSCAPED WITH LOW MAINTENANCE GROUND COVER.

1.21. SIDE SLOPES OF ALL STOCKPILES OR EXTRACTION FACES TO BE MAINTAINED AT 70 DEGREES OR LESS BETWEEN EARLY APRIL AND LATE AUGUST TO DETER BANK SWALLOWS FROM NESTING.

1.22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD INCLUDING THE SUPPLY, INSTALLATION AND REMOVAL OF ALL NECESSARY SIGNALS, DELINEATORS, MARKERS, AND BARRIERS. ALL SIGNS, ETC. SHALL CONFORM TO THE STANDARDS OF THE CITY OF OTTAWA AND THE MTO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

1.23. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

1.24. CONTRACTOR TO MAINTAIN A 'CONFINED TRENCH CONDITION' IN ALL SEWER AND SERVICE TRENCHES.

1.25. CONTRACTOR TO REFER TO LATEST GEOTECHNICAL REPORT BY PATERSON GROUP FOR ADDITIONAL INFORMATION REGARDING PIPE BEDDING AND BACKFILL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND REVIEW THE LATEST COPY OF THE GEOTECHNICAL REPORT.

1.26. FOLLOWING COMPLETION OF PROPOSED WORKS AND PRIOR TO OCCUPANCY INSPECTION, ALL STORM AND SANITARY SEWERS ARE TO BE FLUSHED, AND ALL CATCHBASIN AND CATCHBASIN MANHOLE SUMPS ARE TO BE CLEANED OF DEBRIS AND SILT.

1.27. CONTRACTOR TO COMPLY WITH O.REG. 406/19 FOR MANAGEMENT OF EXCESS SOILS AS APPLICABLE.

2. STORM SEWERS

2.1. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030, 802.031, OR 802.032. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. BEDDING MATERIAL AND COVER MATERIAL TO BE GRANULAR "A". TRENCH BACKFILL TO BE NATIVE MATERIAL REPLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

2.2. STORM SEWERS 200mmø TO 375mmø SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR35 ASTM-D3034 OR RIBBED PVC SEWER PIPE CSA B182.4-M90 ASTM-F794 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS. RIBBED PVC NOT TO BE USED WITHIN RIGHT-OF-WAY.

2.3. MANHOLES AND MANHOLE CATCHBASINS TO BE 1200mmø PRECAST WITH ALUMINIUM STEPS AT 300mm CENTRES AS PER OPSD 701.010 UNLESS OTHERWISE SPECIFIED.

2.4. CATCHBASINS TO BE 600mm SQUARE PRECAST AS PER OPSD 705.010.

2.5. SIDE INLETS TO BE PER OPSD 400.080.

2.6. ALL STORM STRUCTURES TO HAVE A MINIMUM 600mm DEEP SUMP. WHEN THE STRUCTURE INCLUDES THE INSTALLATION OF A SNOUT (OR APPROVED EQUIVALENT) THE SUMP DEPTH TO BE MIN 2.5 TIMES THE OUTLET PIPE DIAMETER SIZE.

2.7. MANHOLE AND CATCHBASIN, FRAMES, GRATES, CASTINGS AND LIDS TO BE QUALITY GREY IRON ASTM A48 CLASS 30B.

2.8. STORM MANHOLE LIDS TO BE PER OPSD 401.010 – TYPE 'A' CATCHBASIN AND CATCHBASIN MANHOLE GRATES TO BE PER OPSD 400.100. DITCH INLET CATCHBASIN GRATES TO BE PER OPSD 403.010.

2.9. ADJUSTMENT UNITS FOR STORM STRUCTURES TO BE IN ACCORDANCE WITH OPSD 704.010 OR 704.011.

2.10. STORM SEWERS AND SERVICES TO HAVE MINIMUM 1.8m COVER TO TOP OF PIPE. WHERE COVER TO TOP OF PIPE IS DEFICIENT, CONTRACTOR SHALL INSTALL SHALLOW BURIED SEWER PIPE IN ACCORDANCE WITH APPLICABLE "SEWER PIPE INSULATION DETAIL" INDICATED IN DRAWING DETAILS. INSULATION SHALL BE RIGID EXTRUDED POLYSTYRENE (EPS) BOARD, WITH A THICKNESS SUFFICIENT TO PROVIDE AN RSI-1.76 (R10) INSULATING FACTOR (TYPICALLY 50-65mm). INSULATION BOARD WIDTH SHALL BE 1.8m FOR UP TO 200mm NOMINAL PIPE DIAMETER, 2.4m FOR 201mm-800mm DIAMETER AND 3.0m FOR 801mm-1400mm. ALL JOINTS SHALL BE TIGHTLY BUTTED TOGETHER (TAPE OR OTHERWISE SECURE JOINTS TO RESIST MOVEMENT DURING BACKFILL COVER). RIGID EPS BOARD SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 140kPa (20psi), AND A MAXIMUM WATER ABSORPTION RATE OF 2.0% BY VOLUME. ACCEPTABLE PRODUCTS ARE DOW STYROFOAM-SM OR -HI (FULL LINE), OWENS CORNING FOAMULAR (200, 250, OR HIGHER), PLASTISPAN HD-M28 OR OTHER ENGINEER-APPROVED EQUIVALENT.

2.11. UNDER NO CIRCUMSTANCES SHALL THE BUILDING FOUNDATION DRAINS BE CONNECTED DIRECTLY TO THE STORM SEWER SYSTEM.

2.12. ALL WEEPING TILE DRAINAGE TO BE PUMPED TO THE STORM SEWER SYSTEM.

3. SANITARY SEWERS

3.1. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. BEDDING MATERIAL AND COVER MATERIAL TO BE GRANULAR "A". TRENCH BACKFILL TO BE NATIVE MATERIAL REPLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

3.2. SANITARY SEWERS 200mmø TO 600mmø INCLUSIVE SHALL BE POLYVINYL CHLORIDE (PVC) PIPE DR35 ASTM-D3034 WITH INTEGRAL BELL AND SPIGOT UTILIZING FLEXIBLE ELASTOMERIC SEALS.

3.3. MANHOLES TO BE 1200mmø PRECAST WITH ALUMINIUM STEPS AT 300mm CENTRES AS PER OPSD 701.010 UNLESS OTHERWISE SPECIFIED.

3.4. MANHOLES TO BE BENCHED PER OPSD 701.021.

3.5. SANITARY MANHOLE LIDS TO BE PER OPSD 401.010 –TYPE 'A'. SANITARY MANHOLE LIDS TO BE WATER TIGHT PER OPSD 401.030 WHEN LOCATED IN SWM PONDING AREA.

3.6. MANHOLE FRAMES, CASTINGS AND LIDS TO BE QUALITY GREY IRON ASTM A48 CLASS 30B.

3.7. ADJUSTMENT UNITS FOR SANITARY STRUCTURES TO BE IN ACCORDANCE WITH OPSD 704.010 OR 704.011.

3.8. SANITARY SEWERS AND SERVICES TO HAVE MINIMUM 1.8m COVER ON TOP OF PIPE. WHERE COVER TO TOP OF PIPE IS DEFICIENT, CONTRACTOR SHALL INSTALL SHALLOW BURIED PIPE IN ACCORDANCE WITH APPLICABLE "SEWER PIPE INSULATION DETAIL" INDICATED IN DRAWING DETAILS. INSULATION SHALL BE RIGID EXTRUDED POLYSTYRENE (EPS) BOARD, WITH A THICKNESS SUFFICIENT TO PROVIDE AN RSI-1.76 (R10) INSULATING FACTOR (TYPICALLY 50-65mm). INSULATION BOARD WIDTH SHALL BE 1.8m FOR UP TO 200mm NOMINAL PIPE DIAMETER, 2.4m FOR 201mm-800mm DIAMETER AND 3.0m FOR 801mm-1400mm. ALL JOINTS SHALL BE TIGHTLY BUTTED TOGETHER (TAPE OR OTHERWISE SECURE JOINTS TO RESIST MOVEMENT DURING BACKFILL PLACEMENT). RIGID EPS BOARD SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 140kPa (20psi), AND A MAXIMUM WATER ABSORPTION RATE OF 2.0% BY VOLUME. ACCEPTABLE PRODUCTS ARE DOW STYROFOAM-SM OR -HI (FULL LINE), OWENS CORNING FOAMULAR (200, 250, OR HIGHER), PLASTISPAN HD-M28 OR OTHER ENGINEER-APPROVED EQUIVALENT.

3.9. CONTRACTOR RESPONSIBLE FOR TESTING OF SANITARY SEWERS IN ACCORDANCE WITH OPSS 409.

4. WATERMAINS

4.1. PIPE BEDDING FOR RIGID PIPE TO BE CLASS "B" AS PER OPSD 802.030. PIPE BEDDING FOR FLEXIBLE PIPE TO BE AS PER OPSD 802.010. BEDDING MATERIAL AND COVER MATERIAL TO BE GRANULAR "A". TRENCH BACKFILL TO BE NATIVE MATERIAL REPLACED IN 300mm LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.

4.2. WATERMAINS 100mmø AND LARGER SHALL BE PVC C900 CLASS 235 OR GREY OR DUCTILE IRON INSTALLED WITH MINIMUM 2.0 METRES OF COVER. FITTINGS 100mmø AND LARGER SHALL BE PVC CLASS 235 (DR18) CSA B137.3 OR GREY OR DUCTILE IRON CONFORMING TO AWWA C110/A21.10 OR COMPACT DUCTILE IRON CONFORMING TO AWWA C153/A21.53.

4.3. WATERMAIN FITTINGS TO BE SUPPLIED WITH MECHANICAL JOINT RESTRAINTS. FOR WATERMAIN PIPE SIZES 150mmø OR LESS ALL PIPE JOINTS TO BE RESTRAINED WITHIN 5.0m FROM ALL FITTINGS, IN EACH DIRECTION, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS. FOR WATERMAIN PIPE SIZES GREATER THAN 150mmø ALL PIPE JOINTS TO BE RESTRAINED WITHIN 10.0m FROM ALL FITTINGS, IN EACH DIRECTION, UNLESS SHOWN OTHERWISE ON THE CONTRACT DRAWINGS. ALL TEES TO HAVE MINIMUM 2.0m SOLID PIPE LENGTH ON EACH RUN OF THE TEE, OR PROVIDE A THRUST BLOCK PER OPSD 1103.010.

4.4. ALL METALLIC FITTINGS (EXCLUDING CURB/MAIN STOP AND BRASS FITTINGS) AND APPURTENANCES INCLUDING SADDLES, VALVES, TEES, BENDS ETC ARE TO BE WRAPPED WITH AN APPROVED PETROLATUM SYSTEM CONSISTING OF PASTE, MASTIC AND TAPE. PARTICULAR ATTENTION SHALL BE PAID TO ANODE INSTALLATION. CONTRACTOR TO REFER TO THE MOST RECENT EDITION OF THE CITY OF OTTAWA AND AREA MUNICIPALITIES DESIGN GUIDELINES AND SUPPLEMENTAL SPECIFICATIONS FOR MUNICIPAL SERVICES.

4.5. WATERMAIN VALVES 100mmø AND LARGER SHALL BE AS PER AWWA C509 – MUELLER A2360-23 OR APPROVED EQUIVALENT (OPEN LEFT) INCLUDING VALVE BOX AND 2.3Kg ANODE INCLUDING ANODE PROTECTION INSTALLED PER CITY OF OTTAWA STANDARDS.

4.6. PVC WATERMAIN SHALL HAVE TWU STRANDED COPPER, AWG8 TRACER WIRE STRAPPED TO TOP AT 5 METRE INTERVALS. TRACER WIRE SHALL BE BROUGHT TO THE SURFACE AT ALL HYDRANTS AND CAD WELDED TO THE LOWER FLANGE OF THE HYDRANT.

4.7. HYDRANTS SHALL BE CANADA VALVE "CENTURY" OR APPROVED EQUIVALENT WITH 2-64mm HOSE CONNECTIONS INCLUDING 5.5Kg ANODE.

4.8. MAIN STOPS, CURB STOPS AND COUPLINGS SHALL BE AWWA C-800 COPPER TO COPPER FLANGED OR COMPRESSION CONNECTION OR APPROVED EQUIVALENT.

4.9. SERVICE BOXES TO BE FERGUSON ECLIPSE TYPE FIGURE 222 SIZE NO. 9 OR APPROVED EQUIVALENT COMPLETE WITH ROD AND PLUG.

4.10. WATERMAINS AND SERVICES MAY BE PLACED IN THE SAME TRENCH WITH STORM OR SANITARY SEWERS OR SERVICES WITH LESS THAN 2.5m HORIZONTAL SEPARATION ONLY IF A MINIMUM VERTICAL SEPARATION OF 500mm IS MAINTAINED BETWEEN THE WATERMAIN OR SERVICE AND ANY OTHER PIPE AND THE WATERMAIN IS INSTALLED ABOVE THE STORM OR SANITARY SEWER IN ACCORDANCE WITH SECTION 7.3.5.6.(2)(a)(i) OF THE ONTARIO BUILDING CODE.

4.11. ALL WATERMAINS AND SERVICES TO HAVE MINIMUM 2.4m COVER ON TOP OF PIPE. WHERE COVER TO TOP OF PIPE IS DEFICIENT, CONTRACTOR SHALL CONTACT DESIGN ENGINEER FOR "WATER PIPE INSULATION DETAIL".

4.12. ALL WATERMAIN TO BE PRESSURE TESTED IN ACCORDANCE WITH OPSS 441. DISINFECT ALL WATERMAIN IN ACCORDANCE WITH AWWA C 651-99 INCLUDING CHLORINATION, BACKFLOW PREVENTOR AND 24 HOUR DUPLICATE SAMPLING. ALL TESTING AND DISINFECTION TO BE COMPLETED UNDER THE SUPERVISION OF THE ENGINEER. **(CONTRACTOR TO SUBMIT WATER COMMISSIONING PLAN IN ACCORDANCE WITH DGSSMS. THIS PLAN MUST BE APPROVED BY THE CITY OF OTTAWA PRIOR TO ANY WATERMAIN WORK).**

4.13. PRIOR TO OCCUPANCY, CONTRACTOR MUST COMMISSION FIRE FLOW TEST FOR PRIVATE ON-SITE HYDRANTS. PROVIDE RESULTS TO DESIGN ENGINEER.

5. EROSION AND SEDIMENT CONTROL

5.1. CONTRACTOR TO INSTALL EROSION CONTROL MEASURES AS SHOWN PRIOR TO CONSTRUCTION AND MAINTAIN IN GOOD CONDITION UNTIL CONSTRUCTION IS COMPLETED AND ALL DISTURBED GROUND SURFACES HAVE BEEN RESTABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE COVER.

5.2. ALL SEDIMENT CONTROL FENCING TO BE INSTALLED PRIOR TO ANY AREA GRADING, EXCAVATING OR DEMOLITION COMMENCING.

5.3. EROSION CONTROL FENCING TO BE INSTALLED AROUND BASE OF ALL STOCKPILES. ALL STOCKPILES TO BE KEPT 2.5m MINIMUM FROM PROPERTY LINE.

5.4. EROSION PROTECTION TO BE PROVIDED AROUND ALL STORM AND SANITARY MHs AND CBs.

5.5. CONSTRUCTION ACCESS (MUD MAT) TO BE PROVIDED ON-SITE AT ALL LOCATIONS WHERE CONSTRUCTION VEHICLES EXIT THE SITE. CONSTRUCTION ACCESS (MUD MAT) SHALL BE A MINIMUM OF 3.0m WIDE, 15.0m LONG (LENGTH MAY VARY DEPENDING ON SITE LAYOUT) AND 0.3m DEEP AND SHALL CONSIST OF 200mm CLEAR STONE MATERIAL OR APPROVED EQUIVALENT. PROPOSED EROSION FENCING TO TIE INTO MUD MAT. CONTRACTOR TO ENSURE ALL VEHICLES LEAVE THE SITE VIA THE MUD MAT AND THAT THE MAT IS MAINTAINED IN A MANNER TO MAXIMIZE EFFECTIVENESS AT ALL TIMES.

5.6. ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. CONTRACTOR TO PROVIDE ALL ADDITIONAL EROSION CONTROL STRUCTURES.

5.7. EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN RESTABILIZED.

5.8. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE ENGINEER AND THE CITY OF OTTAWA'S DEPARTMENT OF PUBLIC WORKS.

5.9. CONTRACTOR TO CLEAN ROADWAY AND SIDEWALKS OF SEDIMENTS RESULTING FROM CONSTRUCTION TRAFFIC FROM THE SITE EACH DAY.

5.10. CONTRACTOR MUST REMOVE EROSION AND SEDIMENTATION FENCING PRIOR TO COMPLETION OF PROJECT. CONTRACTOR TO HAVE EROSION AND SEDIMENTATION FENCE INSPECTED WHEN VEGETATION HAS ESTABLISHED, BUT PRIOR TO FENCE BECOMING OVERGROWN. ENGINEER'S REPRESENTATIVE TO DETERMINE IF VEGETATION HAS REACHED THE CRITICAL POINT AND WILL THEN INSTRUCT CONTRACTOR TO REMOVE FENCE.

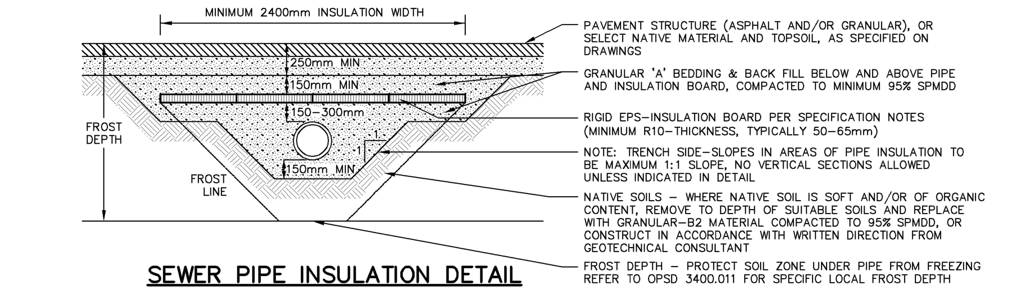
6. MAINTENANCE RECOMMENDATIONS

6.1. DURING THE COURSE OF CONSTRUCTION CONTRACTOR TO REMOVE SEDIMENT AND CONTAMINANTS FROM STORMWATER MANAGEMENT FACILITIES MONTHLY. FOLLOWING CONSTRUCTION CONTRACT COMPLETION, OWNER TO HIRE QUALIFIED CONTRACTOR TO REMOVE SEDIMENT AND CONTAMINANTS ANNUALLY AND REINSTATE STORMWATER MANAGEMENT FACILITIES ACCORDING TO THE DESIGN OUTLINED ON THIS PLAN, AS REQUIRED.

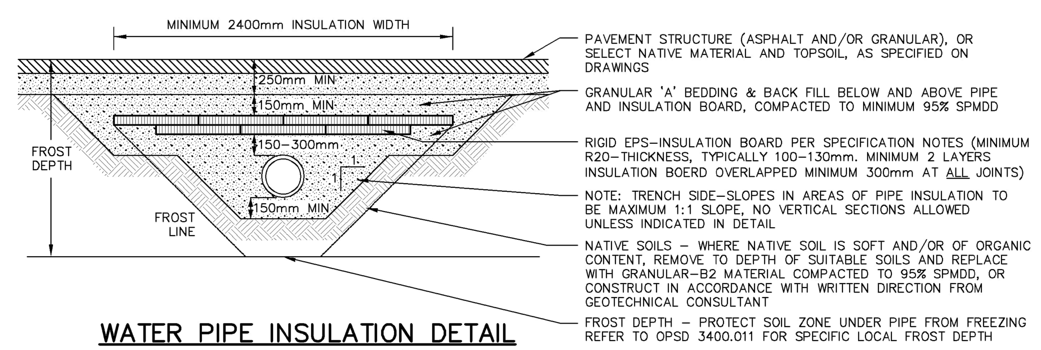
6.2. EROSION CONTROL STRUCTURES TO BE MONITORED REGULARLY AND ANY DAMAGE REPAIRED IMMEDIATELY. SEDIMENTS TO BE REMOVED WHEN ACCUMULATIONS REACH A MAXIMUM OF 1/3 THE HEIGHT OF THE FENCE.

6.3. OWNER'S REPRESENTATIVE TO MONITOR EROSION CONTROL STRUCTURES TO ENSURE FENCING IS INSTALLED AND MAINTENANCE IS PERFORMED TO CITY REQUIREMENTS.

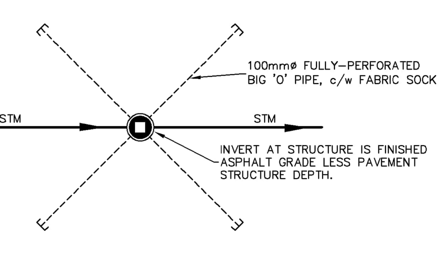
6.4. THE PROPOSED OIL GRIT SEPERATOR (OGS) WILL REQUIRE REGULAR ANNUAL MAINTENANCE. OWNER TO ENTER INTO A MAINTENANCE AGREEMENT WITH A SUITABLE CONTRACTOR TO COMPLETE THIS WORK.



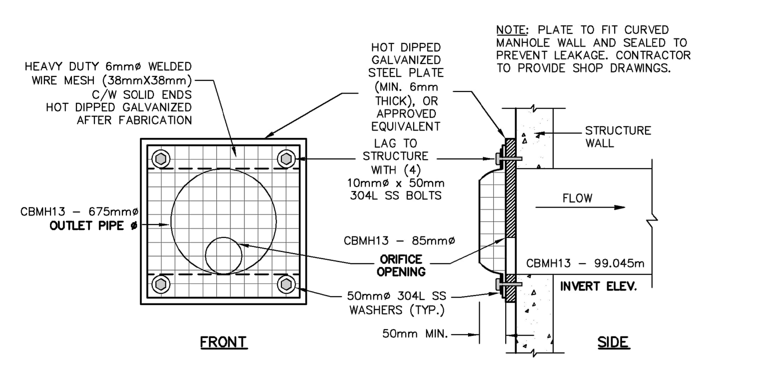
SEWER PIPE INSULATION DETAIL
FOR SEWER PIPES HAVING LESS THAN 1800mm COVER AND MINIMUM 615mm COVER
N.T.S.



WATER PIPE INSULATION DETAIL
FOR WATERMAINS AND FORCEMAINS HAVING LESS THAN 2400mm COVER AND MINIMUM 680mm COVER
N.T.S.



PAVEMENT SUBDRAIN DETAIL TYPICAL PLAN VIEW
N.T.S.

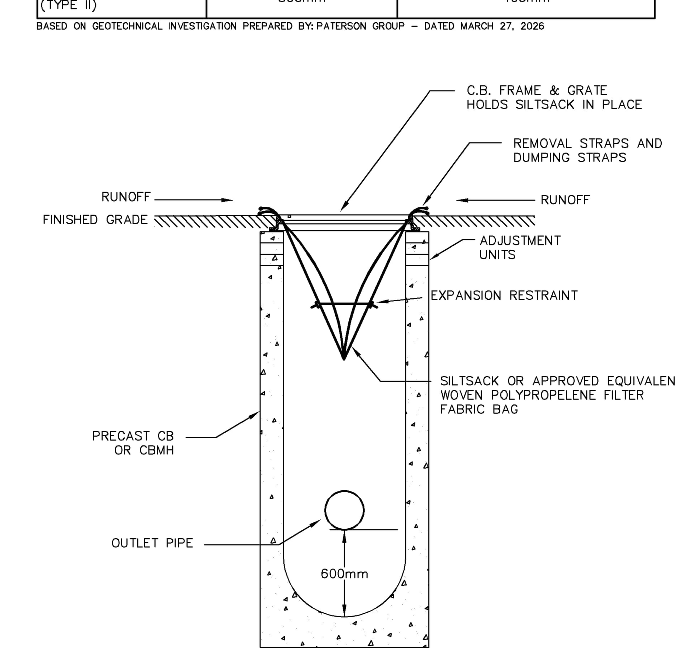


ON-LINE ORIFICE PLATE WITH TRASH SCREEN DETAIL
N.T.S.

PAVEMENT STRUCTURE

MATERIAL	RECOMMENDED THICKNESS	
	LIGHT VEHICLE PARKING	LOCAL ROADWAYS, ACCESS LANES, AND HEAVY VEHICLE PARKING
WEAR COURSE – SUPERPAVE 12.5-FC2 ASPHALTIC CONCRETE	50mm	40mm
UPPER BINDER COURSE – SUPERPAVE 19.0 ASPHALTIC CONCRETE	–	50mm
GRANULAR 'A' BASE	150mm	150mm
GRANULAR 'B' SUBBASE (TYPE II)	300mm	400mm

BASED ON GEOTECHNICAL INVESTIGATION PREPARED BY: PATERSON GROUP – DATED MARCH 27, 2026

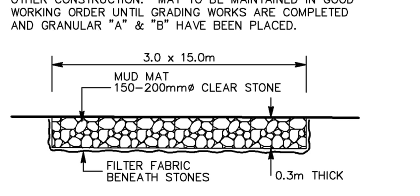


MAINTENANCE SCHEDULE

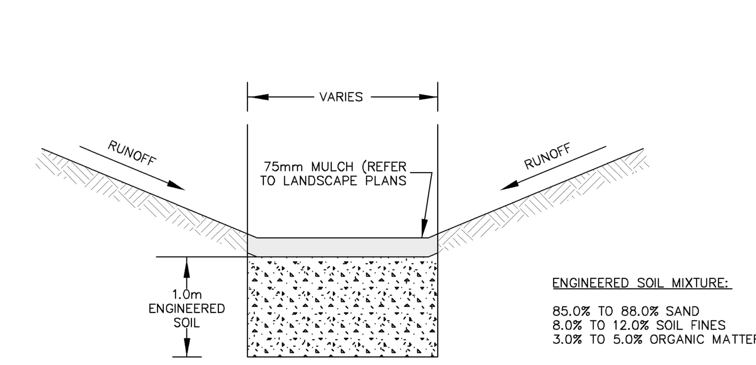
- INSPECT AFTER EVERY MAJOR RAIN EVENT.
- INSPECT EVERY 3 WEEKS MINIMUM.
- SILTSACK SHOULD NEVER BE OVER HALF FULL.
- FULL BAG CAN BE REMOVED, DUMPED, CLEANED AND REUSED (TO REMOVE INSERT 25mm REBAR INTO REMOVAL FLAP POCKETS) (TO DUMP INSERT 25mm REBAR INTO BOTH DUMPING STRAPS)

TEMPORARY SILTSACK SILTATION CONTROL IN CB
N.T.S.

DESIGNATED ACCESS FOR ALL CONSTRUCTION TRAFFIC.
INSTALL 'MUD MAT', AS PER DETAIL BELOW, PRIOR TO ANY OTHER CONSTRUCTION. MAT TO BE MAINTAINED IN GOOD WORKING ORDER UNTIL GRADING WORKS ARE COMPLETED AND GRANULAR "A" & "B" HAVE BEEN PLACED.



CONSTRUCTION ACCESS DETAIL
N.T.S.



ENGINEERED SOIL MIXTURE:
85.0% TO 88.0% SAND
8.0% TO 12.0% SOIL FINES
3.0% TO 5.0% ORGANIC MATTER

RAIN GARDEN CROSS-SECTION
N.T.S.

OCCUPANCY CERTIFICATION CHECKLIST

MTE CONSULTANTS INC. WILL ISSUE THE OCCUPANCY CERTIFICATION LETTER TO THE LOCAL BUILDING DEPARTMENT ONLY ONCE ALL NECESSARY PERIODIC SITE REVIEWS OF THE CONSTRUCTION WORK HAVE BEEN COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION C, PART 1, SECTION 1.2.2 GENERAL REVIEW, OF THE ONTARIO BUILDING CODE AND THE REQUIREMENTS OF REGULATION 260, MADE UNDER THE PROFESSIONAL ENGINEERS ACT, 1990, AS AMENDED AND AFTER ALL LISTED REQUIREMENTS ARE COMPLETED AND VERIFIED. ANY OUTSTANDING ITEMS OR DEFICIENCIES MAY RESULT IN DELAYS. THE CONTRACTOR/BUILDER/DEVELOPER MUST CONTACT MTE CONSULTANTS INC. 48-HRS IN ADVANCE TO SCHEDULE THE OCCUPANCY INSPECTION ONLY AFTER ALL LISTED REQUIREMENTS ARE FULLY COMPLETED AND/OR PROVIDED. FAILURE TO COMPLY MAY RESULT IN ADDED INSPECTIONS, FEES, AND DELAYS. ADDITIONAL REQUIREMENTS NOT LISTED MAY BE IMPOSED BASED ON SITE-SPECIFIC CONDITIONS AND LOCAL REQUIREMENTS.

SANITARY SERVICES/SEWERS
- ☐ MANHOLE AND CLEANOUT LIDS ARE ACCESSIBLE AND FREE OF DEBRIS
- ☐ ALL BENCHING AND PARGING ARE COMPLETED IN ACCORDANCE WITH OPSD 701.021 AND ARE CLEAN AND FREE OF DEBRIS
- ☐ SANITARY SERVICES AND SEWERS HAVE BEEN:
  - ☐ FLUSHED AND ARE FREE OF DEBRIS
  - ☐ AIR TESTED IN ACCORDANCE WITH OPSS 410
  - ☐ INSPECTED VIA CCTV IN ACCORDANCE WITH OPSS 409
  - ☐ MANDREL TESTING COMPLETED ON ALL FLEXIBLE PIPE

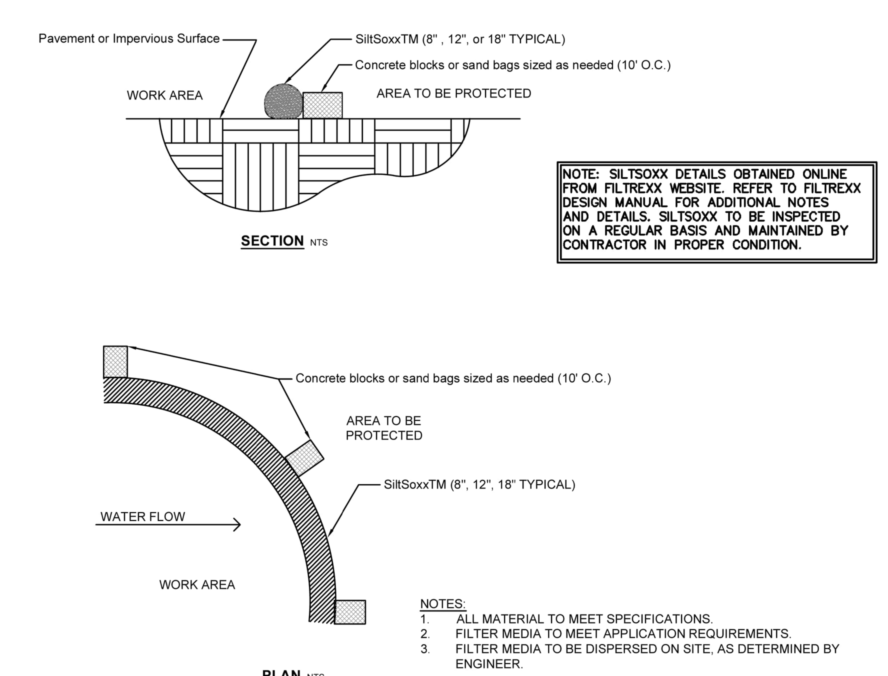
  ALL TESTING AND CCTV DOCUMENTATION HAS BEEN SUBMITTED TO THE DESIGN ENGINEER

STORM SERVICES/SEWERS
- ☐ MANHOLE, CATCHBASIN, CATCHBASIN MANHOLE, AREA DRAIN AND CLEANOUT GRATES/LIDS ARE ACCESSIBLE AND FREE OF DEBRIS
- ☐ ALL BENCHING AND PARGING ARE COMPLETED IN ACCORDANCE WITH OPSD 701.021 AND ARE CLEAN AND FREE OF DEBRIS
- ☐ ALL SUMPS ARE CLEAN AND FREE OF DEBRIS
- ☐ STORM SERVICES AND SEWERS HAVE BEEN:
  - ☐ FLUSHED AND ARE FREE OF DEBRIS
  - ☐ AIR TESTED IN ACCORDANCE WITH OPSS 410
  - ☐ INSPECTED VIA CCTV IN ACCORDANCE WITH OPSS 409
  - ☐ MANDREL TESTING COMPLETED ON ALL FLEXIBLE PIPE

  ALL TESTING AND CCTV DOCUMENTATION HAS BEEN SUBMITTED TO THE DESIGN ENGINEER
- ☐ SWM CONTROLS INCLUDING ORIFICE PLATES, OGS UNITS, TANKS, CHECK VALVES, ETC. HAVE BEEN INSTALLED IN ACCORDANCE WITH THE DESIGN DRAWINGS

WATER SERVICES/WATERMAINS
- ☐ ALL WATERMAIN TESTING INCLUDING PRESSURE TESTING, CHLORINATION, BACTERIOLOGICAL SAMPLING, AND OFFER TO CONNECT DOCUMENTATION HAS BEEN COMPLETED AND SUBMITTED TO THE DESIGN ENGINEER
- ☐ ALL CURB STOPS AND VALVES ARE ACCESSIBLE AND OPERATIONAL
- ☐ PROPOSED HYDRANT(S) ARE ACCESSIBLE AND OPERATIONAL; HYDRANT FLOW TEST(S) HAVE BEEN COMPLETED, AND RESULTS SUBMITTED TO THE DESIGN ENGINEER
- ☐ FIRE DEPARTMENT CONNECTION IS INSTALLED, ACCESSIBLE AND WITHIN 45 METRES OF A FIRE HYDRANT AND ASSOCIATED SIGNAGE IS INSTALLED
- ☐ DISTRICT METERING AREA CHAMBER, INCLUDING ALL INTERNAL PARTS, ARE INSTALLED IN ACCORDANCE WITH THE DETAIL AND/OR LOCAL REQUIREMENTS AND SPECIFICATIONS, ACCESSIBLE AND OPERATIONAL; PHOTOS OF THE INTERNAL STRUCTURE HAVE BEEN PROVIDED TO THE DESIGN ENGINEER

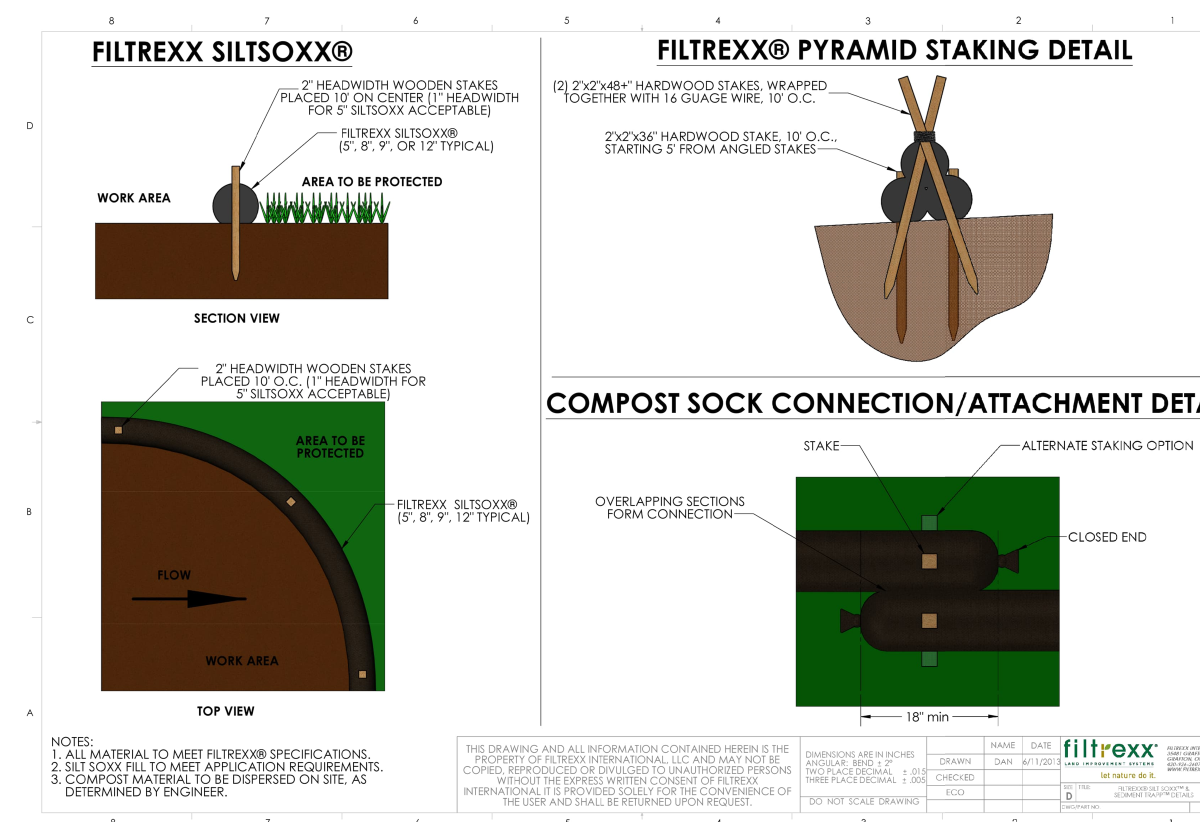
PEDESTRIAN SAFETY
- ☐ BARRIER FREE PATHS OF TRAVEL ARE INSTALLED AND FREE OF DEBRIS, INCLUDING PARKING STALLS, WALKWAYS AND DOORS ARE ACCESSIBLE
- ☐ ANY ZONES STILL UNDER CONSTRUCTION, INCLUDING MATERIAL AND EQUIPMENT STORAGE AREAS, ARE FULLY FENCED OFF AND INACCESSIBLE TO THE PUBLIC
- ☐ ALL GUARDS AND RAILINGS ON RETAINING WALLS, HEADWALLS, RAMPS, ETC. ARE INSTALLED, AS REQUIRED

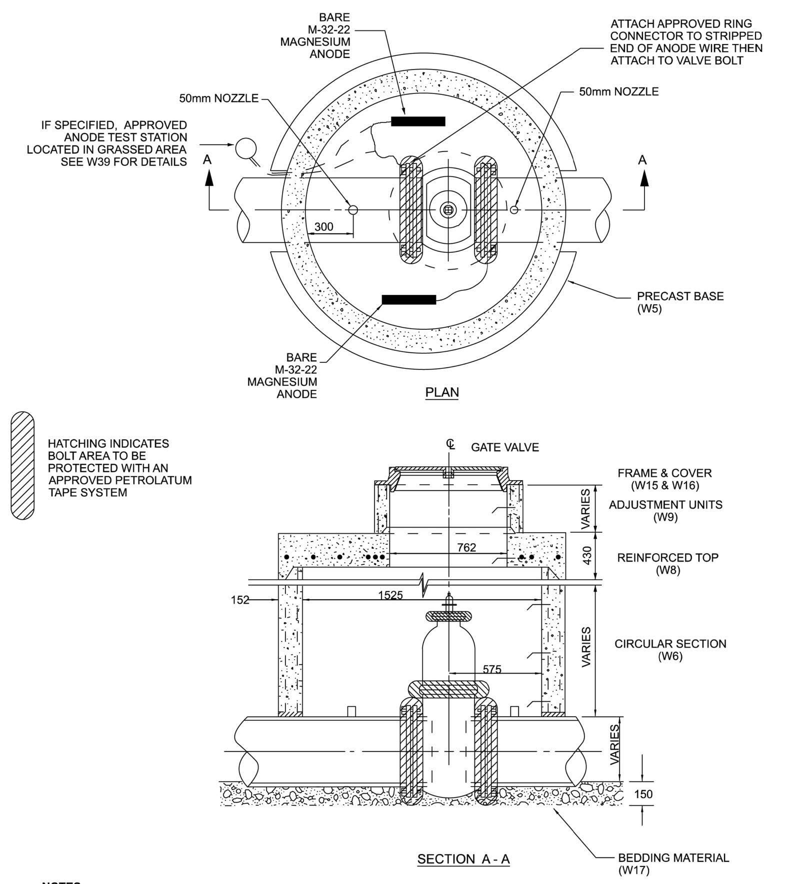


NOTE: SILTSOXX DETAILS OBTAINED ONLINE FROM FILTREXX WEBSITE. REFER TO FILTREXX DESIGN MANUAL FOR ADDITIONAL NOTES AND DETAILS. SILTSOXX TO BE INSPECTED ON A REGULAR BASIS AND MAINTAINED BY CONTRACTOR IN PROPER CONDITION.

NOTES:
1. ALL MATERIAL TO MEET SPECIFICATIONS.
2. FILTER MEDIA TO MEET APPLICATION REQUIREMENTS.
3. FILTER MEDIA TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

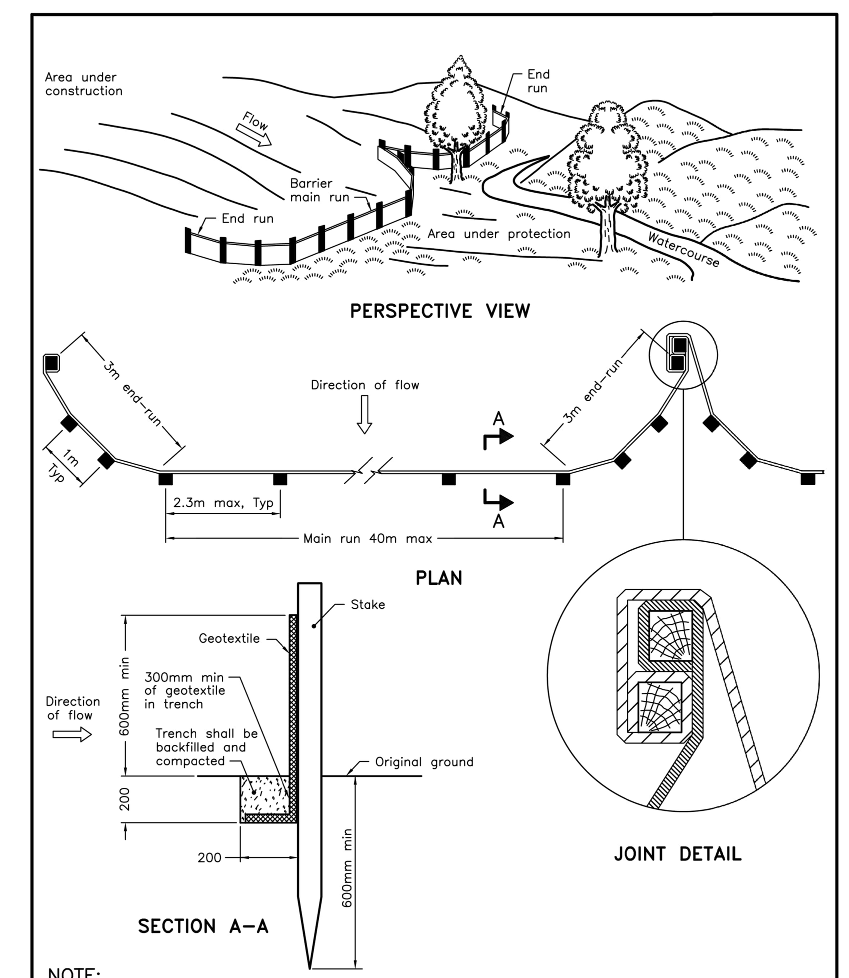
SiltSoxxTM for Sediment Control on Pavement
NTS





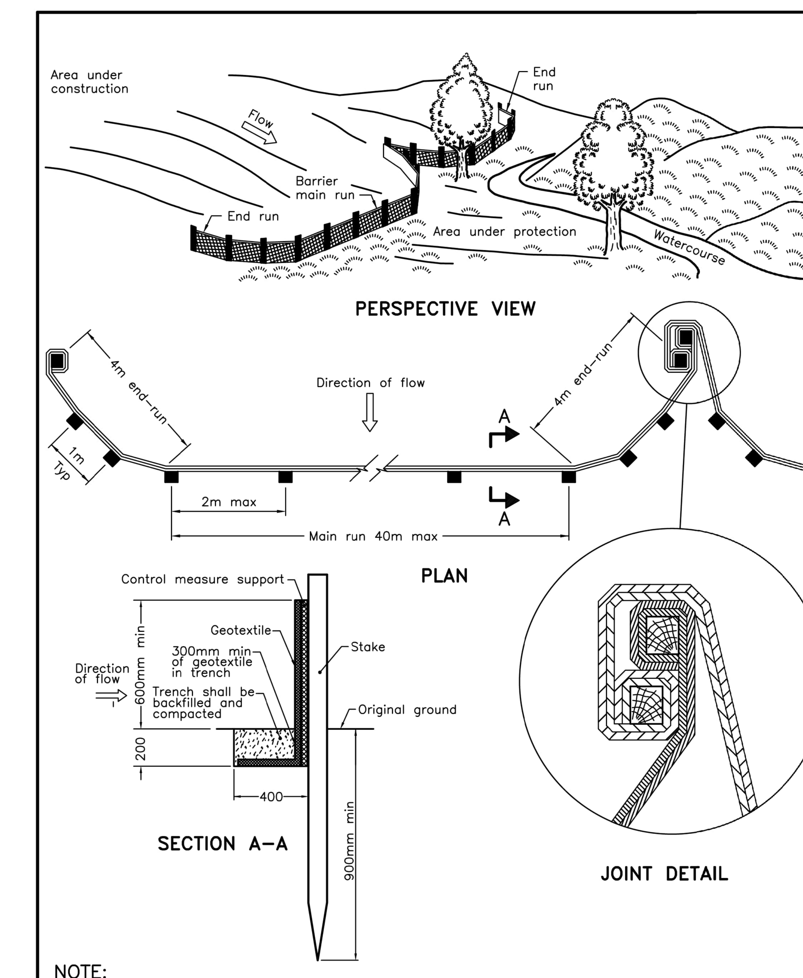
NOTES:
1. CLEARANCE AROUND PIPE AT CHAMBER WALL TO BE 50mm MINIMUM
2. VALVE CHAMBERS IN LIEU OF BOXES ON WATERMAINS SMALLER THAN 300mm ONLY TO BE USED, IF APPROVED BY THE CONTRACT ADMINISTRATOR
3. REFER TO MW-19.15 FOR APPROVED MANUFACTURERS
4. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
5. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40 AND W42
6. TRACER WIRE REQUIRED FOR PVC, PEX AND HDPE WATERMAIN PIPE ONLY AS PER W36. TRACER WIRE TO BE CONNECTED TO VALVE BOLT AS PER W55 AND SECURED TO TOP OF CHAMBER

Ottawa	TITLE: DISTRICT METERING AREA CHAMBER	DATE: MAY 2001
		REV: JAN 2026
		DWG No: W3



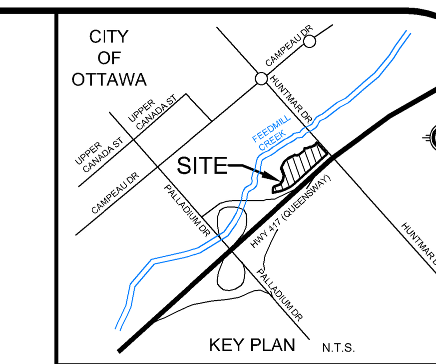
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
LIGHT-DUTY SILT FENCE BARRIER	OPSD 219.110	



NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
HEAVY-DUTY SILT FENCE BARRIER	OPSD 219.130	



GEODETIC BM ELEV. = m
REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m
REFER TO ABOVE.

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

NOTE:
1. **PROPERTY LINE IS APPROXIMATE ONLY AND SHOULD NOT BE USED FOR DETERMINING SETBACKS OR LAYOUT.**
2. **EXISTING TOPOGRAPHICAL INFORMATION PROVIDED BY STANTEC, DATED JANUARY 23, 2026.**
3. **ALL MVCA LINEWORK SHOWN ON THIS PLAN IS TAKEN FROM SHAPEFILE PROVIDED BY STANTEC AND IS APPROXIMATE ONLY.**
4. **INVERTS DENOTED WITH "±" ARE TAKEN FROM AS-BUILT PLAN AND PROFILE DRAWINGS COMPLETED BY IBI GROUP, DATED OCTOBER 7, 2015, AND GENERAL PLAN OF SERVICES PLAN PREPARED BY IBI GROUP, DATED AUGUST 21, 2013 AND ARE CONSIDERED APPROXIMATE ONLY. CONTRACTOR TO FIELD VERIFY AND REPORT ANY DISCREPANCIES TO ENGINEER.**
5. **THIS PLAN IS PART OF A SET OF PLANS WHICH COMPRISE OF THE FOLLOWING: C1.1, C1.2, C2.0, C2.1, C2.2, C2.3, C2.4, C2.5 AND C2.6.**

No.	REVISION	BY	YYYY-MM-DD
3.	RE-ISSUED FOR SITE PLAN CONTROL	AXS	2026-10-30
2.	ISSUED FOR PRICING	AXS	2026-09-22
1.	ISSUED FOR SITE PLAN CONTROL	AXS	2026-04-01

MTE
Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER
L. E. INGRAM
100120779
2026-10-30
PROVINCE OF ONTARIO

CLIENT
IRONCLAD DEVELOPMENTS
101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

DRAWING
NOTES AND DETAILS PLAN 1

Design By: DXN / LEI	Project Manager: A. SAWATSKY
Drawn By: DAC	Project No.: 65860_001
Checked By: DXN / LEI	Drawing No.: C2.5
Date (yyyy-mm-dd): 2026-02-12	
Scale: N.T.S.	Sheet 8 of 9

FILE # D07-12-26-0037
PLAN #: 19483

MTE File Path: P:\P\65860_001\65860_001-C2
October 30, 2026 - 11:41:06 AM - Plotted By: Dain Na

M:\TE File Path: P:\PI65860_001\65860_001-C2

PROPOSED LAYOUT

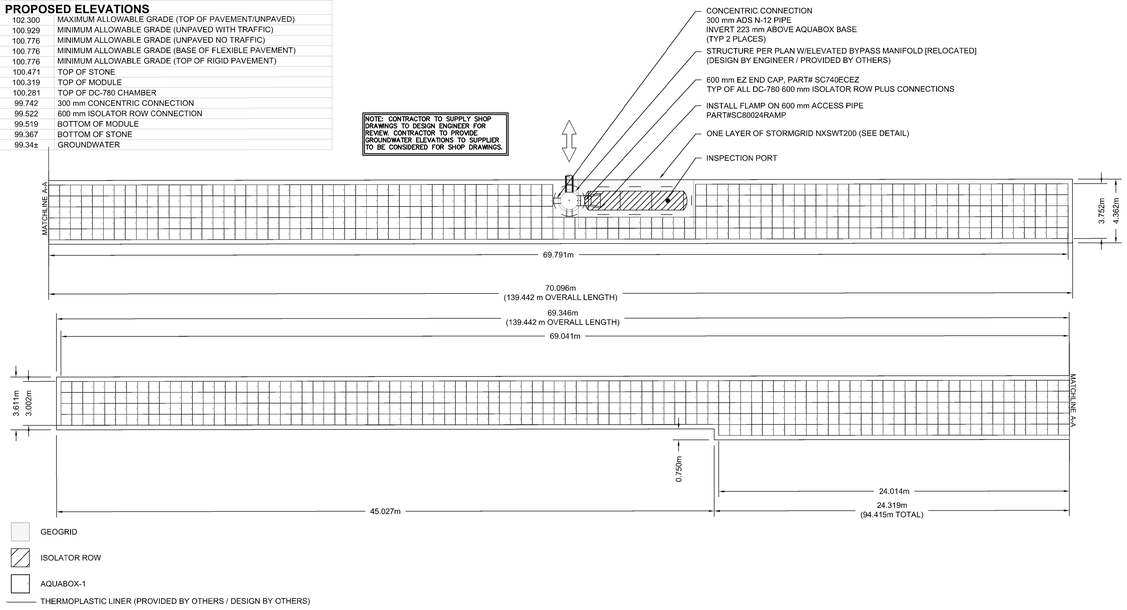
826	AQUABOX-1 (1 LAYER)	0	MODULE INSPECTION PORTS
826	AQUABOX FULL MODULE	1	CHAMBER INSPECTION PORTS
0	AQUABOX CUBE MODULE		
3	STORMTECH DC-780 CHAMBERS		
2	STORMTECH DC-780 END CAPS		
152	STONE ABOVE (mm)		
152	STONE BELOW (mm)		
40	% STONE VOID		
410.3	**INSTALLED SYSTEM VOLUME (m³) (PERIMETER STONE INCLUDED) ABOVE ELEVATION 99.552**		
574.4	EXCAVATION AREA (m²)		
287.6	EXCAVATION PERIMETER (m)		
465.2	MODULE AREA (m²)		
289.7	MODULE PERIMETER (m)		

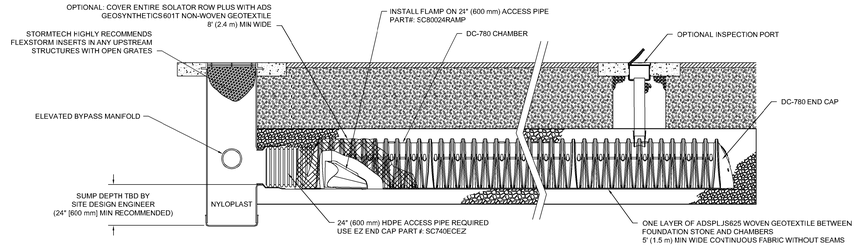
PROPOSED ELEVATIONS

102.300	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
100.929	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
100.776	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
100.776	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
100.776	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
100.471	TOP OF STONE
100.319	TOP OF MODULE
100.281	TOP OF DC-780 CHAMBER
99.742	300 mm CONCENTRIC CONNECTION
99.522	600 mm ISOLATOR ROW CONNECTION
99.519	BOTTOM OF MODULE
99.367	BOTTOM OF STONE
99.34±	GROUNDWATER

NOTES

- THE SITE DESIGN ENGINEER MUST CONSIDER THE EFFECTS OF POSSIBLE SATURATED SOILS ON NEARBY SYSTEMS, INCLUDING BUT NOT LIMITED TO, RETAINING WALLS, SLOPE CONSTRUCTION/STABILITY, OR BUILDINGS/STRUCTURES. NO FOUNDATION LOADS SHALL BE TRANSMITTED TO THE CHAMBERS.





DC-780 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF MAINTENANCE ROW
- B. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- C. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

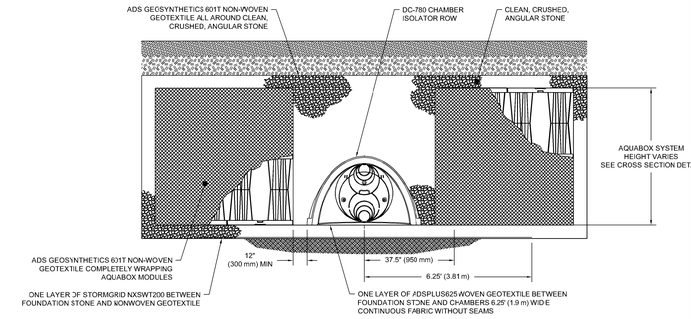
STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

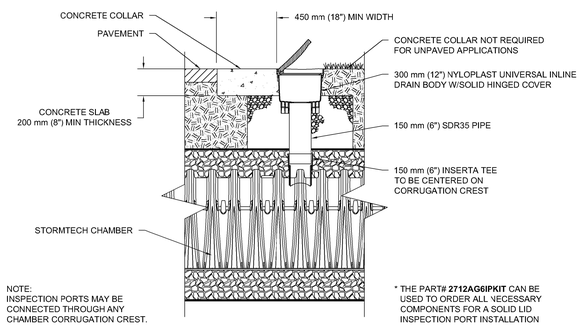
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE AQUABOX SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



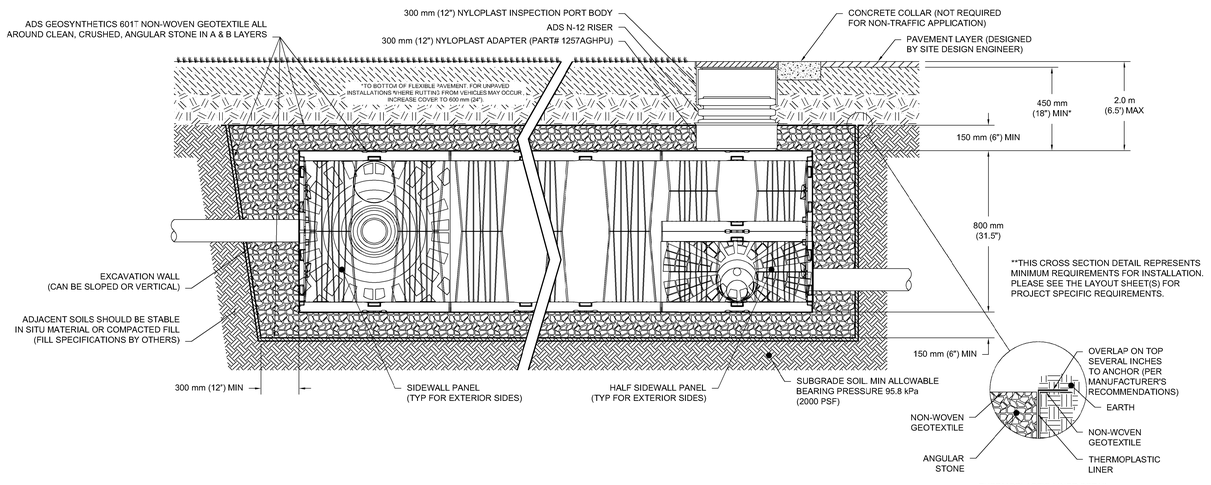


150 mm (6") PVC INSPECTION PORT DETAIL (SC SERIES CHAMBER)
NTS

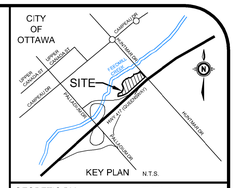
ACCEPTABLE FILL MATERIALS : AQUABOX-1

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 450 mm (18") ABOVE THE TOP OF THE AQUABOX MODULES. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 300 mm (12") OF MATERIAL OVER THE AQUABOX MODULES IS REACHED. COMPACT ADDITIONAL LAYERS IN 150 mm (6") MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 53 kN (12,000 lbs). DYNAMIC FORCE NOT TO EXCEED 89 kN (20,000 lbs).
B	**PERIMETER STONE:** FILL SURROUNDING THE AQUABOX MODULES FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW AQUABOX MODULES FROM THE SUBGRADE UP TO THE BOTTOM OF THE AQUABOX MODULE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #57 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 57 (AASHTO M43) STONE".
2. ADS AQUABOX COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 150 mm (6") (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT ADS FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



THERMOPLASTIC LINER DETAIL



GEODETIC BM ELEV. = m
REFER TO SURVEY COMPLETED BY STANTEC, DATED JANUARY 23, 2026

SITE BENCHMARK ELEV. = m
REFER TO ABOVE.

NOTE TO CONTRACTOR :

DO NOT SCALE DRAWINGS.

CONTRACTORS MUST CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DRAWINGS REMAIN THE PROPERTY OF THE ENGINEER AND SHALL NOT BE REPRODUCED OR REUSED WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

THE OWNER/ARCHITECT/CONTRACTOR IS ADVISED THAT M.T.E. CONSULTANTS INC. CANNOT CERTIFY ANY COMPONENT OF THE SITE WORKS NOT INSPECTED DURING CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO NOTIFY M.T.E. CONSULTANTS INC. PRIOR TO COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR INSPECTION.

NOTE:
1. **PROPERTY LINE IS APPROXIMATE ONLY AND SHOULD NOT BE USED FOR DETERMINING SETBACKS OR LAYOUT.**
2. **EXISTING TOPOGRAPHICAL INFORMATION PROVIDED BY STANTEC, DATED JANUARY 23, 2026.**
3. **ALL MVCA LINEWORK SHOWN ON THIS PLAN IS TAKEN FROM SHAPEFILE PROVIDED BY STANTEC AND IS APPROXIMATE ONLY.**
4. **INVERTS DENOTED WITH "±" ARE TAKEN FROM AS-BUILT PLAN AND PROFILE DRAWINGS COMPLETED BY ISI GROUP, DATED OCTOBER 7, 2015, AND GENERAL PLAN OF SERVICES PLAN PREPARED BY ISI GROUP, DATED AUGUST 21, 2013 AND ARE CONSIDERED APPROXIMATE ONLY. CONTRACTOR TO FIELD VERIFY AND REPORT ANY DISCREPANCIES TO ENGINEER.**
5. **THIS PLAN IS PART OF A SET OF PLANS WHICH COMPRISE OF THE FOLLOWING: C1.1, C1.2, C2.0, C2.1, C2.2, C2.3, C2.4, C2.5 AND C2.6.**

No.	REVISION	BY	YYYY-MM-DD
3.	RE-ISSUED FOR SITE PLAN CONTROL	AXS	2026-10-30
2.	ISSUED FOR PRICING	AXS	2026-09-22
1.	ISSUED FOR SITE PLAN CONTROL	AXS	2026-04-01

MTE
Engineers, Scientists, Surveyors.

LICENSED PROFESSIONAL ENGINEER
L. E. INGRAM
100120779
2026-10-30
PROVINCE OF ONTARIO

CLIENT
IRONCLAD DEVELOPMENTS
101-57158 SYMINGTON RD 20E SPRINGFIELD, MB

PROJECT
319 HUNTMAR DRIVE
STITTSVILLE, ON

DRAWING
NOTES AND DETAILS PLAN 2

Design By: DXN / LEI	Project Manager: A. SAWATSKY
Drawn By: DAC	Project No.: 65860_001
Checked By: DXN / LEI	Drawing No.: C2.6
Date (yyyy-mm-dd): 2025-02-12	
Scale: N.T.S.	Sheet 9 of 9

FILE # D07-12-26-0037
PLAN #: 19483

October 30, 2026 - 11:41:37 AM - Plotted By: Dxin Ne