FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

4100 PONYTRAIL DRIVE (PHASE 2)
BUILDINGS B-4, B-5 AND B-6
CITY OF MISSISSAUGA

PREPARED FOR:
CHELSEA ON THE GREEN I LIMITED PARTNERSHIP
331 CITYVIEW BLVD., SUITE 300
VAUGHAN, ON L4H 3M3

DATE: JANUARY 2026

PROJECT NO. 211241

PREPARED BY HUSSON
200 CACHET WOODS COURT, SUITE 204
MARKHAM, ON L6C 0Z8
GENERAL@HUSSON.CA

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF DRAWINGS

1.0 INTRODUCTION

The purpose of this report is to provide functional design information related to the storm drainage and stormwater management (SWM) plan, sanitary and water servicing for the proposed development at 4100 Ponytrail Drive. The report has been prepared to support the Official Plan Amenedment (OPA) and Zoning Bylaw Amendment (ZBA) for proposed buildings B-4, B-5 and B-6 in the southwest corner of the site.

This report will demonstrate the stormwater management measures that will be undertaken to deal with water quantity and quality, the proposed sanitary and water servicing, as well as erosion and sediment control during construction.

1.1 Site Description

The site is located on the south side of Ponytrail Drive and Rathburn Road East. There is a hydro corridor to the south and municipal trail system to the east. The total site area is 3.75ha and has two existing apartment buildings which will remain. As well, there is a current application for Site Plan Approval (SPA) for a third building on the property (Building B-3). The servicing design building B-3 is present in a separate report, but included in this study, where applicable. Refer to **Figure 1** for the site location.

Three 20-storey apartment buildings are proposed for the site, with three levels of shared underground parking and outdoor amenity areas.

1.2 Background

Water and sanitary connections are proposed to meet the functional needs of the site and to meet the requirements of the Region of Peel. The SWM plan has been designed to meet the requirements of the City of Mississauga (The City) and Toronto and Region Conservation Authority (TRCA). The following materials were referenced in the preparation of this report.

- Functional Servicing and Stormwater Management Report, 4100 Ponytrail Drive, Building B-3, prepared by Husson Limited, dated November 2025. This describes the detailed servicing and stormwater management design for the proposed Building B-3.
- The City of Mississauga Development Requirements Manual (DRM), updated and effective January 2020, and Storm Drainage Design Requirements, dated April 2025.
- The TRCA Stormwater Management Criteria, August 2012.
- Low Impact Development Stormwater Management Planning and Design Guide (LID Guide), prepared by the TRCA and CVC, dated 2010.
- The Stormwater Management Planning and Design Manual (MECP Guidelines), prepared by the Ministry of the Environment, Conservation and Parks, March 2003, were referenced in the preparation of the stormwater management plan.
- The Erosion & Sediment Control Guideline for Urban Construction, prepared by the TRCA, Dated 2019.
- As-constructed plan and profile drawings for Ponytrail Drive, Rathburn Road East, as provided by the City and Region.

HUSSON
ENGINEERING + MANAGEMENT
P 905.709.5825
200 CACHET WOODS COURT, SUITE 204
MARKHAM, ON L6C 0Z8
HUSSON.CA

LEGEND

FIGURE 1
FOREST PARK CIRCLE
SITE LOCATION PLAN

DATE: JANUARY 2026 SCALE: N.T.S. PROJECT: 211241

- A Hydrogeological Assessment for Proposed Condominium Development, Phase 2, 4100 Ponytrail Drive, prepared by Soils Engineers, dated November 11, 2025.
- Subsurface Utility Engineering (SUE) – Rathburn Road and Ponytrail Drive, prepared by Onsite Locates Inc., dated September 5, 2025. Included in **Appendix D**.

The proposed SWM scheme has been prepared to meet the City's requirements.

2.0 SITE DRAINAGE

All grading will be completed in a manner to satisfy the following goals:

- Maintain sufficient sight lines and existing road gradients.
- Enable gravity servicing connections to the existing municipal sewers.
- Not adversely impact adjacent private properties or existing buildings on-site which are to remain.
- Achieve stormwater management and environmental objectives required for the site.

The proposed grading of the site has been designed to meet these requirements. Refer to **Drawing SW1** for the proposed site grading design.

2.1 Existing Drainage

The following are the existing municipal storm sewer in the vicinity of the site:

- 825mm diameter storm flowing east on Rathburn Road East.
- 1350mm diameter storm flowing east on Ponytrail Drive.
- 2100mm diameter storm flowing south within the greenspace to the east of the site.

There is an existing on-site storm sewer system collecting drainage form surface areas and the building. The storm drainage outlets to the 2100mm diameter storm sewer in the green space. Refer to **Figure 2** for the existing site drainage.

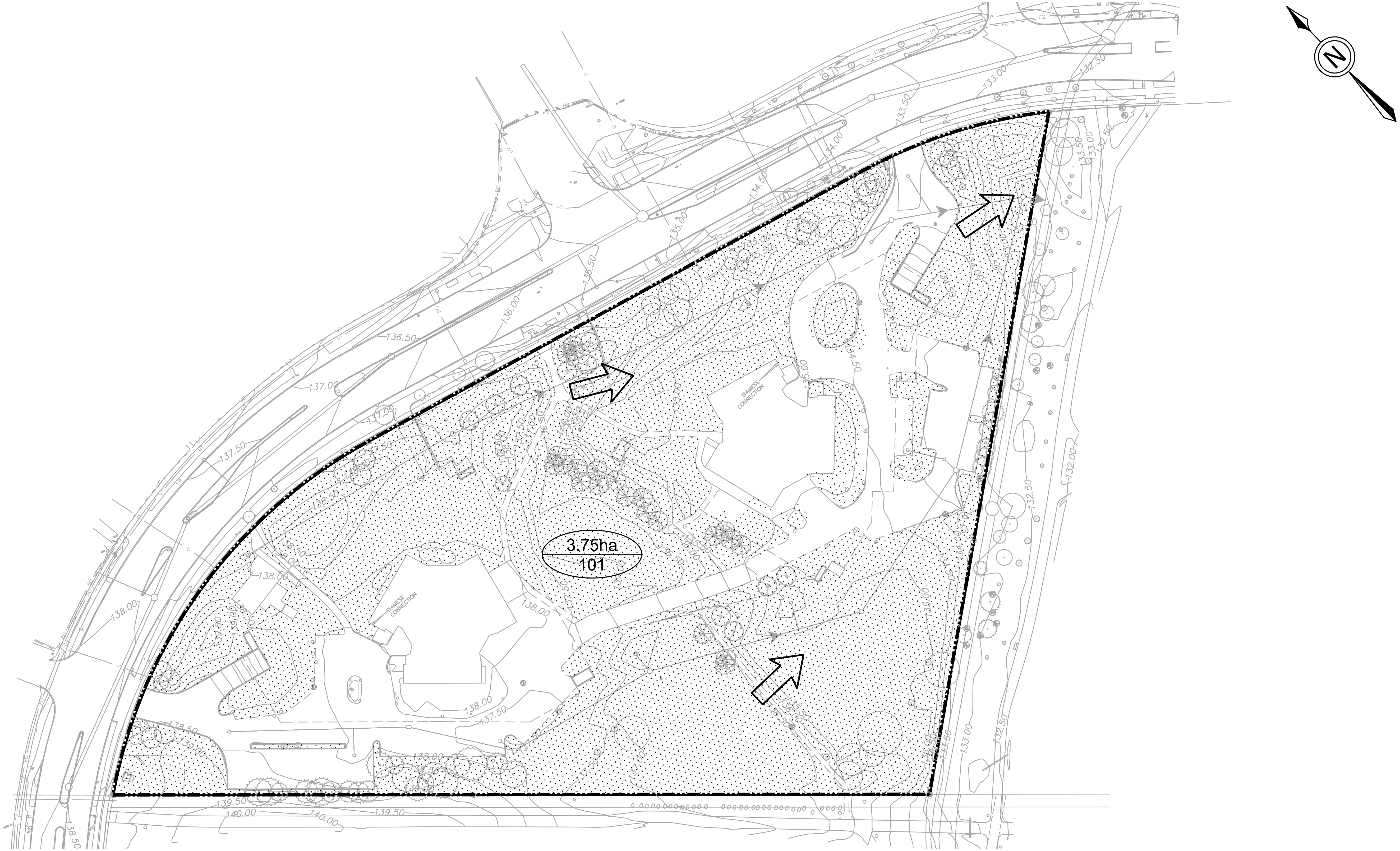
For Building B-3, a new storm servicing connection is proposed to the 1350mm diameter storm sewer on Ponytrail Drive. This an on-site stormwater management facility will be constructed upstream of the outlet.

2.2 External Drainage

There is a small catchment area from the hydro corridor that currently drains north into the site. This is considered in the storm drainage and stormwater management calculations, where applicable.

2.3 Proposed Drainage

It is proposed to remove the existing service connection to the 2100mm diameter sewer in the greenspace as part of the building B-3 works. The Building B-4, B5, and B-6 development will require a new service connection to the 2100mm diameter sewer in the greenspace area.



HUSSON
ENGINEERING + MANAGEMENT
P 905.709.5825
200 CACHET WOODS COURT, SUITE 204
MARKHAM, ON L6C 0Z8
HUSSON.CA

LEGEND

2.10ha / 201	CATCHMENT AREA / CATCHMENT ID
(dash-dot line)	CATCHMENT BOUNDARY
(arrow)	OVERLAND FLOW DIRECTION
(dot pattern)	PERVIOUS AREA

FIGURE 2

FOREST PARK CIRCLE EXISTING DRAINAGE PLAN

DATE: JANUARY 2026 SCALE: 1:1250 PROJECT: 211241

For events between the 10- and 100-year storm water will pond above the catchbasins and discharge through the minor system. In the event of system blockage or a storm exceeding the 100-year storm event, a major overland system has been provided, with a maximum ponding depth of 0.25m, which will direct drainage towards the Ponytrail Drive right-of-way.

The on-site storm sewers will be designed to convey runoff from a 10-year storm event. The on-site storm sewer systems will be directed to will be split between two stormwater management facilities; one upstream of the outlet to Ponytrail Drive, and a second upstream of the new service connection to the 2100mm sewer in the greenspace. This will include peak flow and quality controls to current standards. This is outlined in **Section 4.3**.

The proposed servicing can be referenced on **Drawing SW2**, and the grading design is shown on **Drawing SW1.**

2.4 Groundwater Discharge

A hydrogeological assessment was completed by Soil Engineers Ltd. Groundwater depths were monitored based on 7 monitoring wells between July 10 and August 6, 2025. The highest and lowest groundwater levels were found to be 132.5m and 129.7m, respectively. Groundwater was found to flow in a north-easterly direction.

Water quality tests were completed and the results were compared to the limits in the Mississauga and Region of Peel Sewer Use By-Laws. It was determined that all parameters conform for discharge to the sanitary sewer system. There were exceedances of TSS compared to the limits for discharge to the storm sewer. The discharge of groundwater to the storm sewer system during or post construction would require pre-treatment.3

Construction Discharge

The hydrogeological assessment provided an estimated daily groundwater volume, during the construction of the parking garage of 39,000L/day, including a factor of safety of 2 and 251,500L/day including rainfall from a 2-year storm event.

Based on the anticipated dewatering rate which is less than 50,000L/day (excluding precipitation), registration with the Environmental Activity and Sector Registry (EASR) will not be required for the site.

Post Construction Discharge

The hydrogeological investigation, provided estimated long-term dewatering rate for the Phase 2 buildings of 34,000L/day. With the addition of the anticipated storm flows if 4,000L/day, the total dewatering flow rate from the Phase 2 parking garage would be 38,000L/day.

Since connection to the existing parking garage is proposed, it would be difficult to separate the foundation drainage from the existing and proposed structures. As well, discharge by infiltration would not be feasible based on the relatively high groundwater table. Therefore, it is assumed that discharge will be treated for quality and discharge to the municipal storm sewer system. The maximum discharge volumes will be accounted for in the design of the storm drainage and stormwater management facilities as described in Section 3.0.

3.0 STORMWATER MANAGEMENT DESIGN

A stormwater management plan has been prepared for the site following the DRM and MECP Guidelines, to meet the stormwater management criteria for the site. Low-Impact Development (LID) techniques were investigated for the site, including the use of infiltration measures.

3.1 Stormwater Design Criteria

The following design criteria have been followed in the preparation of the grading, servicing and Stormwater management on the site.

- The DRM requires retention of water on site, to the extent possible, to match pre-development runoff volumes. This requirement is typically achieved by retaining the runoff from a 5mm 24-hour storm on-site, which is equivalent to approximately 50 percent of the total average rainfall volume.
- Water quality controls are required to achieve enhanced water quality control, which requires an 80 percent total suspended solids (TSS) removal level.
- The site is located in the Etobicoke Creek Main Branch sub-watershed. There are no peak flow control requirements for this sub-watershed; however, controls are required for discharge to municipal infrastructure.
- Provide an erosion and sediment control plan following the Erosion & Sediment Control Guidelines for Urban Construction, prepared by Toronto and Region Conservation Authority (TRCA), 2019.

The proposed design has been prepared following these criteria.

3.2 Stormwater Management Plan

A variety of options were reviewed to meet the stormwater management criteria for the site:

A variety of options are discussed following that could potentially be used to meet the target storage volume.

Permeable Pavement – The surface area could be paved with Permeable Interlocking Concrete Pavers. These are pre-cast pavers that permit water to infiltrate between the paving stones into a clear stone storage reservoir. There are limited new pavement areas on the site that are not above an existing or proposed parking garage, therefore, this option has not been pursued.

Green Roof – Green roofs offer water resource benefits such as water quality, water balance and peak flow controls, in addition to other benefits including improved energy efficiency and reduced heat from the rooftop. This option has not been pursued.

Grassed Swales – Grassed swales are used to provide additional water quality controls for surface water. Grassed swales are provided, where feasible, but not considered in the stormwater management design calculations based on their limited use.

Bioretention – This is a facility that temporarily stores and infiltrates water. Quality treatment is provided by plant material and by filtration through the bed material which consists of a mixture of sand, fines and organic material. This is not pursued as all new drainage will be directed to a storm sewer system.

Infiltration Facility – Storage could be provided in an underground system surrounded by clear stone for infiltration. Storage is provided in both the chambers as well as in the voids within the clear stone, below the outlet invert of the storm sewer system, so that the required retention volume will only discharge via infiltration. However, infiltration is not feasible for the site as the storm sewer collection system for the building is not more than 1m above the seasonally high groundwater level, as required.

Rainwater Harvesting – Rainwater from frequent storm events can be captured and re-used on-site such as for landscape irrigation, cleaning, toilet flushing, or a variety of other options. This option will be pursued, as described below.

Manufactured Treatment Devices – This would include end-of-pipe systems such as oil/grit separators (OGS) and filter units. An OGS is proposed upstream of the stormwater chambers to provide sediment removal.

Rooftop Storage – Controlled flow roof drains could be installed on the rooftop and water could be stored on the rooftops to attenuate peak flows. Rooftop storage is not counted for the quantity controls for the site, based on the proposed development with limited rooftop space available for ponding.

Underground Storage – A restrictor pipe would be provided at the site outlet; with surplus storage provided in the storage chambers. It is proposed to provide stormwater chambers and an orifice control at the site outlet to Ponytrail Drive as part of Phase 1. A building cistern will be provided as part of Phase 2 upstream of the outlet to the storm sewer in the greenspace area.

3.3 Volume Control

As per the DRM erosion design criteria, retention of runoff from a 5mm design storm on-site is required. The retention volume is calculated based on the new impervious site area of 9,950m^2. The required retention volume is 25m^3 (9,950m^2 x 5mm).

Roof drainage from Buildings B-4, B-5 and B-6 will be directed to an internal cistern in the P1 level. This cistern will be sized to retain a minimum of 50m^3 which will be re-used on-site. The retained storage will be used on-site for irrigation. The cistern will have an overflow to the storm sewer system for infrequent storm events.

The available storage between the bottom of the cistern and outlet elevation is 57m^2. The required volume for irrigation will be confirmed at the detailed design stage.

3.4 Quality Control

Based on the DRM, the water quality criterion for this site is 80 percent average TSS removal from runoff originating onsite. The majority of the site is rooftop or landscaped which produces clean runoff.

The quality control requirements for the site can be addressed through a combination of the roof and other on-site landscape measures. Overall TSS removal capabilities are based on the following assumptions:

- Rooftop and terraces runoff is generally clean and credited with 80 percent TSS removal. Runoff from the roof and terraces will be routed to the proposed cistern.

- Landscaped areas provide significant infiltration and generally have a lower TSS loading compared to roadways, therefore landscape runoff is credited with 80 percent TSS removal.
- The majority of the site will drain to the storm sewer system and through a filter unit before being controlled in the stormwater chambers.

The filter unit will be provided upstream of the stormwater cistern. Roof water can be directed to the cistern without treatment. Therefore, all water directed to the cistern will either be clean roof water, or pre-treated by the filter unit.

Details of the filter unit will be provided at the detailed design stage. It will be an ETV verified unit, and design to provide 80 percent TSS removal.

3.5 Quantity Control

3.5.1 Target Release Rate

The existing site runoff coefficient (prior to Phase 1 construction) is 0.45. As noted, no peak flow controls are required for discharge to the Etobicoke Creek Main Branch sub-watershed. To reduce the flows directed to municipal infrastructure the runoff coefficient used to calculate the pre-development flows will be limited to a maximum of 0.50 for the 10-year storm event, as per City Criteria. The runoff coefficient for the existing site was calculated to be 0.45 (refer to **Figure 2**).

Therefore, the post development flows will be less than the existing condition, as required. **Table 1** summarizes the target flows for the site.

Table 1. Target Flows

Existing Site (Storm Event)	Catchment Area (ha)	Runoff Coefficient	Target Flow Rate (L/s)
10 Year	3.75	0.45	468

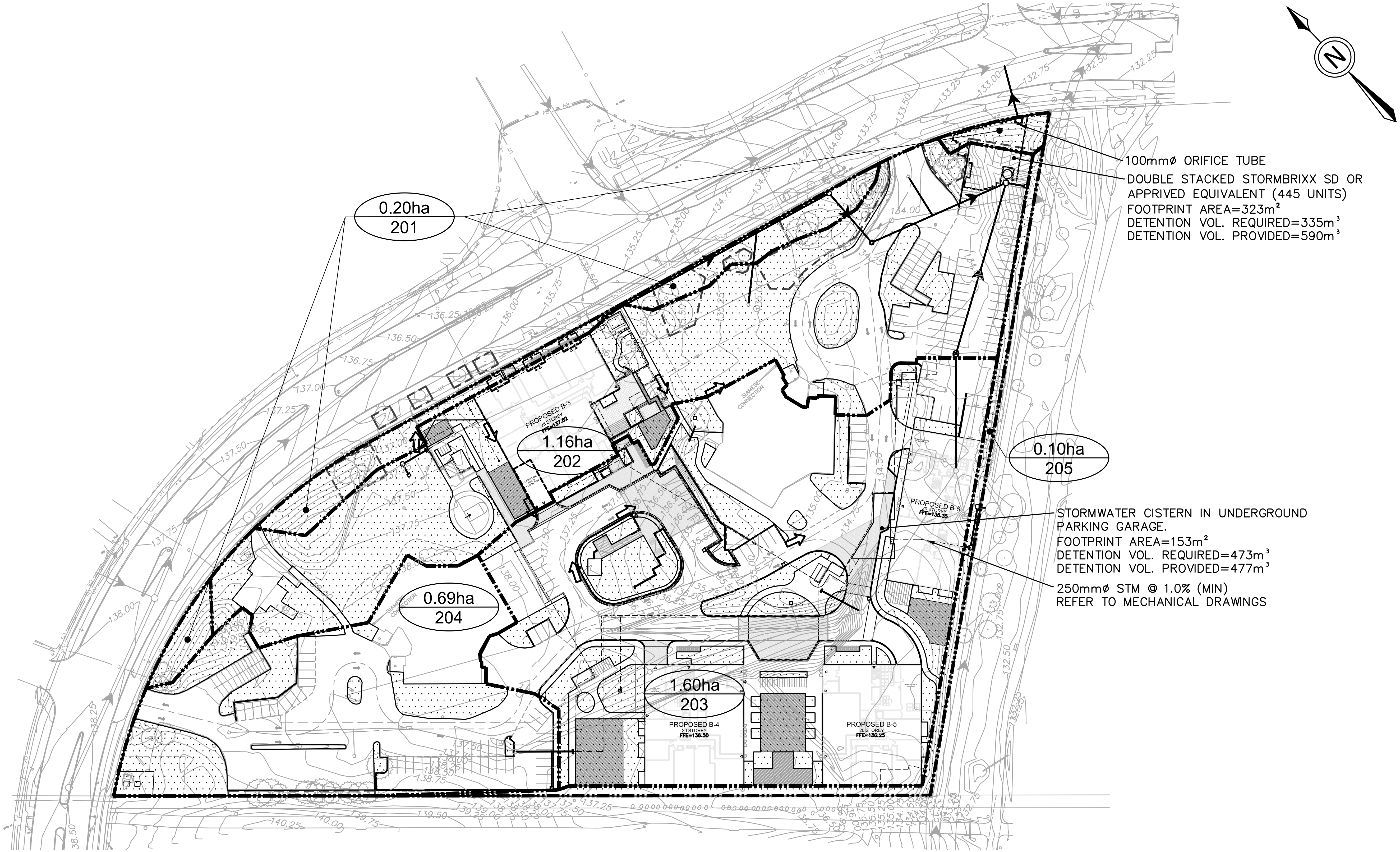
The proposed design was completed to provide controls for all storm events up to the 100-year storm to meet the target flow rates from the site, as outlined following. Refer to **Appendix A** for the stormwater management calculations.

3.5.2 Quantity Control Measures

In order to meet the target release rates, stormwater chamber storage is proposed to provide quantity control for the proposed development, as follows.

Uncontrolled Site Drainage

As shown on **Figure 3**, a portion of the site along the Rathburn and Ponytrail Drive frontage will drain uncontrolled towards the adjacent right-of-ways (Catchment 201). **Table 2** provides a summary of the uncontrolled drainage.



HUSSON
ENGINEERING + MANAGEMENT
P 905.709.5825
200 CACHET WOODS COURT, SUITE 204
MARKHAM, ON L6C 0Z8
HUSSON.CA

LEGEND

Symbol	Description
2.10ha / 201	CATCHMENT AREA / CATCHMENT ID
(dash-dot line)	CATCHMENT BOUNDARY
(arrow)	OVERLAND FLOW DIRECTION
(dotted)	PERVIOUS AREA

FIGURE 3
FOREST PARK CIRCLE
PROPOSED DRAINAGE PLAN

DATE: JANUARY 2026 SCALE: 1:1250 PROJECT: 211241

Table 2. Post Development Uncontrolled Flows

Catchment	Catchment Area (ha)	100 Year Runoff Coefficient	Target Flow Rate (L/s)
201	0.20	0.34	75.1
205	0.10	0.31	34.4
Total Uncontrolled	**0.30**		**109.5**

This reduced the allowable controlled flow to 359L/s.

Controlled Site Drainage

For Phase 1, it is proposed to use a double stacked Stormbrixx SD system, having a footprint area of 323m^2 and a depth of 1.83m. Based on a porosity of 97 percent, the system will provide a total of 568m^3 of detention storage. This system will continue to provide peak flow controls for Catchment 202.

For Phase 2, it is proposed revised the orifice to a 100mm diameter orifice tube, with a release rate of 37.1L/s. A Modified Rational Method calculation was used to estimate the required storage in the chambers. In the 100-year event, the required storage volume to control the flows to 37.1L/s target is 335m^3. The storage provided in the pipes and structure upstream of the chambers has not been calculated, but will provide redundancy in the system.

Catchments 203 and 204 will be directed to a new cistern in the Phase 2 parking garage. The cistern will have a footprint of 153m^2 and an active storage depth of 3.10m above the outlet. The total active storage available is 477m^3. A 250mm diameter orifice tube will be provided at the outlet to control the peak flow to 300L/s. A Modified Rational Method calculation was used to estimate the required storage in the cistern. In the 100-year event, the required storage volume to control the flows to 300L/s target is 474m^3 which is less than the available storage.

Table 3 summarizes the proposed flows for the site outletting to the Ponytrail Drive storm sewer.

Table 3. Site Quantity Control Summary

Catchment Name	Area (ha)	100 Year Runoff Coefficient (C)	Storage Required (m^3)	Storage Provided (m^3)	100 Year Peak Flow (L/s)
Uncontrolled Area (201)	0.20	0.34	-	0	75.1
Controlled Area (202)	1.16	0.72	335	590	37.1
Controlled Area (203+204)	2.29	0.92	474	477	300
Uncontrolled Area (205)	0.10	0.31	-	0	34.4
Total	**1.243**				446.7

As shown, the proposed development flows for all the storm events meets the target flow of 468L/s, and the proposed flows will be conveyed underground for events up to the 100-year storm event. As noted in Section 2.4, it is anticipated that groundwater from the foundation drainage will be treated and pumped to the storm system. The maximum daily groundwater flow rate was estimated to be 38,000L, or less than 0.5L/s. If it is assumed to be pumped at a typical rate of 1.5 to 3L/s, there will be no concerns with this additional flow. The groundwater discharge rate will be confirmed at the SPA stage. Calculations can be referenced in **Appendix A**. Refer to **Drawing SW2** for details of the proposed servicing for the site.

4.0 WASTEWATER

According to the As Constructed drawings for Rathburn Road East and Ponytrail Drive, provided by the Region, there is a 400mm diameter sanitary sewer along Rathburn Road East, and a 750mm diameter sanitary sewer which increases to a 1200mm diameter sewer on Ponytrail Drive located at the northeast corner of the property. There are two existing control MHs at the property line, connected to the 400mm main sewer on Rathburn Road East, that can service the development. A 200mm diameter sanitary service was provided to the site during the recent servicing works on Rathburn Road. This will be used for the proposed Building B-3.

For Phase 2, a new sanitary service connection will be required to the 1200mm diameter sanitary sewer on Ponytrail Drive. We understand that the Region's preference is to avoid new connections to the 750mm and 1200mm diameter sanitary sewers on Ponytrail; however, connecting to the 400mm sanitary sewer on Rathburn would require running a sewer through the existing parking garage, or the proposed Building B-3 parking garage. The proposed servicing plan provides a servicing corridor for sanitary and water servicing along the east side of the site. As well, this will provide a separate service connection for the Phase 2 buildings, to allow for greater flexibility with future site ownership or different development types.

The anticipated flows from the existing and proposed developments have been estimated based on the proposed design, for use by the Region to review the receiving system. **Table 4** provides an estimate of the existing peak flow from the 2 buildings on-site.

Table 4. Average Daily Flow (Existing Development)

Unit Type	Units/GFA	PP Unit/ PPha GFA	People	Peaking Factor	Peak Flow (L/s)
Residential: Apartments (1 bedroom)	139	1.70	237		
Apartments (2 or more BR)	246	3.10	763		
Total	**385**	**2.60**	**1,000**	**3.8**	**12.8**

Table 5 provides the estimate of the proposed flow, including the existing buildings.

Table 5. Average Daily Flow (Proposed Development

Unit Type	Units/GFA	PP Unit/ PPha GFA	People	Peaking Factor	Peak Flow (L/s)
Existing Apartments (1 BR)	139	1.7	237		
Existing Apartments (2 or more BR)	246	3.1	763		
Phase 1					
Apartments (1 bedroom)	113	1.70	193		
Apartments (2 or more BR)	172	3.10	534		
Phase 2					
Apartments (1 bedroom)	389	1.70	662		
Apartments (2 or more BR)	306	3.10	949		
Total	**1,365**	**2.45**	**3,338**	**3.4**	**38.1**

There is no change to site area, therefore, the infiltration allowance will be 1L/s, based on a site area of 3.75ha and a unit rate of 0.26L/s/ha for both scenarios. For the proposed scenario, there will be an increased peak flow of 25.3L/s. The Region's Water and Wastewater Demand Table is provided in **Appendix B**.

The proposed Phase 2 sanitary service connection is 250mm diameter with a grade of 2.0 percent, providing a capacity of 84L/s. Only the Phase 2 development flows will be directed to the service, with a peak flow of 19.8L/s, therefore, it has capacity for the proposed development.

5.0 WATER DISTRIBUTION

According to the As Constructed drawings for Ponytrail Drive and Rathburn Road East provided by the City, there is a 300mm diameter watermain located on the north side of the Rathburn Road East right-of-way and a 300mm diameter watermain located on the north side of Ponytrail Drive, adjacent to the site. It is proposed to connect to the 300mm diameter watermain located on Ponytrail Drive. This watermain, and the Phase 2 area, located in Pressure Zone 2.

A fire flow test has been completed, with the results shown in **Appendix C**.

The following water usage parameters were used to determine the daily water demands for the proposed building as per Region Standards.

- Estimated population = 727 Residential
- Water Demand = 270 Liters/cap/day (Residential), 250 Liters/cap/day (ICI)

- Peak Hour Peaking Factor = 3.0 (Residential)
- Maximum Day Peaking Factor = 1.8 (Residential)
- Required minimum fire flow = Estimated using the Fire Underwriters Survey

Fire Demand:

The fire flow analysis is based on the Water Supply for Public Fire Protection, A Guide to Recommended Practice in Canada, 2020 (FUS Guidelines).

As per the FUS Guidelines, if the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors. Since the first floor is the largest in both buildings, the second floor, plus 25 percent of the first and third floors was used, as this results in a larger total area. **Table 6** provides the estimate for the Total Effective Area.

Table 6. Total Effective Area Calculation

	B-4	**B-5**	**B-6**
4th Floor	1,127	1,127	1,003
3rd Floor	1,054 x 25%	1,054 x 25%	897 x 25%
5th Floor	1,127 x 25%	1,127 x 25%	1,003 x 25%
Total	**1,672m²**	**1,672m²**	**1,478m²**

The following is assumed regarding the construction of the building.

- Non-combustible construction with fully protected frame, floors and roof.
- Since the intended use is residential, an Occupancy/Contents Adjustment Factor of -15 percent is applied, as recommended in Table 3 of the FUS Guidelines.
- Sprinklers are will be provided as per NFPA 13, and fully automatic and supervised.
- Building Exposures are based on distances shown on **Figure 4**.

Table 7 provides a summary of the fire protection analysis for the building.

Table 7. Fire Flow Estimates

Building	**Total Effective Area (m²)**	**Construction Coefficient**	**Occupancy Increase/ Decrease**	**Sprinkler**	**Exposure**	**Required Flow (L/min.)**
B-4	1,672	0.8	-15%	50%	10%	4,000
B-5	1,672	0.8	-15%	50%	20%	4,000
B-6	1,478	0.8	-15%	50%	20%	4,000

As shown in **Table 7** when using this information, the minimum fire flow required is 5,000L/min. Refer to calculations attached in **Appendix C**.

Using the water usage parameters mentioned above, the maximum daily flows and peak hourly flows for the proposed building was determined, as shown in **Table 8** below.

HUSSON
ENGINEERING + MANAGEMENT
P 905.709.5825
200 CACHET WOODS COURT, SUITE 204
MARKHAM, ON L6C 0Z8
HUSSON.CA

LEGEND

FIGURE 4
FOREST PARK CIRCLE
BUILDING SEPARATION PLAN

DATE: JANUARY 2026 SCALE: 1:1250 PROJECT: 211241

Table 8. Water Demand Summary

Scenario	Building Demand (L/s)
Max Day	15.1
Peak Hour	22.7
Max Day with Fire Flow	81.8

Based on the hydrant flow test conducted by Hydrant Testing Ontario on July 15, 2025, the available fire flow at 20psi is approximately 154L/s (5,832usgpm). Therefore, there is sufficient flow to service the site based on Region of Peel standards. The Water and Wastewater Modelling Demand Table can be referenced in **Appendix B**, while the FUS and hydrant flow test results can be seen in **Appendix C**.

6.0 EROSION AND SEDIMENT CONTROL

An erosion and sediment control plan will be prepared, at the detailed design stage, following the Erosion and Sediment Control Guidelines for Urban Construction (ESC Guidelines), prepared by The Toronto and Region Conservation Authority, 2019. The plan will be designed to limit sediment and debris from leaving the site during all stages of construction.

The sediment control plan for this site will generally consist of the following:

- A sediment control fence will be installed along the perimeter of the construction area where the grade will direct flows off-site.
- Site access will be limited to one entrance per phase of construction. A gravel access pad will be installed for staging of construction material and vehicles.
- Any mud tracked from the site should be swept immediately and a sweeper truck should be used as necessary to remove any additional debris.
- Trucks leaving the site should be covered with tarpaulin.
- During dry weather, above freezing construction periods, dust control measures including wetting the site and egress points should be implemented on an as needed basis.
- Once the storm sewer system has been constructed, catchbasin sediment control and protection devices will be installed and maintained until the site is ready to be paved.

Erosion measures will be in place prior to any grading on the site. A program will be in place to monitor and maintain the erosion and sediment controls. The sediment controls will be inspected by the Site Engineer and contractor:

- Once every 7 days and/or
- Within 24 hours following any significant rainfall event or snowmelt.

The inspection frequency can be extended to monthly inspections if there is no construction activity on-site. A detailed erosion and sediment control plan will be completed as part of the SPA submission.

7.0 CONCLUSIONS

The stormwater management design for the site has been designed to meet the criteria outlined by the City, Region and the MECP Guidelines. The plan will consist of the following:

- The water balance targets for the proposed development will be achieved through the proposed landscape areas and proposed water re-use from the proposed cistern. The re-use strategy will likely include irrigation of on-site landscaping, but will be confirmed at the detailed design stage.
- The quality control requirements for the site can be addressed through a combination of an OGS unit, installed with Phase 1, an ETV verified filter unit upstream of the Phase 2 cistern, and other on-site landscape measures, which meets the City standard for 80 percent overall TSS removal. Treatment will be provided for the entire site, including the existing development which currently receives no quality treatment.
- Peak flows for storms up to the 100-year event will be controlled on site to meet the 10-year predevelopment targets with a Runoff Coefficient of 0.45 via two peak flow facilies including a storage chamber to be constructed with Phase 1 and a cistern in the parking garage to be constructed in Phase 2. The proposed development will not have an adverse impact on the existing storm sewer system downstream of the site.
- Sanitary drainage will be conveyed to the existing 1200mm diameter sanitary sewer on Ponytrail Drive.
- Internal water distribution mains will be connected to the existing watermain located on Ponytrail Drive. A hydrant flow test has been completed and the existing system provides sufficient flows to meet the requirements of the proposed development.

Therefore, based on the information provided herein, the stormwater management and site servicing requirements for the Zoning Bylaw Amendment have been provided.

LICENSED PROFESSIONAL ENGINEER
G.K. RAPP
100010606
26-01-09
PROVINCE OF ONTARIO

Greg Rapp, P.Eng

HUSSON

APPENDIX A

QUANTITY CONTROL CALCULATIONS

Rational Method Calc.

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga
Catchment:	Pre-Development

	Pre-Development
	10 Year
Runoff Coefficient (C) =	0.45
Area (A) =	3.748
A:	1010.00
B:	4.60
C:	-0.78
Tc:	15.000
Intensity (I) mm/hr =	99.2
Peak Flow (Q) L/s =	**468.24**

Catchment to Trunk Sewer

	Area	C	CxA
Landscape	25954	0.25	6488.6
Hard surface	9125	0.90	8212.5
Building	2403	0.90	2162.6
	37482	**0.45**	16863.6
Total Impervious Area	11528		
Imperviousness	31%		

Rational Method Calc.

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga
Catchment:	Uncontrolled

Post Development Peak Flows (100-Year)

	201	205
Runoff Coefficient (C) =	0.34	0.31
Area (A) =	0.199	0.098
A:	1450.00	1450.00
B:	4.90	4.90
C:	-0.78	-0.78
Tc:	0.250	0.250
Intensity (I) mm/hr =	403.8	403.8
Peak Flow (Q) L/s =	75.1	34.4

Uncontrolled to Rathburn Road East (201)

	Area	C	CxA
Landscape	1929	0.25	482.3125
Impervious	60	0.90	53.6
	1989	**0.27**	535.9

Uncontrolled to Park (205)

	Area	C	CxA
Landscape	982	0.25	245.455
Impervious	0	0.90	0.0
	982	**0.25**	245.5

Modified Rational Method

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga

Catchment 202

Area:	1.1619 ha	Rainfall I=A*(T+B)^C		
100 Year RC:	0.72		A:	1450
			B:	4.9
Discharge Rate:	0.0371 m^3/s		C:	-0.78
Storage Required	334.8 m^3			

Initial Time 15 min Increment 2 min

Time (min)	Intensity (mm/hr)	Peak Flow (m^3/s)	Roof Flow (m^3/s)	Total Flow (m^3/s)	Runoff Volume (m^3)	Discharge Volume (m^3)	Storage Volume (m^3)
15	140.7	0.327	0.0000	0.3271	294.43	33.40	261.0
17	130.6	0.304	0.0000	0.3036	309.67	37.85	271.8
19	122.0	0.284	0.0000	0.2836	323.29	42.31	281.0
21	114.5	0.266	0.0000	0.2664	335.61	46.76	288.9
23	108.1	0.251	0.0000	0.2513	346.86	51.21	295.6
25	102.4	0.238	0.0000	0.2381	357.20	55.67	301.5
27	97.4	0.226	0.0000	0.2264	366.78	60.12	306.7
29	92.9	0.216	0.0000	0.2159	375.70	64.57	311.1
31	88.8	0.206	0.0000	0.2065	384.05	69.03	315.0
33	85.1	0.198	0.0000	0.1979	391.90	73.48	318.4
35	81.8	0.190	0.0000	0.1901	399.30	77.93	321.4
37	78.7	0.183	0.0000	0.1830	406.32	82.39	323.9
39	75.9	0.176	0.0000	0.1765	412.99	86.84	326.1
41	73.3	0.170	0.0000	0.1705	419.34	91.29	328.0
43	70.9	0.165	0.0000	0.1649	425.40	95.74	329.7
45	68.7	0.160	0.0000	0.1597	431.21	100.20	331.0
47	66.6	0.155	0.0000	0.1549	436.78	104.65	332.1
49	64.7	0.150	0.0000	0.1504	442.13	109.10	333.0
51	62.9	0.146	0.0000	0.1462	447.28	113.56	333.7
53	61.2	0.142	0.0000	0.1422	452.25	118.01	334.2
55	59.6	0.139	0.0000	0.1385	457.05	122.46	334.6
57	58.1	0.135	0.0000	0.1350	461.69	126.92	334.8
59	56.6	0.132	0.0000	0.1317	466.18	131.37	334.8
61	55.3	0.129	0.0000	0.1286	470.54	135.82	334.7
63	54.0	0.126	0.0000	0.1256	474.76	140.28	334.5
65	52.8	0.123	0.0000	0.1228	478.87	144.73	334.1
67	51.7	0.120	0.0000	0.1201	482.86	149.18	333.7
69	50.6	0.118	0.0000	0.1176	486.74	153.64	333.1
71	49.5	0.115	0.0000	0.1151	490.53	158.09	332.4

Orifice Flow Calculation

Pipe Diameter	100	mm
Area	0.0079	m^2
Top of Cistern	131.36	m
Invert	129.53	m
Head (h)	1.78	m
Co-efficient	0.80	
Flow (Q)	Q=CA(2gh)$^{0.5}$	
	0.0371	m^3/s

Detention Storage

Footprint	323.00	m^2
Top of Cistern	131.36	m
Depth	1.83	m
Detention Storage Provided	590.4	m^3
100 Year Depth	1.04	m
100 year WL	130.57	m

Modified Rational Method

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga

Catchment 203+204

Area:	2.2892 ha	Rainfall $I=A*(T+B)^C$	
100 Year RC:	0.92	A:	1450
		B:	4.9
Discharge Rate:	0.3000 m^3/s	C:	-0.78
Storage Required	474.2 m^3		

Initial Time 15 min Increment 2 min

Time (min)	Intensity (mm/hr)	Peak Flow (m^3/s)	Roof Flow (m^3/s)	Total Flow (m^3/s)	Runoff Volume (m^3)	Discharge Volume (m^3)	Storage Volume (m^3)
15	140.7	0.824	0.0000	0.8242	741.79	270.02	471.8
17	130.6	0.765	0.0000	0.7649	780.19	306.02	474.2
19	122.0	0.714	0.0000	0.7145	814.51	342.02	472.5
21	114.5	0.671	0.0000	0.6711	845.55	378.03	467.5
23	108.1	0.633	0.0000	0.6332	873.88	414.03	459.9
25	102.4	0.600	0.0000	0.6000	899.94	450.03	449.9
27	97.4	0.570	0.0000	0.5704	924.07	486.04	438.0
29	92.9	0.544	0.0000	0.5440	946.54	522.04	424.5
31	88.8	0.520	0.0000	0.5202	967.57	558.04	409.5
33	85.1	0.499	0.0000	0.4987	987.35	594.04	393.3
35	81.8	0.479	0.0000	0.4791	1006.02	630.05	376.0
37	78.7	0.461	0.0000	0.4611	1023.69	666.05	357.6
39	75.9	0.445	0.0000	0.4447	1040.49	702.05	338.4
41	73.3	0.429	0.0000	0.4295	1056.49	738.05	318.4
43	70.9	0.415	0.0000	0.4154	1071.77	774.06	297.7
45	68.7	0.402	0.0000	0.4024	1086.40	810.06	276.3
47	66.6	0.390	0.0000	0.3902	1100.43	846.06	254.4
49	64.7	0.379	0.0000	0.3789	1113.92	882.06	231.9
51	62.9	0.368	0.0000	0.3683	1126.90	918.07	208.8
53	61.2	0.358	0.0000	0.3583	1139.42	954.07	185.3
55	59.6	0.349	0.0000	0.3489	1151.50	990.07	161.4
57	58.1	0.340	0.0000	0.3401	1163.19	1026.07	137.1
59	56.6	0.332	0.0000	0.3318	1174.51	1062.08	112.4
61	55.3	0.324	0.0000	0.3239	1185.48	1098.08	87.4
63	54.0	0.316	0.0000	0.3164	1196.13	1134.08	62.0
65	52.8	0.309	0.0000	0.3094	1206.47	1170.09	36.4
67	51.7	0.303	0.0000	0.3026	1216.53	1206.09	10.4
69	50.6	0.296	0.0000	0.2962	1226.31	1242.09	-15.8
71	49.5	0.290	0.0000	0.2901	1235.85	1278.09	-42.2

Orifice Flow Calculation

Pipe Diameter	250	mm
Area	0.0491	m^2
Top of Cistern	134.40	m
Invert	131.30	m
Head (h)	2.97	m
Co-efficient	0.80	
Flow (Q)	$Q=CA(2gh)^{0.5}$	
	0.3000	m^3/s

Detention Storage

Footprint	154.00	m^2
Top of Cistern	134.40	m
Depth	3.10	m
Detention Storage Provided	477.4	m^3
100 Year Depth	3.08	m
100 year WL	134.38	m

Retention Storage

Bottom of Cistern	130.9	m
Retention Depth	0.40	m
Retention Volume	61.6	m^3

APPENDIX B

DEMAND TABLE

Region of Peel
working with you

Water and Wastewater Modelling Demand Table

Site Plan Applications

Version	Date	Description of Revision
1.0	January 10 2023	Posted to Peel Website
2.0	August 30 2024	Reflects 2023 Linear Wastewater Standards and ICI population estimates as per Peel 2020 DC background study

Introduction

Water and wastewater modelling may be required as a condition of the development approval process or prior to regional site servicing connection approval where intensification is proposed, where a possible increase in water demand or wastewater discharge is identified or where deemed necessary by Regional staff.

A completed table includes the Professional Engineer's signature and stamp as well as a site servicing concept. The table will be deemed complete once all the information below is submitted and/or included. Modelling will commence once the information is deemed complete. All required calculations must be submitted with the completed demand table. The calculations shall be based on the specific development proposal.

Application Information

Application Number:	
Address:	4100 Ponytrail Drive
Consulting Engineer:	
Date Prepared:	December 08, 2025

Population

Existing

		Units	Persons
1	Residential [8)]	385	1000
2	Institutional/Employment [8)]		0
3	Total	385	1000

Proposed

			Units	Persons
4	Residential [1)]	singles/semis (4.2 ppu)		
5		Townhomes (3.4 ppu)		
6		Large apartments (>1 bedroom – 3.1 ppu)	478	1483
7		Small apartments (<=1 bedroom – 1.7 ppu)	502	855
8		Total proposed residential	980	2338
9	Proposed Institutional[2)]			0
10	Proposed employment [3)]			0
11	Total Proposed			2338

Other

12	Existing gross floor area for commercial and/or retail (sqm)	0
13	Proposed gross floor area for commercial and/or retail (sqm)	0
14	Land area (ha)	3.75

Water Connection

Hydrant flow test [4)]

15	Location 1	1891 Rathburn Road East
16	Location 2	4100 Ponytrail Drive

		Pressure (kPa)	Flow (L/s)	Time
17	Minimum water pressure			
18	Maximum water pressure			

Water Demands (L/s)

		Use 1 [6)]	Use 2 [6)]	Use 3 [6)]	Total
19	Existing fire flow [5)] [8)]				0
20	Proposed average day flow	6.6			6.6
21	Proposed maximum day flow	13.3			13.3
22	Proposed peak hour flow	19.9			19.9
23	Proposed fire flow [5)]				66.7

Water calculations

Please use the following updated typical water demand criteria as per Peel's 2020 Development Charges background study.

Population Type	Unit	Average Consumption Rate	Max Day Factor	Peak Hour Factor
Residential	L/cap/d	270	1.8	3.0
Institutional/Commercial/ Industrial	L/emp/d	250	1.4	3.0

Wastewater Connection

Wastewater Effluent (L/s)

		Discharge location [7)]	Flow
24	Existing effluent [8)]	Rathburn Road East/Ponytrail Drive	12.8
25	Proposed effluent	Rathburn Road East	9.5
26	Proposed effluent	Ponytrail Drive	19.8
27	Proposed effluent		
28	Proposed additional effluent [8)]		
29	Other proposed effluent*	Rathburn Road East/Ponytrail Drive	0.98
30	Total proposed effluent		30.2

*Please specify other proposed effluent (ex. occasional tank purges, off peak discharge, pool drainage)

Infiltration

Wastewater calculations

Please use the following updated daily per capita as per 2023 Peel Linear Wastewater Standards

Population Type	Unit	Average Day Demand	Min Peaking Factor	Max Peaking Factor	Inflow and Infiltration**
Residential	L/cap/d	290	2	4	0.26L/s/Ha
Non-residential	L/emp/d	270	2	4	0.26L/s/Ha

**For maintenance holes that are flood prone or located in low lying areas, an extra 0.28 L/s per maintenance hole may be added to the I&I calculation.

Notes

1) In accordance with Peel Linear Wastewater Standards and Region of Peel 2020 DC background Study
2) refer to Peel Linear Wastewater Standards
3) For the commercial and industrial design flow calculations, please refer to Schedule 8b on page A-9 of the Region of Peel 2020 DC background Study to determine population.
4) Please include the graphs associated with the hydrant flow test data. Hydrant flow tests should be performed within 2 years of submission to the Region. The Region will not permit hydrant flow tests during the winter, please contact Region Water Operations for scheduling. The Region reserves the right to request an updated hydrant flow test as required at any time.
5) Please reference the Fire Underwriters Survey Document
6) Please identify the flows for each use type, **if applicable**
7) Please include drainage plan for multiple discharge locations
8) For Intensification, sites with additions to buildings or additional buildings please provide existing flow for existing buildings and the added flows for the new proposal, **if applicable**

HUSSON

APPENDIX C

WATER DEMAND CALCULATIONS

Fire Flow Requirements

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga
Building:	B-4

20 Storey Tower

GUIDE FOR DETERMINATION OF REQUIRED FIRE FLOW
(as per the Water Supply for Public Fire Protection 2020 manual by the Fire Underwriters Survey)

STEP 1
Determine the fire flow.

Required Fire Flow (F)	F = 220 x C x sqrt(A)	The required fire flow in litres per minute.	
Total Effective Area (A) =	1672.3 m2	If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.	
	Largest 4th		1127
	Floor Below 3rd		1054
	Floor Above 5th		1127
Coefficient (C) =	0.8	Coefficient related to the type of construction.	
		1.5 for type V wood Frame Construction	
		0.8 for type IV-A Mass Timber Construction	
		0.9 for type IV-B Mass Timber Construction	
		1.0 for type IV-C Mass Timber Construction	
		1.5 for type IV-D Mass Timber Construction	
		1.0 for type III Ordinary Construction	
		0.8 for Non-combustible Construction	
		0.6 for Type I Fire Resistive Construction	
F =	7197 L/min.		
	7000	Round total to nearest 1000	

STEP 2
Determine the increase or decrease for occupancy.

	15%	Reduction for Residential Occupancies.
Decrease	1050 L/min.	(-15% for Limited Combustible Contents)

STEP 3

		flow from Step 1 - Step 2
F =	5950 L/min.	

STEP 4
Determine the decrease, if any, for automatic sprinkler protection.

	50%	Automatic sprinkler per NFPA 13 = 30% Water supply is standard for both the system and Fire Department hose lines = 10% Fully supervised system = 10%
Decrease	2975 L/min.	

STEP 5
Determine the total increase for exposures. 0 -3m (25%), 3.1-10m (20%), 10.1-20m (15%), 20.1-30m (10%), Greater than 30 (0%)

North	0%		49
East	10%		24.5
South	0%		77
West	0%		42
	10.0%	Maximum exposure increase is 75%.	
Increase	595.0 L/min.		

STEP 6
Determine the minimum required fire flow.

F =	**3,570 L/min.**	
	4,000 L/min.	Round total to nearest 1000.
Q_R =	**4856 GPM**	Hydrant Flow Test on Ponytrail Drive, dated June 15, 2025
	18,382 L/min	

Fire Flow Requirements

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga
Building:	B-5

20 Storey Tower

GUIDE FOR DETERMINATION OF REQUIRED FIRE FLOW
(as per the Water Supply for Public Fire Protection 2020 manual by the Fire Underwriters Survey)

STEP 1
Determine the fire flow.

Required Fire Flow (F)	F = 220 x C x sqrt(A)		The required fire flow in litres per minute.	
Total Effective Area (A) =	1672.3	m2	If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.	
	Largest	4th		1127
	Floor Below	3rd		1054
	Floor Above	5th		1127
Coefficient (C) =	0.8		Coefficient related to the type of construction.	
			1.5 for type V wood Frame Construction	
			0.8 for type IV-A Mass Timber Construction	
			0.9 for type IV-B Mass Timber Construction	
			1.0 for type IV-C Mass Timber Construction	
			1.5 for type IV-D Mass Timber Construction	
			1.0 for type III Ordinary Construction	
			0.8 for Non-combustible Construction	
			0.6 for Type I Fire Resistive Construction	
F =	7197	L/min.		
	7000		Round total to nearest 1000	

STEP 2
Determine the increase or decrease for occupancy.

	15%		Reduction for Residential Occupancies.
Decrease	1050	L/min.	(-15% for Limited Combustible Contents)

STEP 3

			flow from Step 1 - Step 2
F =	5950	L/min.	

STEP 4
Determine the decrease, if any, for automatic sprinkler protection.

	50%		Automatic sprinkler per NFPA 13 = 30% Water supply is standard for both the system and Fire Department hose lines = 10% Fully supervised system = 10%
Decrease	2975	L/min.	

STEP 5
Determine the total increase for exposures.

0 -3m (25%), 3.1-10m (20%), 10.1-20m (15%), 20.1-30m (10%), Greater than 30 (0%)

North	10%			24
East	0%			89
South	0%			100
West	10%			24
	20.0%		Maximum exposure increase is 75%.	
Increase	1190.0	L/min.		

STEP 6
Determine the minimum required fire flow.

F =	**4,165**	**L/min.**	
	4,000	**L/min.**	Round total to nearest 1000.
Q_R =	**4856**	**GPM**	Hydrant Flow Test on Rathbrun Road, dated June 15, 2025
	18,382	**L/min**	

Fire Flow Requirements

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga
Building:	B-6

20 Storey Tower

GUIDE FOR DETERMINATION OF REQUIRED FIRE FLOW

(as per the Water Supply for Public Fire Protection 2020 manual by the Fire Underwriters Survey)

STEP 1

Determine the fire flow.

Required Fire Flow (F)	F = 220 x C x sqrt(A)		The required fire flow in litres per minute.
Total Effective Area (A) =	1478.0	m2	If the vertical openings and exterior vertical communications are properly protected (one hour rating), consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors.
	Largest	4th	1003
	Floor Below	3rd	897
	Floor Above	5th	1003
Coefficient (C) =	0.8		Coefficient related to the type of construction.
			1.5 for type V wood Frame Construction
			0.8 for type IV-A Mass Timber Construction
			0.9 for type IV-B Mass Timber Construction
			1.0 for type IV-C Mass Timber Construction
			1.5 for type IV-D Mass Timber Construction
			1.0 for type III Ordinary Construction
			0.8 for Non-combustible Construction
			0.6 for Type I Fire Resistive Construction
F =	6766	L/min.	
	7000		Round total to nearest 1000

STEP 2

Determine the increase or decrease for occupancy.

	15%		Reduction for Residential Occupancies.
Decrease	1050	L/min.	(-15% for Limited Combustible Contents)

STEP 3			flow from Step 1 - Step 2
F =	5950	L/min.	

STEP 4

Determine the decrease, if any, for automatic sprinkler protection.

	50%		Automatic sprinkler per NFPA 13 = 30% Water supply is standard for both the system and Fire Department hose lines = 10% Fully supervised system = 10%
Decrease	2975	L/min.	

STEP 5

Determine the total increase for exposures.			0 -3m (25%), 3.1-10m (20%), 10.1-20m (15%), 20.1-30m (10%), Greater than 30 (0%)
North	0%		100
East	0%		69
South	10%		24
West	10%		24
	20.0%		Maximum exposure increase is 75%.
Increase	1190.0	L/min.	

STEP 6

Determine the minimum required fire flow.

F =	**4,165**	**L/min.**	
	4,000	**L/min.**	Round total to nearest 1000.
Q_R =	**4856**	**GPM**	Hydrant Flow Test on Rathbrun Road, dated June 15, 2025
	18,382	**L/min**	

Domestic Flow Requirements

Project:	Forest Park Circle
Project No.:	211241
Municipality:	Mississauga

Per Capita Demand:	280	L/c/d
Commercial Flow:	300	L/c/d

Peaking Factors (Residential):

Peak Hour Demand	3.0
Maximum Day Demand	2.0

Peaking Factors (Commercial):

Peak Hour Demand	3.0
Maximum Day Demand	1.4

Unit Type	Number of Units	People per Unit	Population
Small Apartment	502	1.7	853.4
Large Apartment	478	3.1	1481.8
Total	**980**		**2336**

Average Daily Demand Res. (L/day)	654,080
Average Daily Demand Res. (L/s)	7.57

Peak Hour Demand (L/min)

Residential:	1,362.67
Peak Hour Demand (L/s)	22.71

Maximum Day Demand (L/min)

Residential:	908.44
Maximum Day Demand (L/s)	15.14

HUSSON

APPENDIX D

SUBSURFACE UTILITY ENGINEERING

September 5, 2025

Colin Eden | Director of Construction, Land Development colin@lormelhomes.com
Lormel Homes
331 Cityview Blvd., Suite 300
Vaughan, ON L4H 3M3

Re: **Subsurface Utility Engineering (SUE) – Rathburn Road and Ponytrail Drive**
Project Ref#: 25-46-41547

Project Summary

OnSite Locates Inc. (OSL) was engaged to complete Subsurface Utility Engineering of the above noted property by Lormel Homes on July 21st, 2025.

The SUE Investigation was completed in accordance with *CI/ASCE Standard 38-02: Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data*.

The work was conducted between 2025-08-08 and 2025-08-27 and was successful in designating the alignment of the underground utilities within the Project Area.

The following utilities were identified:

- Gas
- Electrical
- Telecommunications
- Water
- Sanitary and Storm

This Report was created to supplement the digital file(s) 25-46-41547-Sept5.dwg that makes up the final deliverable of the project.

OSL recommends the following additional investigations for consideration by the client.

- CCTV

Project Area

Subsurface Utility Engineering Investigation Standards

OnSite Locates Inc. performed the SUE Investigation in accordance with the *CI/ASCE Standard 38-02: Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data*.

CI/ASCE Standard 38-02 Summary

Quality Level D (QL-D) - information derived from utility records or oral recollections.

Quality Level C (QL-C) - Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to quality level D information.

Quality Level B (QL-B) - Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. This information is surveyed to applicable tolerances defined by the project and reduced onto plan documents.

Quality Level A (QL-A) - Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping accuracy as defined or expected by the project owner.

Equipment and Techniques

JDB/OSL survey crews are trained to use the tools provided to them in accordance with the JDB/OSL Standard Operating Procedures, project scope, conditions, and the manufacturer's instructions to ensure the work is completed safely, accurately, and on time. Below is a description of the equipment and techniques used by JDB/OSL during the SUE Investigation.

Electromagnetic Designating Equipment
JDB/OSL uses industry standard electromagnetic cable and pipe locate kits. This equipment consists of a transmitter and receiver operating in a range of frequencies. In essence, the transmitter is used to induce a signal on a utility either through direct connection to the utility or electromagnetic induction and the signal is detected by the transmitter allowing the operator to mark on the ground the approximate horizontal location of the utility. The receiver also provides a depth estimation of the buried utility.

It is important to note that this type of equipment has its limitations, since it is the electromagnetic field that is detected, and not the utility itself. It will not locate non-metallic lines such as plastic pipes. Additionally, there are several factors that may distort the signal, causing the designation to be inaccurate, or making the utility impossible to detect. These factors are broken tracer wires, utility congestion, and change in utility material etc.

Survey Equipment
JDB/OSL employs the use of typical surveying instruments such as Total Stations and high accuracy Global Navigation Satellite Systems (GNSS). GNSS units are primarily used, with Total Stations being an alternative when there is no good satellite signal: under trees, near buildings etc.

Computer-Aided Design (CAD) Drafting
JDB/OSL employs the use of industry standard programs e.g. MicroStation and AutoCAD to manipulate and present data.

Subsurface Utility Engineering Investigation Summary

Utility Circulation Request
The record search process commenced on 2025-07-23, the final records were obtained on 2025-08-29. The results and status of the records search is provided below:

- Enbridge – Received – 2025-07-30
- Bell – Received – 2025-07-25
- Alectra – Received – 2025-08-08
- Beanfield – Cleared – 2025-06-23
- GT – Cleared – 2025-07-29
- Hydro One – Cleared – 2025-08-01
- Peel Region – received – 2025-08-29
- Peel Region Fiber – Cleared – 2025-07-30
- Rogers – Received – 2025-08-08
- Streetlights – Received – 2025-08-04
- TELUS – Cleared – 2025-07-24
- Zayo – Cleared – 2025-07-25

Field Investigation

The field investigation was conducted using geophysical locate techniques. All above ground features related to underground utilities, such as pedestals, ground level boxes etc. were investigated.

All manholes and catch basins in the investigation area were inspected to obtain invert depth and diameters measurements for storm and sanitary sewers.

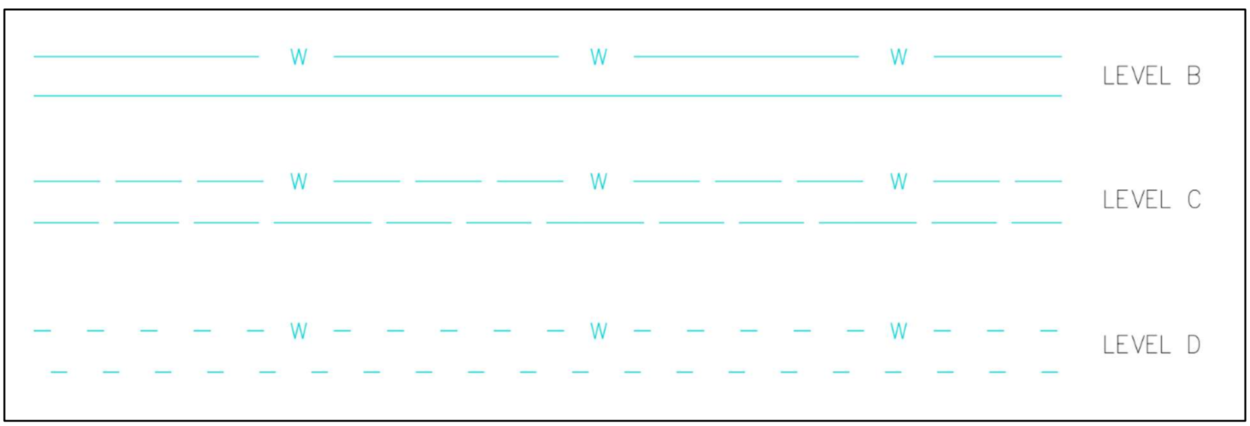
Data Analysis

Field and record data were analyzed using professional judgement to provide a comprehensive presentation of the utility plant and infrastructure within the workspace.

Active construction and road widenings presented challenges with records acquisition and presenting abandoned infrastructure.

CAD Presentation

Line styles are designated as per the CI/ASCE Standard 38-02 and are depicted in the CAD deliverable as seen below.



Report Prepared by:

Zach Wheeler
Project Coordinator | SUE

SUBSURFACE UTILITY PLAN OF
RATHBURN ROAD AND PONYTAIL DRIVE
CITY OF MISSISSAUGA
REGIONAL MUNICIPALITY OF PEEL

ONSITE LOCATES INC.

SCALE 1 : 250

5 0 5 10 15 metres

METRIC

DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

COORDINATE SYSTEM

UTM ZONE 17, NAD83 (CSRS) (2010.0).

ELEVATION

ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:78), AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEOID MODEL HT2.0.

LEGEND

— SAN —	DENOTES UNDERGROUND SANITARY SEWER
— STM —	DENOTES UNDERGROUND STORM SEWER
— G —	DENOTES UNDERGROUND GAS LINE
— W —	DENOTES UNDERGROUND WATER LINE
— UE —	DENOTES UNDERGROUND HYDRO LINE
— UC —	DENOTES UNDERGROUND CABLE LINE
— UT —	DENOTES UNDERGROUND TELEPHONE LINE
— FO —	DENOTES UNDERGROUND FIBRE OPTIC LINE
SAN MH	DENOTES SANITARY MANHOLE
STM MH	DENOTES STORM MANHOLE
CB	DENOTES STORM CATCH BASIN
SICB	DENOTES STORM SIDE INLET CATCH BASIN
H	DENOTES FIRE HYDRANT
WV	DENOTES WATER VALVE
TL	DENOTES TRAFFIC LIGHT
TSC	DENOTES TRAFFIC SIGNAL CONTROL
HT	DENOTES HYDRO TRANSFORMER
LS	DENOTES LIGHT STANDARD
HP	DENOTES HYDRO POLE
HPED	DENOTES HYDRO PEDISTAL
HW	DENOTES HAND WELL
TMH	DENOTES TELEPHONE MANHOLE
CPED	DENOTES ROGERS PEDISTAL
PED	DENOTES BELL PEDISTAL
OPI	DENOTES OUTSIDE PLANT INTERFACE
JN BOX	DENOTES JUNCTION BOX
GLB	DENOTES GROUND LEVEL BOX
GV	DENOTES GAS VALVE
G METER	DENOTES GAS METER
	DENOTES END CAP
P A/R	DENOTES "POSSIBLE REMOVED OR ABANDONED"

SEWER INVERT NOTE:

SEWER INVERT DEPTHS ARE MANUALLY MEASURED FROM THE LID/GRATE OF THE GIVEN FEATURE.

ANNOTATIONS DISPLAYED AS *ITALICIZED* WITH AN ASTERISK* HAVE BEEN INTERPOLATED FROM RECORDS AND WERE NOT FIELD VERIFIED BY ONSITE LOCATES LTD.

INVERT DEPTH MEASUREMENTS ARE FROM THE ASSUMED BOTTOM OF THE FACILITY STRUCTURE.

DEPTHS ARE NOT SUITABLE FOR EXCAVATION PURPOSES. SEWER NETWORK CONNECTIONS WERE COMPILED WHERE FIELD EVIDENCE COINCIDED WITH AS-BUILT RECORDS

WHERE NO DEPTH INFORMATION COULD BE OBTAINED, UTILITIES ARE ASSUMED TO BE AT STANDARD INSTALLATION DEPTH FOR THE SPECIFIC TYPE OF UTILITY.

THE MOST RELIABLE WAY TO PRECISELY DETERMINE THE HORIZONTAL AND VERTICAL LOCATION OF AN UNDERGROUND UTILITY IS THROUGH PHYSICAL EXPOSURE USING SAFE DIGGING TECHNIQUES (COMMONLY PERFORMED WITH HYDRO VACUUM EXCAVATION)

INVERT DEPTH MEASUREMENTS HEREON ARE PROVIDED IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SEWER INVERT DATA TABLE

Feature ID	Direction	Diameter (mm)	Invert Depth (m)	Notes
SAN MH#1	NE	400	4.5	
	SE	*250	3.55	
	SW	400	4.40	
SAN MH#2	NW	250	4.68	
	NE	*400	4.91	RECESSED
	SW	400	4.80	
SAN MH#3	*N	*250	2.34	BOLTED SHUT;
	*SW	*250	2.54	PAVED OVER
	*SW	*250	3.81	DROP
SAN MH#4	*E	*400	5.75	BOLTED SHUT;
	*SW	*400	5.65	PAVED OVER
SAN MH#5	NE	300	4.1	
	SW	200	3.77	
SAN MH#6	*N	*250	4.5	BOLTED SHUT;
	*E	*400	6.17	PAVED OVER
	*W	*400	5.80	
SAN MH#7	*E	*400	± 5.66	
	*S	*300	N/A	
	*W	*400	± 5.65	
SAN MH#8	*N	*450	8.71	BOLTED SHUT;
	*E	*750	8.98	PAVED OVER
	*W	*600	8.96	
SAN MH#9	*N	*450	7.46	BOLTED SHUT;
	*S	*450	7.49	PAVED OVER
SAN MH#10	*NW	*250	5.9	BOLTED SHUT; PAVED
	*E	*450	5.98	OVER; NO ACCESS
	*S	*450	6.08	
	*W	*400	5.96	
SAN MH#11	*N	*450	±6.24	BOLTED SHUT; PAVED
	*E	*750	±8.89	OVER; NO ACCESS
	*W	*750	±8.86	
SAN MH#12	*SE	*750	7.61	
	*SW	*250	5.41	
	*SW	*250	7.09	DROP
	*W	*750	7.58	
SAN MH#13	*NW	*750	7.04	
	*NW	*250	N/A	DROP
	*NE	*300	6.08	
	*SE	*1200	7.56	
SAN MH#14	*NE	*250	5.59	BOLTED SHUT; NO ACCESS
	*S	*250	5.56	ABANDONED
	*SW	*300	5.83	
STM MH#1	NW	450	3.98	
	NE	750	4.52	
	SW	675	4.50	
STM MH#2	*NW	*600	4.06	
	NE	*825	4.85	RECESSED
	SW	750	4.80	
STM MH#3	S	250	1.4	
STM MH#4	N	375	2.81	
	E	450	3.00	
	SW	250	2.92	
STM MH#5	*NW	*450	4.57	
	NE	*825	4.95	RECESSED
	SW	825	4.90	
STM MH#6	E	*825	5.74	RECESSED
	SW	*825	5.70	RECESSED
STM MH#7	E	*825	6.05	RECESSED
	W	*825	5.90	RECESSED
STM MH#8	S	250	2.78	
	W	250	3.00	
	W	250	3.35	
STM MH#9	NW	*975	5.77	B.O.C. 6.01
	E	*1350	5.99	
	W	*825	5.45	
STM MH#10	SE	*1350	5.2	RECESSED
	W	*1350	5.16	RECESSED
STM MH#11	*NW	*1350	4.11	
	*E	*2700	4.69	
	*W	*2100	4.41	
CB#1	E	250	1.25	
	SE	250	0.87	
CB#2	NW	250	0.7	
CB#3	*NW	N/A	N/A	FULL OF DEBRIS
SICB#4	N	250	1.59	
CB#5	E	200	1.05	
SICB#6	S	250	1.52	
SICB#7	N	250	0.93	
SICB#8	S	200	2.06	
SICB#9	E	250	1.4	
SICB#10	N	200	1.03	
SICB#11	E	200	1.61	
SICB#12	E	250	1.98	
SICB#13	N	200	1.12	
SICB#14	SW	250	1.33	

**INFORMATION OBTAINED FROM RECORDS NOT FIELD VERIFIED BY ONSITE LOCATES INC.*

UNDERGROUND UTILITY NOTES

THE UTILITY DATA DEPICTED ON THIS DRAWING WERE ACQUIRED IN ACCORDANCE WITH ASCE STANDARD 38-02. THE INFORMATION IS SHOWN BY ATTRIBUTED QUALITY LEVELS WHICH ARE DEFINED AS FOLLOWS:

DATA QUALITY LEVEL

HIGHEST QUALITY

QUALITY LEVEL A
QUALITY LEVEL B
QUALITY LEVEL C
QUALITY LEVEL D

LOWEST QUALITY

QUALITY LEVEL "A" - INFORMATION OBTAINED BY ACTUAL PHYSICAL EXPOSURE OF TARGETED UTILITIES AND SUBSEQUENT MEASUREMENT OF THE EXPOSED PRECISE HORIZONTAL AND VERTICAL POSITION.

QUALITY LEVEL "B" - INFORMATION OBTAINED USING GEOPHYSICAL LOCATE TECHNIQUES TO IDENTIFY THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE DESIGNATED UTILITIES.

QUALITY LEVEL "C" - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO THE QUALITY "D" INFORMATION OBTAINED.

QUALITY LEVEL "D" - INFORMATION DERIVED FROM UTILITY RECORDS OR VERBAL RECOLLECTIONS

ALL SERVICES ARE QUALITY "D" UNLESS NOTED OTHERWISE.
LEVEL "D" RECORD INFORMATION SHOWN ON THIS PLAN HAVE BEEN PLOTTED APPROXIMATELY AS PER THE RECORDS FOUND AND COULD NOT BE FIELD VERIFIED WITHIN THE SCOPE OF THIS PROJECT. IF FURTHER VERIFICATION IS REQUIRED, IT IS SUGGESTED THAT LEVEL "A" METHODOLOGIES BE EMPLOYED.

LOST SIGNAL- DENOTES/INDICATES A POINT WHERE QL-B METHODS COULD NO LONGER ASCERTAIN THE HORIZONTAL POSITION OF A FACILITY.

QUALITY LEVEL "D" INFORMATION COMPILED FROM RECORDS

CAUTION: CALL BEFORE YOU DIG

THIS PLAN IS INTENDED FOR DESIGN PURPOSES ONLY. OTHER BURIED UTILITIES MAY EXIST WHICH ARE NOT SHOWN DUE TO INSUFFICIENT INFORMATION OR IMPROPER INSTALLATION. CONTACT ALL POTENTIAL OWNERS OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR BREAKING GROUND.
IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE APPROPRIATE LEGAL REQUIREMENTS ARE MET.

SUBSURFACE UTILITY FIELD WORK WAS COMPLETED ON THE xdatex DAY OF xmonthx, xyearx

ONSITE LOCATES INC.
UTILITY LOCATE SERVICES
A wholly owned subsidiary of J.D. Barnes Ltd.
140 RENFREW DRIVE, SUITE 100, MARKHAM, ON L3R 6B3
T: 1-800-805-6155 www.onsitelocates.ca

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
SK	ZW	25-46-41547
		DATED: 09/05/25