

Perley Health Expansion

Site Servicing and Stormwater Management Report

1750 Russell Road

Ottawa, Ontario



CIMA+ file number: Z0017061 (370)
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1750 Russell Road

Ottawa, Ontario

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Table of Contents

1.	Introduction	3
1.1	Site Description and Proposed Development	3
1.2	Review of Available Background Documentation	5
1.3	Consultation	5
2.	Water Servicing	6
2.1	Existing Water Servicing	6
2.2	Water Supply Design Criteria	7
2.3	Proposed Water Supply Servicing and Calculations	8
2.4	Water Supply Summary and Conclusions	10
3.	Sanitary Servicing	11
3.1	Sanitary Servicing Design Criteria	11
3.2	Existing Sanitary Services	12
3.2.1	Existing Sanitary Sewer – 250mm diameter (municipal)	12
3.2.2	Existing Sanitary Sewer – 200mm diameter (private)	12
3.3	Proposed Sanitary Servicing and Calculations	14
3.3.1	Proposed Sanitary Sewer Modifications	14
3.3.2	Proposed Sanitary Servicing Calculations	14
3.4	Sanitary Servicing Summary and Conclusions	15
4.	Storm Servicing and Stormwater Management	16
4.1	Existing Storm Servicing and SWM	16
4.1.1	Existing Storm Sewer – 300mm diameter (private)	16
4.1.2	Existing Storm Sewer – 600mm diameter (public)	16
4.1.3	Existing Stormwater Management (private)	16
4.2	Storm Servicing Strategy and Design Criteria	18
4.3	Proposed Storm Servicing and Stormwater Management Design and Calculations	18
4.3.1	Storm Service Connection Point	18
4.3.2	Allowable Release Rates	18
4.3.3	Unattenuated Flows	18
4.3.4	Attenuated Flows	19
4.4	Storm Servicing and Stormwater Management Summary and Conclusions	19
5.	Conclusion	20

List of Tables

Table 2-1: Water Supply Design Criteria	7
Table 2-2: Water Demands.....	8
Table 3-1: Sanitary Peak Flow Determination Design Criteria.....	11
Table 3-2: Peak Sanitary Flows – Existing Private	14
Table 3-3: Peak Sanitary Flows	14
Table 4-1: Existing Storm Water Statistics.....	17
Table 4-2: Flows and Storage.....	19

List of Figures

Figure 1: Site Location - Plan View.....	3
Figure 2: Conceptual Site Plan.....	4
Figure 3: Existing water servicing	6
Figure 4: Sanitary Outlet to Municipal Main	12
Figure 5: Building Limits for Sanitary Outlet Contributions	13
Figure 6: Existing Private Storm Sewer Routing.....	16
Figure 7: Existing Drainage Areas	17

List of Appendices

Appendix A Correspondence with Stakeholders	
Appendix B Site Plan	
Appendix C Civil Drawings	
Appendix D Water Servicing Design Calculations	
Appendix E Sanitary Flow and Pipe Capacity Calculations	
Appendix F Storm Servicing and Stormwater Management Calculations	
Appendix G Building Roof – Technical References	

1. Introduction

CIMA+ was retained by NEUF architect(e)s to prepare a Site Servicing and Stormwater Management Report in support for the proposed construction of a 6-storey residential care facility (120 residential units) building to be located at 1750 Russell Road in the City of Ottawa within the Perley Health Campus.

The purpose of this report is to confirm that the proposed development can be adequately serviced by the existing sewers and watermain infrastructures surrounding the site. This report shall be used in support of a Site Plan Control application for a residential care facility.

1.1 Site Description and Proposed Development

The subject site is municipally known as 1750 Russell Road and is located within an established, urbanized area in the southeast portion of the City of Ottawa (refer to **Figure 1**). The property is currently developed and serviced by existing municipal infrastructure, including water, sanitary sewer, storm sewer, and roadway networks.

The site occupies a relatively large parcel fronting Russell Road and is generally bounded by established low-density residential neighbourhoods to the south and west, institutional and community-related uses to the north, and Russell Road to the east. The surrounding area consists predominantly of residential land uses with localized institutional and open space components.

The proposed development is subject to Site Plan Approval and involves modifications to the existing site layout and servicing configuration. As part of the proposed works, on-site grading, stormwater management, and municipal servicing will be reviewed and refined to ensure compliance with current City of Ottawa standards and guidelines, while maintaining appropriate integration with the surrounding neighbourhood and existing municipal systems.



Based on the latest architectural drawings, the proposed development will consist of a single multi-storey residential building to be constructed in the southwestern portion of the overall property. The building is proposed to be constructed with a slab-on-grade foundation.

At final grades, the building will be surrounded by asphalt-paved drive aisles, pedestrian walkways, and landscaped areas. The proposed development is intended to be fully serviced by the City of Ottawa's municipal water, sanitary, and storm sewer networks. Site access and the configuration of municipal service connections will be further detailed in subsequent sections of this report.

Refer to the Site Plan in **Appendix B** and **Figure 2** below for a conceptual layout of the proposed development, as prepared by NEUF architect(e)s.

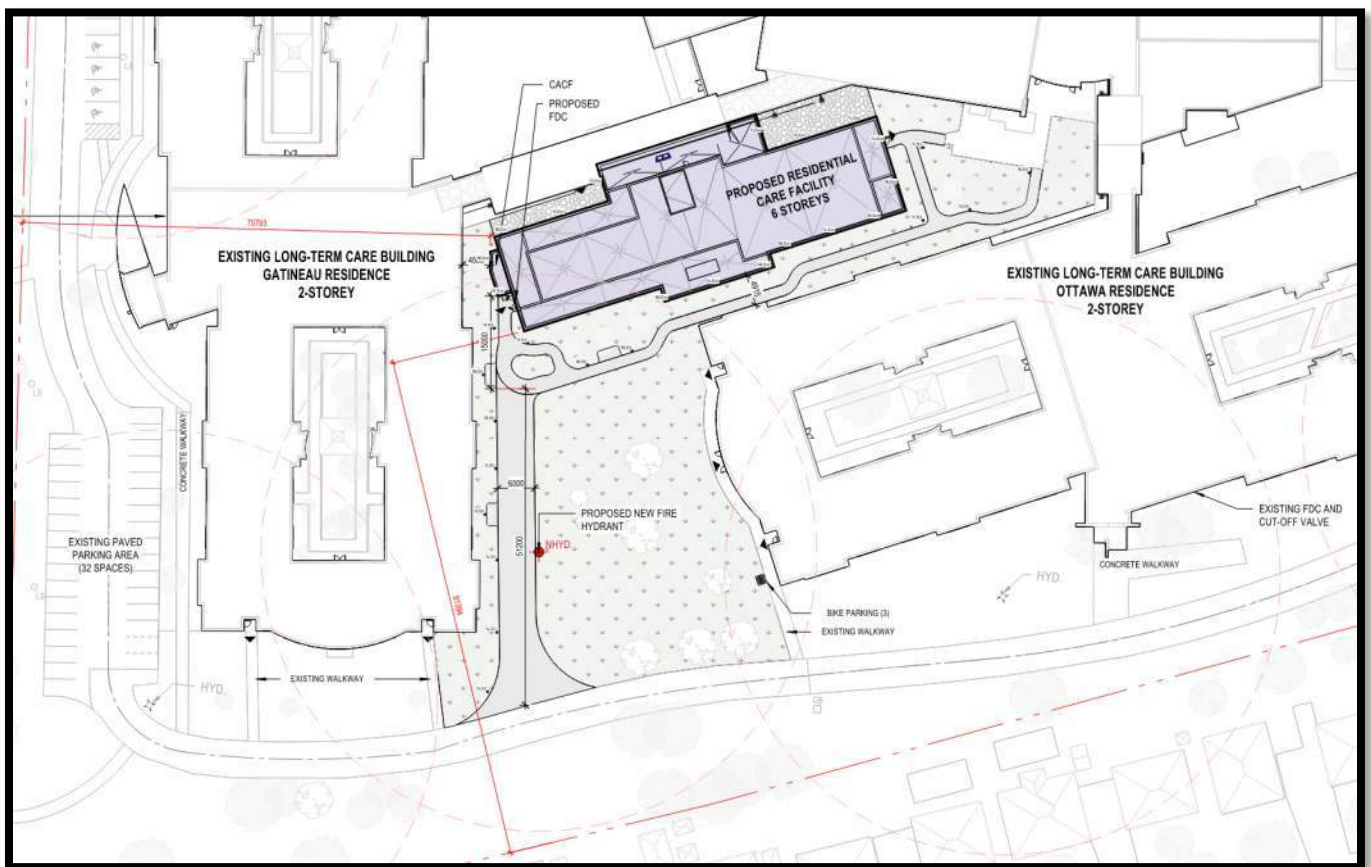


Figure 2: Conceptual Site Plan.

1.2 Review of Available Background Documentation

Add The following design guidelines were used to estimate the theoretical servicing requirements for the proposed development, while existing municipal services fronting the site were identified using geoOttawa, T2 dry utility locate records, CIMA+ survey data, and information provided by the City of Ottawa. Coordination emails from various stakeholders are included in **Appendix A**.

- + City of Ottawa Sewer Design Guidelines (2025).
- + City of Ottawa Water Distribution Design Guidelines (2025).
- + Ministry of the Environment Design Guidelines for Sewage Works (2008).
- + Ministry of the Environment Stormwater Management Planning and Design Manual (2003).
- + Ministry of the Environment Design Guidelines for Drinking-Water Systems (2008).
- + Ontario Building Code (O. Reg. 163/24, as amended), fire protection provisions related to water supply and fire flow requirements.
- + Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (2020).

1.3 Consultation

For the preparation of this report and associated calculations, CIMA+ coordinated with various stakeholders. Key correspondence and design assumptions are provided in **Appendix A**.

2. Water Servicing

2.1 Existing Water Servicing

The existing water servicing for the subject property consists of a private 200 mm diameter watermain that provides both domestic water supply and fire protection to the existing building. The watermain forms part of a private looped (ring) system located within the site limits.

Along the south-west portion of the site, in the vicinity of the proposed building footprint, the existing private watermain includes two (2) existing fire hydrants currently serving the adjacent building. These hydrants are proposed to be utilized for fire protection purposes, subject to confirmation of available fire flows.

Refer to **Figure 3** for an illustration of the existing water servicing configuration.

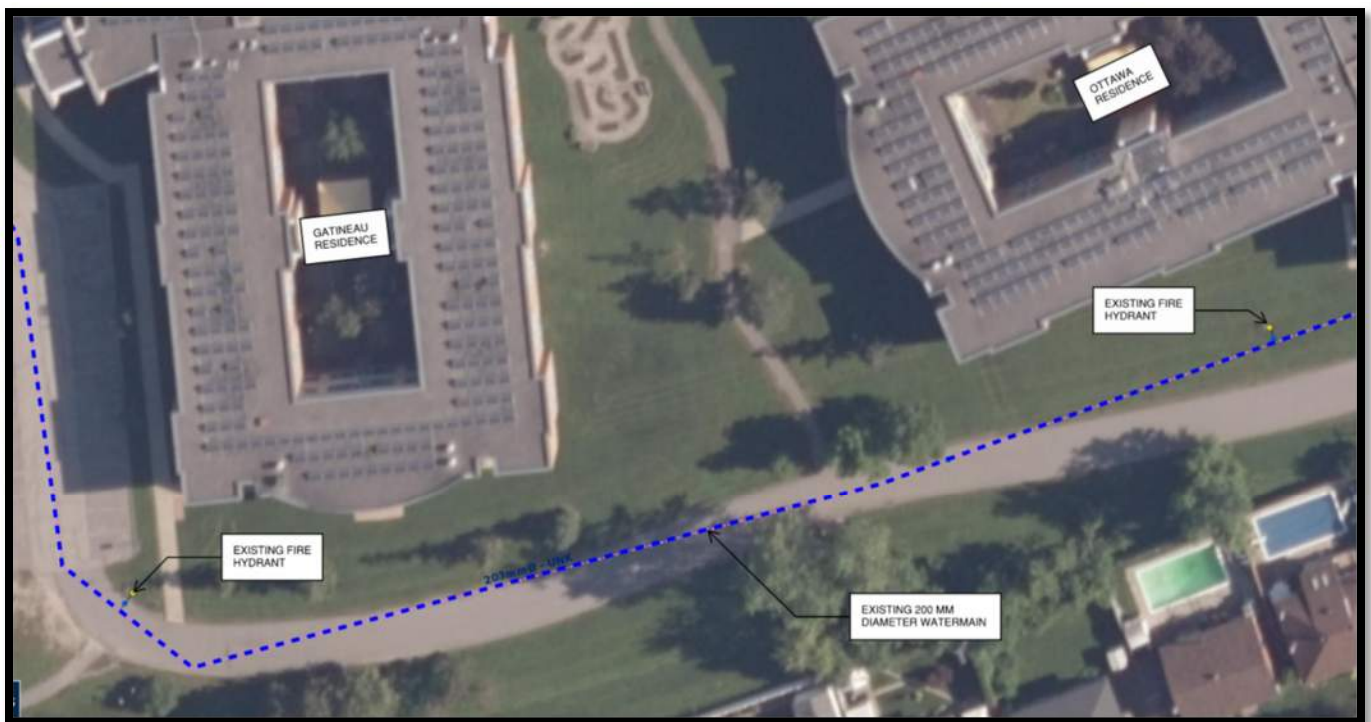


Figure 3: Existing water servicing

2.2 Water Supply Design Criteria

The design criteria for determining the water demand requirements for the proposed development follow the parameters outlined in the Ottawa Design Guidelines – Water Distribution (2025) and associated technical bulletins, as well as the MOE Design Guidelines for Drinking-Water Systems (2008). The following parameters have been used in determining the water demands:

Table 2-1: Water Supply Design Criteria

Design Criterion ¹	Residential Areas	Commercial Areas
Average Day Demand	280 L/capita/day	N/A
Maximum Daily Demand	3.7 × average daily demand ¹	N/A
Maximum (Peak) Hour Demand	5.6 × average daily demand ¹	N/A
Populations – 1 Bedroom Apartment	1 Persons Per Unit	N/A
Desired Operating Pressure under Normal Operating Conditions	50 to 70 psi	
Minimum Operating Pressure under Normal Operating Conditions	40 psi	
Maximum Operating Pressure under Normal Operating Conditions	80 psi	
Minimum Operating Pressure under Maximum Daily Demand + Fire Flow	20 psi	

In addition to those design criteria identified in **Table 2-1**, the following comments and criteria identified by the City as part of the pre-consultation shall be considered in the water supply servicing strategy:

- + The City of Ottawa Water Distribution Design Guidelines identify several conditions under which redundant water servicing may be required to avoid the creation of a vulnerable service area. These conditions include, but are not limited to, the following:
 - + Basic day demand criterion: Developments with a basic day water demand greater than 50 m³/day may be required to provide redundant water servicing. Based on the current servicing assumptions, this criterion is not applicable to the proposed development.
 - + Residential development criterion: Residential developments consisting of 50 or more dwelling units may be required to provide redundant water servicing. This criterion does not apply to the proposed development, as the building is not classified as a residential development under this definition.
 - + Supply Sensitive User criterion: Sections 4.6.1 and 4.6.2 of the City of Ottawa Water Distribution Design Guidelines (2025) identify long-term care facilities as Supply Sensitive Users. Based on this classification, a redundant water service connection to the proposed

¹ Note that residential peaking factors were selected from **Table 3-3** of the MECP Design Guidelines for Drinking-Water Systems for 0 to 500 persons.

building is required (two independent water services), with the services separated by an isolation valve, to reduce the risk of service interruption and avoid the creation of a vulnerable service area.

- + Fire protection water supply requirements shall be determined in accordance with the Ontario Building Code (OBC). In accordance with the City of Ottawa Water Distribution Design Guidelines (2025), the OBC methodology is applicable for required fire flows below 9,000 L/min. If the required fire flow meets or exceeds this threshold, the Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (2020) methodology shall be applied, with confirmation that the water distribution network can deliver the required fire flow.
- + A primary fire hydrant shall be located within 45 m of the Siamese connection and within 90 m (measured along the travel path, not radius) of the principal building entrance, in accordance with Ontario Building Code requirements and Ottawa Fire Services (OFS) standards.
- + Exposure separation distances shall be identified on a figure to support the selected fire flow calculation methodology and to substantiate the Required Fire Flow (RFF) determination.

2.3 Proposed Water Supply Servicing and Calculations

Add table Water Demands

The water supply demands for the proposed development is presented in **Table 2-2** below. The demands were developed utilizing the development statistics (i.e., residential units and occupancy rate) provided by NEUF architect(e)s and those design criteria identified in **Section 2.2**. Refer to **Appendix D** for detailed calculations.

Table 2-2: Water Demands

Demand Type	Average Daily Demand (L/s)	Maximum Daily Demand (L/s)	Maximum (Peak) Hour Demand (L/s)
Long-term Care Addition (LTC)	0.92	3.44	5.17

Since the building is classified to supply sensitive users, a redundant water service connection to the proposed building is required (two independent water services), with the services separated by an isolation valve, to reduce the risk of service interruption and avoid the creation of a vulnerable service area.

Proposed Water Supply Connection Point(s)

In order to provide redundancy, the proposed building will be serviced with a primary and a secondary water service connection separated by new isolation valves, as per the City of Ottawa Standards. Refer to **Appendix C** for the proposed connection points.

Hydrant and Siamese Location

In accordance with City of Ottawa and Ottawa Fire Services (OFS) requirements, a fire hydrant is required to be located within 45 m of the Siamese connection. As such, a new fire hydrant is proposed south of the proposed building.

The Fire Department (Siamese) Connection (FDC) is proposed along the west side of the building, as illustrated on the site plan. The nearest proposed on-site fire hydrant is located approximately 40 m from the proposed FDC location and within 90 m (measured along the travel path) of the principal building entrance, in accordance with Ontario Building Code and OFS requirements

Refer to **Appendix D (Figure 2 – Hydrant Coverage)** for the location of the proposed fire hydrant and associated coverage.

Required Fire Flow (RFF)

The Required Fire Flow (RFF) for the site was developed in accordance with the Fire Underwriters Survey (FUS) – Water Supply for Public Fire Protection (2020) and the City of Ottawa Water Distribution Design Guidelines (2025).

Based on the construction type, floor area, occupancy classification, and the provision of an automatic sprinkler system, as identified on the architectural drawings prepared by NEUF architect(e)s, a **required fire flow of 4,000 L/min (66.67 L/s)** was determined to provide adequate fire protection for the proposed building.

To satisfy the required fire flow, the installation of a new on-site fire hydrant is proposed.

Hydraulic Analysis – Water Supply Adequacy

A hydraulic analysis was completed based on the results of a **fire hydrant flow test conducted on June 13, 2025**, at the **fire hydrant located at the southwest end of the site, being the western fire hydrant shown on Figure 3**. The test results from this hydrant were used as the basis for the hydraulic calculations presented in this report.

The analysis confirms that the existing water distribution network provides adequate pressure and flow capacity to satisfy the domestic water demands and the required fire flow for the proposed development, including the provision of a new on-site fire hydrant.

A summary of the available flow and residual pressure under the applicable demand scenarios is provided in **Table 2-3** below. Detailed hydraulic calculations and test data are included in **Appendix D**.

Table 2-3: Water Service Flow and Pressure - Hydraulic Analysis

Demand Scenario	Flow (Q) (L/s)	End Pressure Pressure (psi)
Average Day Demand	0.92	115.6
Peak Hour Demand	5.17	115 (>50 – OK)
Maximum Day + Fire Flow	70.11	79 (>20 – OK)

2.4 Water Supply Summary and Conclusions

The water supply design for the proposed development has been prepared in accordance with the City of Ottawa Water Distribution Design Guidelines (2025) and the Ministry of the Environment Design Guidelines for Drinking-Water Systems (2008).

Domestic water demands and fire protection requirements for the proposed building have been evaluated. A hydraulic analysis, based on the results of a fire hydrant flow test conducted on June 13, 2025, confirms that the existing private water distribution system servicing the site provides adequate flow and residual pressure to meet the required domestic water demands and the required fire flow.

Accordingly, the proposed building is anticipated to be adequately serviced by the existing and proposed water infrastructure, including the provision of a new on-site fire hydrant and redundant water service connections, without the need for upgrades to the water distribution system or additional off-site infrastructure.

3. Sanitary Servicing

3.1 Sanitary Servicing Design Criteria

The design criteria used to determine the peak sanitary flow rates for the proposed development have been established in accordance with the City of Ottawa Sewer Design Guidelines (2025). Based on these guidelines, the following parameters have been used in the determination of the peak sanitary flow rates:

Table 3-1: Sanitary Peak Flow Determination Design Criteria

Design Criterion	Residential Areas	Commercial Areas
Base Flow	280 L/capita/day	28,000 L/gross hectare/day (for standard commercial/institutional spaces) More conservative assumptions were used for high flow commercial/institutional spaces (see calculations in Appendix E)
Populations – 1 Occupants Apartment	1 Person Per Unit	N/A
Peaking Factor	Determined by Harmon Equation $P.F. = 1 + \left[\frac{1}{4 + \left(\frac{P}{1,000}\right)^{\frac{1}{2}}} \right] \times 0.8$ (P = population; P.F. = peaking factor) Maximum P.F. = 4.0 Minimum P.F. = 2.0	1.5 if Commercial/Institutional Contribution > 20% 1.0 if Commercial/Institutional Contribution < 20%
Dry Weather Infiltration Rate	0.05 L/s/effective gross hectare (for all areas)	
Wet Weather Infiltration	0.28 L/s/effective gross hectare (for all areas)	
Total Infiltration Allowance	0.33 L/s/effective gross hectare (for all areas)	

3.2 Existing Sanitary Services

3.2.1 Existing Sanitary Sewer – 250mm diameter (municipal)

Using the GIS tools provided by GeoOttawa, and through the topographical survey, CIMA+ identified a sanitary sewer owned by the city of Ottawa. This 250mm diameter sanitary sewer runs West to East, north of Gatineau LTC building and Perley Health Centre.

This sewer appears to be conveying sewage from the existing residential/commercial park found to the west of the Perley Health Campus.

See **Figure 4** below for an illustration of that 250mm diameter municipal main.

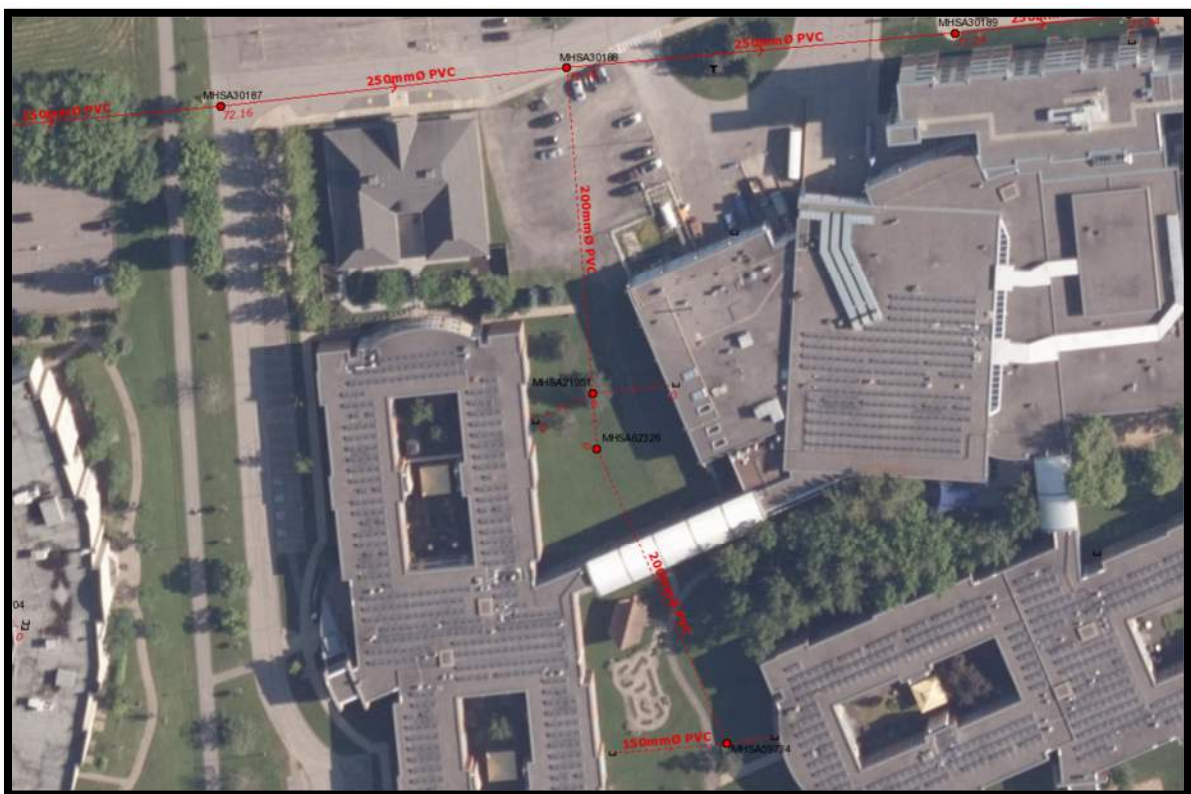


Figure 4: Sanitary Outlet to Municipal Main

3.2.2 Existing Sanitary Sewer – 200mm diameter (private)

CIMA+ identified a sanitary sewer running through the subjected area. See Servicing Drawing in **Appendix C**. for an illustration of that 200mm diameter private main. This sewer main services the existing buildings illustrated below in the **Figure 5** and outlets into the above mentioned 250mm sewer running just north of this figure.

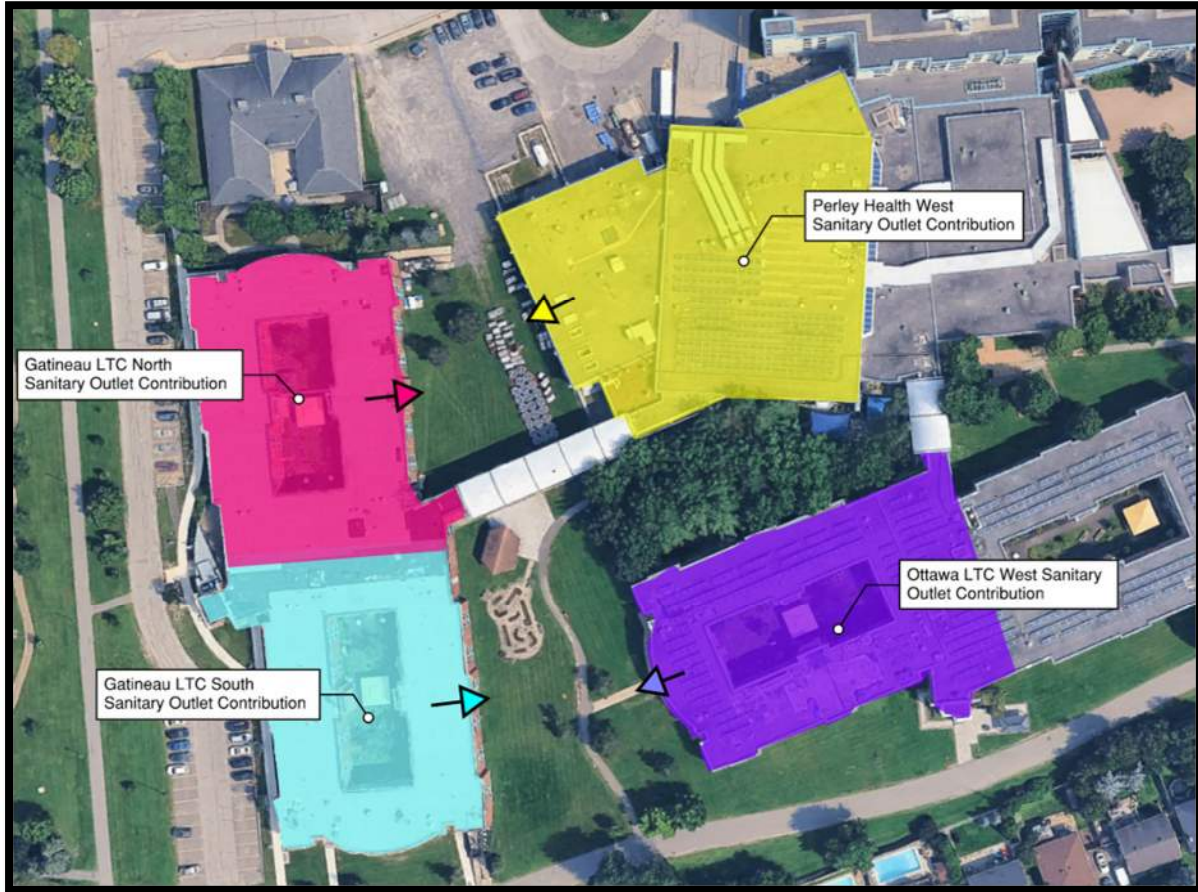


Figure 5: Building Limits for Sanitary Outlet Contributions

Existing Private Sanitary Peak Flows

The estimated peak flows generated by the existing buildings based on the design criteria listed in **Table 3-2** are outlined in the following Table.

Table 3-2: Peak Sanitary Flows – Existing Private

Flow Type	Total Flow Rate (L/s)
Total Estimated Average Dry Weather Flow Rate	1.02
Total Estimate Peak Dry Weather Flow Rate	3.80
Total Estimate Peak Wet Weather Flow Rate	4.27

Refer to **Appendix E** for detailed calculations.

Existing Private Sanitary Sewer Capacity

In the existing system, the segment with the highest pipe capacity utilization (worst section) is the existing private sanitary sewer MH2–MH3, which operates at 18% full, with 82% available capacity. These flows are well below critical capacity thresholds and suggest sufficient design allowances for near-future loading. However, two segments exhibit actual flow velocities below the minimum permitted 0.60 m/s, triggering "increase velocity" warnings: MH1–MH2 and MH2–MH3. Given these velocity deficiencies and the established minimum velocity threshold of 0.60 m/s (per design criteria), a maintenance program is recommended and maybe already in place. Refer to **Appendix E** for detailed calculations.

3.3 Proposed Sanitary Servicing and Calculations

3.3.1 Proposed Sanitary Sewer Modifications

Refer to **Appendix C** for proposed sanitary sewer design and assumed building limits for outlet demands.

3.3.2 Proposed Sanitary Servicing Calculations

Proposed Sanitary Peak Flows

The estimated peak flows generated upon implementation from the proposed development based on the design criteria listed in **Table 3-3** are outlined in the following Table.

Table 3-3: Peak Sanitary Flows

Flow Type	Total Flow Rate (L/s)
Total Estimated Average Dry Weather Flow Rate	1.40
Total Estimate Peak Dry Weather Flow Rate	5.19
Total Estimate Peak Wet Weather Flow Rate	5.73

Refer to **Appendix E** for detailed calculations.

Proposed Sanitary Sewer Sizing/Capacity

Within the sanitary sewer system, the segment with the highest pipe capacity utilization (i.e. the controlling or worst-case section) is the existing private sanitary sewer between MH2 and MH3, which is operating at approximately **32 %** full, leaving **68 %** available capacity. These flows are well below critical capacity thresholds and indicate that the existing system has adequate capacity to accommodate the proposed development.

However, similar to other portions of the existing system, several sewer segments exhibit calculated flow velocities below the minimum recommended design velocity of 0.60 m/s, resulting in “increase velocity” warnings. These segments include MHS1–MHS2, MHS2–MHS4, MHS4–MHS5, MHS5–MHS6, MHS6–MH2, and MH2–MH3.

Given these velocity conditions and the established minimum velocity criterion of 0.60 m/s (in accordance with the City of Ottawa Sewer Design Guidelines), the existing sanitary sewer system is considered to be capacity-adequate but maintenance-dependent. As such, a routine maintenance and inspection program is recommended to mitigate the potential for sediment accumulation and reduced hydraulic performance.

Refer to **Appendix E** for detailed sanitary flow calculations and capacity results.

3.4 Sanitary Servicing Summary and Conclusions

The sanitary servicing design for the proposed development has been prepared in accordance with the City of Ottawa Sewer Design Guidelines (2025).

Based on the calculated peak sanitary flow rates, it is anticipated that the minimum self-cleansing velocity will not be achieved in all segments of the existing private sanitary sewer system under normal operating conditions. As a result, continued reliance on a sanitary sewer maintenance program is required to ensure satisfactory long-term performance of the system.

This maintenance program is anticipated to include routine pipe flushing, high-pressure jet cleaning, and periodic CCTV inspections, particularly in low-slope segments where gravitational self-cleansing velocities are not consistently achieved. These measures are considered standard practice for private sanitary sewer systems of this configuration and are intended to mitigate sediment accumulation and maintain hydraulic capacity over the long term.

4. Storm Servicing and Stormwater Management

4.1 Existing Storm Servicing and SWM

4.1.1 Existing Storm Sewer – 300mm diameter (private)

The project area is serviced by two catch basins which convey flows through a 300mm diameter PVC pipe before connecting to the public infrastructure. See **Figure 6** below. One of these catch basins in the northeast corner of the site is currently clogged with debris. It is currently unclear whether this catch basin is properly draining the intended area, but remedial works are expected.

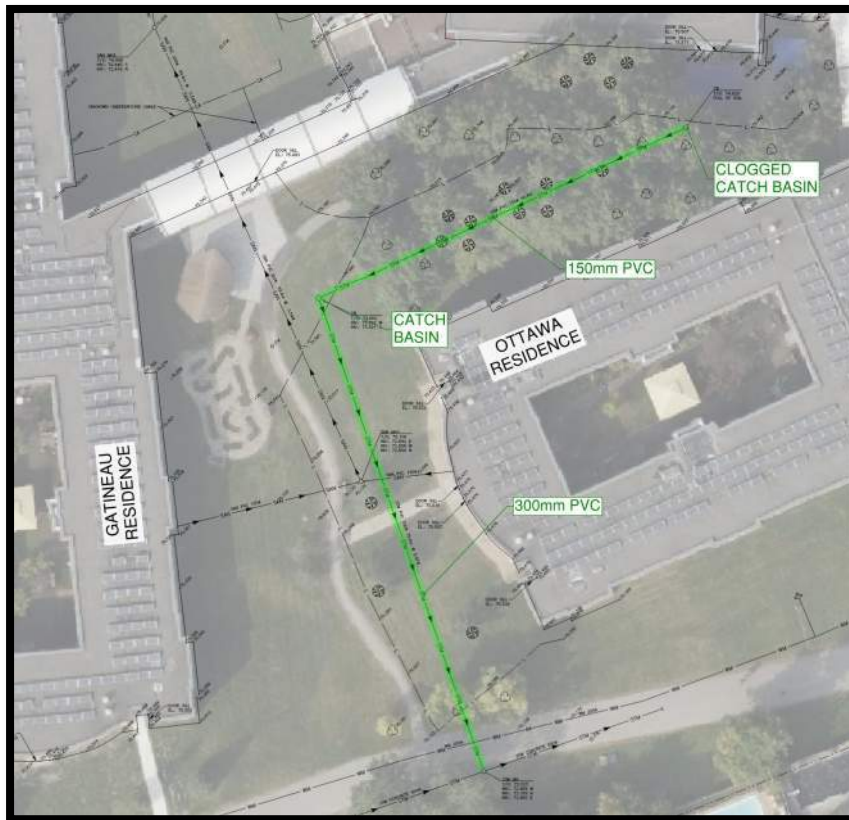


Figure 6: Existing Private Storm Sewer Routing

4.1.2 Existing Storm Sewer – 600mm diameter (public)

A 600mm diameter storm sewer runs west to east along the south end of the project site. This storm sewer appears to receive flow from an upstream detention basin (public) and runs east offsite.

4.1.3 Existing Stormwater Management (private)

The **Figure 7** below shows the extent of the proposed work, with different zones colored by catchment area.

There is positive drainage into the two existing catch basins on site from the respective blue and magenta catchment areas shown in the figure below. These areas are ultimately routed through

the private 300mm pipe and into the existing 600mm pipe which runs east to west along the south of the site. There is no indication that this line receives additional flow from the roofs of the adjacent Ottawa and Gatineau residences.

The yellow area shown is quite flat ($\pm 0.3\%$) and sheet drains south towards the existing road. There is limited survey information available to the team near the south road, so the final outfall of this area is unknown. This area also controls time of concentration calculations due to the relatively long flow path and shallow slopes.



Figure 7: Existing Drainage Areas

The following statistics of **Table 4-1** were calculated for the existing site.

Table 4-1: Existing Storm Water Statistics

Overall Runoff Coefficient	0.28 (2-yr)
	0.34 (100-yr)
Time of Concentration	24 minutes
2-year Peak Flow	18.1 L/s
	35.9 L/s/ha
100-year Peak Flow	41.6 L/s
	82.6 L/s/ha

4.2 Storm Servicing Strategy and Design Criteria

- + The allowable release rate for the site shall coincide with the 2-year storm event under pre-development conditions.
- + The allowable release rate shall take into consideration any increase in uncontrolled runoff from the boulevard being converted to a hard surface (concrete, interlocking paving stone, etc.).
- + The pre-development runoff coefficient (C) shall be a maximum equivalent 'C' of 0.40, or the actual existing site runoff coefficient, whichever is less.
- + The pre-development Time of Concentration (T_c) shall be calculated using an appropriate method and must not be less than 10 minutes.
- + A T_c of 10 minutes shall be used for all post-development calculations.
- + Storm runoff in excess of the allowable 2-year pre-development release rate, up to and including the 100-year storm event, must be detained on site.
- + Excess runoff from the roof of the proposed building will be stored on the roof and released at a rate no greater than the allowable release rate of the site.

4.3 Proposed Storm Servicing and Stormwater Management Design and Calculations

4.3.1 Storm Service Connection Point

Two connections into the existing 600mm pipe are proposed, with retention provided for each trunk.

4.3.2 Allowable Release Rates

Per communication with the city (see **Appendix A**), the 100-year flow must be controlled to the 2-year flow, calculated by the rational method. As shown in **Section 4.1.3**, this is equivalent to **8.5 L/s, or 35.9 L/s/ha**. Excess flows will be stored on site via a combination of roof retention and surface storage.

4.3.3 Unattenuated Flows

As part of the proposed site works, roadway and grading improvements are planned within the site, including the fire route access road. Due to grading constraints, a small portion of the proposed fire route access road cannot be captured within the storm sewer system and therefore remains unattenuated, such that runoff from this area cannot be controlled to the 2-year allowable release rate.

This limited unattenuated area has been excluded from the total site-controlled release flow calculation. The remaining portions of the site are being improved as part of the proposed construction, and stormwater detention within the controlled catchment areas has been appropriately upsized to offset the minor unattenuated contribution and to maintain overall compliance with the applicable stormwater management criteria.

4.3.4 Attenuated Flows

As part of the proposed development, site works will include new building construction and associated fire route access. These improvements result in an increase in impervious area and, consequently, an increase in runoff volumes and peak flows relative to existing conditions.

To mitigate these impacts, on-site stormwater detention is proposed through building roof storage and surface storage, achieved via site grading and shallow ponding within landscaped adjacent to the fire route access road. This approach is intended to attenuate post-development runoff to the applicable allowable release rates, without reliance on underground stormwater detention infrastructure.

The attenuated runoff from the site is managed through a combination of grading and surface storage measures to achieve compliance with the City of Ottawa stormwater management criteria. A summary of the attenuated flow conditions and required storage volumes is provided in **Table 4-2** below.

Table 4-2: Flows and Storage

Catchment ID	Area (ha)	Roof Storage (m ³)	Underground Storage (m ³)	Surface Storage (m ³)	Release Rate (L/s)
Residential Care Facility Addition	0.12	49.1	-	-	6.0
A1	0.06	-	0	21.2	2.5
A2	0.05	-	0	6.8	2.5
Unattenuated Flows	0.02	-	0	2.2	3.3
Total (Excluding Unattenuated Flows)	0.21	49.1	0	30.2	8.5

4.4 Storm Servicing and Stormwater Management Summary and Conclusions

The storm servicing and stormwater management design for the proposed development has been prepared in accordance with the City of Ottawa Sewer Design Guidelines (2025).

The **City of Ottawa has confirmed that water quality treatment is not required** for the proposed works. Refer to **Appendix A** for supporting correspondence.

An **anticipated on-site stormwater management storage volume of approximately 77.2 m³** will be provided through a combination of roof-level flow control and surface stormwater detention, achieved via site grading and shallow ponding within landscaped and roadway-adjacent areas. Together, these measures are intended to restrict post-development stormwater discharge to the **allowable release rate of approximately 8.5 L/s**, in accordance with City of Ottawa stormwater management criteria. Detailed stormwater management calculations supporting this storage volume and release rate are provided in **Appendix F**.

Roof-level flow control is anticipated to be achieved through a roof flow control train, consisting of controlled roof drainage elements integrated at the roof drains, which limit discharge rates under surcharge conditions. A conceptual example of such roof flow control measures is provided in **Appendix G**. The final configuration and sizing of the roof flow control system will be developed as part of the mechanical design and coordinated with the overall stormwater management strategy.

5. Conclusion

This Site Servicing and Stormwater Management Report has been prepared in support of the proposed residential care facility development located at 1750 Russell Road, within the Perley Health Campus in the City of Ottawa.

The proposed site servicing strategy addresses water supply, sanitary servicing, and stormwater management in accordance with the City of Ottawa Water Distribution Design Guidelines (2025), the City of Ottawa Sewer Design Guidelines (2025), and applicable provincial standards.

Water servicing for the proposed building will be provided via redundant water service connections connected to the existing private 200 mm diameter campus watermain. Domestic water demand and fire protection requirements have been evaluated and are anticipated to be adequately met. Fire protection will be supported through the provision of a new on-site fire hydrant and a Fire Department (Siamese) Connection, with final available fire flows to be confirmed through hydrant flow testing in accordance with City of Ottawa and Ottawa Fire Services requirements.

Sanitary servicing for the proposed development will discharge to the existing private sanitary sewer system, which ultimately connects to the municipal sewer network. Peak sanitary flow analyses confirm that the existing system has sufficient capacity to accommodate the proposed development. Several sewer segments are anticipated to operate below the minimum recommended self-cleansing velocity of 0.60 m/s; however, this condition is consistent with the existing system configuration. Continued reliance on a routine maintenance and inspection program, including flushing and CCTV inspection, is recommended to mitigate sediment accumulation and maintain long-term system performance.

Storm servicing and stormwater management have been designed to restrict post-development runoff to the applicable allowable release rate, in accordance with City of Ottawa requirements. On-site stormwater management storage is provided through a combination of roof-level flow control and surface stormwater detention, with compensatory attenuation provided to offset limited unattenuated areas within the site. The City of Ottawa has confirmed that water quality treatment is not required for the proposed works.

In conclusion, the proposed civil servicing design demonstrates that the development can be accommodated using a combination of existing and proposed on-site infrastructure, with no anticipated requirement for off-site municipal upgrades. This report is intended to support the Site Plan Control approval process and to inform the subsequent detailed design stage.

A

Appendix A Correspondence with Stakeholders

Appendix A

1 - CITY OF OTTAWA - PRELIMINARY COORDINATION

Necessary correspondence can be
provided upon request

Appendix A

2 - BUILDING OCCUPANCY CONFIRMATION

Necessary correspondence can be
provided upon request

Appendix A

3A - WATER SUPPLY & FIRE FLOW COORDINATION

Necessary correspondence can be
provided upon request

Appendix A

3B - WATER SUPPLY REDUNDANCY COORDINATION

David Boswell

From: Chetrar, Anton <anton.chetrar@ottawa.ca>
Sent: December 23, 2025 10:48 AM
To: Éric Potvin
Cc: kspencer; Jennifer Murray; lkoleva; msocolova@neuf.ca; Christian Lavoie-Lebel; David Boswell; Z0017061_Perley Health Expansion – Site Feasibility; Mottalib, Abdul; Ireland, James; Soyak, Solé
Subject: RE: Clarification on Applicability of Watermain Redundancy Requirements – Perley Health LTC

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL

Hi Eric,

Please find our responses/clarifications in red:

Based on the above, we would appreciate clarification from the City on the following, in order of priority:

1. **Applicability of City redundancy requirements**

Given that the proposed connection is to a **non-municipal watermain**, does the City consider that the watermain redundancy requirements outlined in the Ottawa Design Guidelines apply in this case? In other words, does acceptance of a non-municipal connection affect the applicability of the City's redundancy criteria? *(The City of Ottawa Design Guidelines - Water Distribution apply and are a requirement the site's water servicing design, as the site's private watermain system ultimately connects to the City of Ottawa water distribution system. Our review is based on the City Guidelines whether the site is private or public.)*

2. **If the City considers the redundancy requirements to remain applicable**

notwithstanding the non-municipal connection, how should those requirements be interpreted for this project, considering:

- the institutional function of the long-term care facility; and
- its residential-style occupancy.

(Sections 4.6.1 and 4.6.2 of the Water Design Guidelines state that long-term care facilities are considered as Supply Sensitive Users, therefore a redundant water service to the proposed building is required.)

3. **Threshold criteria**

In that context, should redundancy be evaluated based on:

- the institutional criterion of **basic day demand greater than 50 m³/day**, which is not met; **and/or**
- the residential criterion of **50 or more dwellings**, and if so, how that criterion is intended to apply to a long-term care facility.

(As stated above, this development is subject to a separate requirement from Section 4.6.1 and 4.6.2 - of the Water Design Guidelines as it is considered a Supply Sensitive User.)

Based on the responses provided above, the City considers that this development will require two water services to the building due to the sensitive uses of the building.

Let us know if you have any questions. We are available to meet and discuss further on Teams as needed.

Thank you,

Anton Chetrar | P. Eng

Project Manager, Infrastructure - Gestionnaire de projet, Projets d'infrastructure

Development Review All Wards (DRAW) | Direction de l'examen des projets d'aménagement -Tous les quartiers (EPATQ)

Planning, Development and Building Services Department (PDBS) and Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)

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anton.chetrar@ottawa.ca

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: Éric Potvin <Eric.Potvin@cima.ca>

Sent: December 19, 2025 10:41 AM

To: Chetrar, Anton <anton.chetrar@ottawa.ca>

Cc: kspencer <kspencer@perleyhealth.ca>; Jennifer Murray <jennifer@kadusgroup.com>; lkoleva <lkoleva@neuf.ca>; msocolova@neuf.ca; Christian Lavoie-Lebel <Christian.Lavoie-Lebel@cima.ca>; David Boswell <David.Boswell@cima.ca>; Z0017061_Perley Health Expansion – Site Feasibility <Z0017061@cima.ca>

Subject: Clarification on Applicability of Watermain Redundancy Requirements – Perley Health LTC

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Hi Anton,

Following our in-person coordination meeting earlier this week, we had an internal discussion with the design team regarding the proposed water servicing for the Perley Health long-term care facility, specifically related to watermain redundancy.

At this stage, we are evaluating two internal scenarios, including the potential provision of a redundant watermain. In parallel, we would like to clearly understand the City's position on the applicability of the City's redundancy requirements to this project.

For context:

- The proposed long-term care facility includes **approximately 120 units, with one occupant per unit.**

- The proposed connection is to an **existing non-municipal watermain**, rather than directly to a City-owned distribution main.
- Based on our calculations, the **basic day demand is approximately 33.6 m³/day**, which is **below the 50 m³/day threshold** referenced in the Ottawa Design Guidelines - Water Distribution.
- While the facility serves an institutional function, we recognize that, given the residential-style accommodation, it could also be viewed through a residential lens for the purpose of applying certain criteria.

Based on the above, we would appreciate clarification from the City on the following, in order of priority:

1. **Applicability of City redundancy requirements**

Given that the proposed connection is to a **non-municipal watermain**, does the City consider that the watermain redundancy requirements outlined in the Ottawa Design Guidelines apply in this case? In other words, does acceptance of a non-municipal connection affect the applicability of the City's redundancy criteria?

2. **If the City considers the redundancy requirements to remain applicable**

notwithstanding the non-municipal connection, how should those requirements be interpreted for this project, considering:

- the institutional function of the long-term care facility; and
- its residential-style occupancy.

3. **Threshold criteria**

In that context, should redundancy be evaluated based on:

- the institutional criterion of **basic day demand greater than 50 m³/day**, which is not met; **and/or**
- the residential criterion of **50 or more dwellings**, and if so, how that criterion is intended to apply to a long-term care facility.

We would like to emphasize that redundancy is currently being considered internally as a conservative and resilient design option. However, before finalizing the servicing strategy, we would appreciate the City's confirmation as to whether redundancy is a **hard requirement** in this specific context, or whether it is considered a best practice subject to engineering judgment.

Thank you in advance for your guidance.

Best regards,

ÉRIC POTVIN, P.Eng., ing.

Chargé de projet / Infrastructures

Project Manager / Infrastructure

Alerte vacances : Je serai en vacances du 20 décembre au 4 janvier inclusivement. /

Vacation alert: I will be on vacation from December 20 to January 4 inclusively.



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Appendix A

4A - PROPOSED BUILDING - STORMWATER RELEASE FLOW COORDINATION

David Boswell

From: David Boswell
Sent: February 3, 2026 4:49 PM
To: 'Ahmed Al-Jazaeri'
Cc: Éric Potvin; Darrell Noseworthy; Marina Socolova
Subject: RE: Perley Health - Site Plan

Hi Ahmed,

Thanks for checking in.

After reviewing and adjusting storm flows elsewhere on the site, we can increase the allowable controlled roof discharge up to **6.0 L/s** to provide some flexibility. This should accommodate the minimum combined flow from the controlled roof drains noted in your email.

Please let me know if you need anything further from our end.

Regards,

DAVID BOSWELL, B. Eng.
EIT / Infrastructure - Civil
Engineer in Training / Infrastructures - Civil

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From: Ahmed Al-Jazaeri <Ahmed.AlJazaeri@smithandandersen.com>
Sent: February 3, 2026 4:23 PM
To: David Boswell <David.Boswell@cima.ca>
Cc: Éric Potvin <Eric.Potvin@cima.ca>; Darrell Noseworthy <Darrell.Noseworthy@smithandandersen.com>
Subject: RE: Perley Health - Site Plan

EXTERNAL EMAIL

Hi David,

Trying to close the loop here, the flow value in your email is 5.5 LPS which is equal to 87.17 GPM, and per my understanding from you today that you would use all the roofs even the 2nd floor to retain this amount, and per the latest architectural drawings there are currently 18 roof drains, So, the controlled roof drain minimum flow is 5 GPM per drain, please see snip here from one of the specified supplier Watts, and in such case the total flow from 18 drains will be equal to 18x5gpm= 90 GPM minimum about (5.68 LPS), which is little bit higher than what you have requested,

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Please let me know if you need anything else,

Kind regards,

Smith + Andersen

Ahmed Al-Jazaeri B.Sc.Eng., P.Eng., LEED Green Associate
 Project Manager - Mechanical
 d 343 588 1265

From: Darrell Noseworthy <Darrell.Noseworthy@smithandandersen.com>
Sent: January 30, 2026 1:19 PM
To: David Boswell <David.Boswell@cima.ca>
Cc: Éric Potvin <Eric.Potvin@cima.ca>; Ahmed Al-Jazaeri <Ahmed.AlJazaeri@smithandandersen.com>
Subject: RE: Perley Health - Site Plan

Hi David,

Please copy Ahmed on all mechanical correspondence.

We will take a look at this

Thanks,
 Darrell

Smith + Andersen

Darrell Noseworthy P.Eng., LEED AP
 Senior Associate
 d 613 691 0272 m 613 325 7166

From: David Boswell <David.Boswell@cima.ca>
Sent: January 30, 2026 1:15 PM
To: Darrell Noseworthy <Darrell.Noseworthy@smithandandersen.com>
Cc: Éric Potvin <Eric.Potvin@cima.ca>
Subject: RE: Perley Health - Site Plan

CAUTION: This message originated from outside Smith + Andersen

Hi Darrell,

Could you confirm if you are able to accommodate a maximum total roof release flow of 5.5L/s = 43.72L/s/ha between all the drains?

Regards,

DAVID BOSWELL, B. Eng.
EIT / Infrastructure - Civil
Engineer in Training / Infrastructures - Civil

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From: David Boswell
Sent: January 9, 2026 2:08 PM
To: Darrell Noseworthy <darrell.noseworthy@smithandandersen.com>
Subject: RE: Perley Health - Site Plan

Hi Darrell,

About the service entrance inverts, there are some elements I want to present to you that may influence our values. Do you have time today for a 15min chat over a Teams meeting? If not, I can throw it all into an email before the end of the day.

Regards,

DAVID BOSWELL, B. Eng.
EIT / Infrastructure - Civil

Appendix A

4B - SWM - CONFIRMATION OF ATTENUATED DRAINAGE AREAS

Éric Potvin

De: Chetrar, Anton <anton.chetrar@ottawa.ca>
Envoyé: 19 janvier 2026 08:21
À: Éric Potvin
Cc: Mottalib, Abdul; Jennifer Murray; Marina Socolova; Lilia Koleva; David Boswell; Christian Lavoie-Lebel; Z0017061_Perley Health Expansion – Site Feasibility; Soyak, Solé; Ireland, James
Objet: RE: 1750 Russell Road (Perley Health) - Stormwater Management – Confirmation of Applicable Study Area

EXTERNAL EMAIL

Good morning Eric,

Based on the information provided, we do not have any concerns with omitting the minor asphalt pathways from the stormwater quantity control areas.

Please let us know if you have any additional questions.

Thanks,

Anton Chetrar | P. Eng

Project Manager, Infrastructure - Gestionnaire de projet, Projets d'infrastructure

Development Review All Wards (DRAW) | Direction de l'examen des projets d'aménagement - Tous les quartiers (EPATQ)

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anton.chetrar@ottawa.ca

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: Éric Potvin <Eric.Potvin@cima.ca>

Sent: January 15, 2026 12:02 PM

To: Chetrar, Anton <anton.chetrar@ottawa.ca>

Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Jennifer Murray <jennifer@kadusgroup.com>; Marina Socolova <msocolova@neuf.ca>; Lilia Koleva <lkoleva@neuf.ca>; David Boswell <David.Boswell@cima.ca>; Christian Lavoie-Lebel <Christian.Lavoie-Lebel@cima.ca>; Z0017061_Perley Health Expansion – Site Feasibility <Z0017061@cima.ca>; Soyak, Solé <Sole.Soyak@ottawa.ca>; Ireland, James <james.ireland@ottawa.ca>

Subject: RE: 1750 Russell Road (Perley Health) - Stormwater Management – Confirmation of Applicable Study Area

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Hi Anton,

Thanks for getting back to us.

Regarding omitting minor asphalt pathways elsewhere on site from the re-developed areas, the surface area of these proposed minor pathways (asphalt) to be installed is approximately 328m², while the surface area of the existing minor pathways to be removed (asphalt and interlock) is approximately 541m².

To be clear, these existing and proposed pathway areas are located outside the areas directly impacted by the proposed construction works (new building footprint and the associated fire access driveway leading to the building). Please let me know if you need any other information.

Regards,

ÉRIC POTVIN, P.Eng., ing.
Chargé de projet / Infrastructures
Project Manager / Infrastructure

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From: Chetrar, Anton <anton.chetrar@ottawa.ca>

Sent: January 13, 2026 1:51 PM

To: Éric Potvin <eric.potvin@cima.ca>

Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Jennifer Murray <jennifer@kadusgroup.com>; Marina Socolova <msocolova@neuf.ca>; Lilia Koleva <lkoleva@neuf.ca>; David Boswell <David.Boswell@cima.ca>; Christian Lavoie-Lebel <Christian.Lavoie-Lebel@cima.ca>; Z0017061_Perley Health Expansion – Site Feasibility <Z0017061@cima.ca>; Soyak, Solé <Sole.Soyak@ottawa.ca>; Ireland, James <james.ireland@ottawa.ca>

Subject: RE: 1750 Russell Road (Perley Health) - Stormwater Management – Confirmation of Applicable Study Area

EXTERNAL EMAIL

Good afternoon Eric,

Thank you for your e-mail. To confirm, the City is ok that the stormwater management criteria be applicable to the re-developed areas only.

Regarding omitting minor asphalt pathways elsewhere on site from the re-developed areas – Where/what are the surface areas of these proposed minor pathways?

We are available to meet and discuss further if needed.

Thank you,
Anton Chetrar | P. Eng

Project Manager, Infrastructure - Gestionnaire de projet, Projets d'infrastructure

Development Review All Wards (DRAW) | Direction de l'examen des projets d'aménagement - Tous les quartiers (EPATQ)

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anton.chettrar@ottawa.ca

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: Éric Potvin <Eric.Potvin@cima.ca>

Sent: January 09, 2026 2:14 PM

To: Chettrar, Anton <anton.chettrar@ottawa.ca>

Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Jennifer Murray <jennifer@kadusgroup.com>; Marina Socolova <msocolova@neuf.ca>; Lilia Koleva <lkoleva@neuf.ca>; David Boswell <David.Boswell@cima.ca>; Christian Lavoie-Lebel <Christian.Lavoie-Lebel@cima.ca>; Z0017061_Perley Health Expansion – Site Feasibility <Z0017061@cima.ca>

Subject: 1750 Russell Road (Perley Health) - Stormwater Management – Confirmation of Applicable Study Area

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Hi Anton,

I hope you are doing well.

Following up on our site meeting at Perley Health in late December, we would like to confirm our understanding of the discussion related to the extent of the stormwater management analysis area.

We acknowledge that the stormwater quantity control criterion, namely controlling the 100-year post-development runoff to the 2-year pre-development condition, has been established for this project since the City's correspondence of May 27. Our question is not related to the applicability of this criterion, but rather to the portion of the site to which it should be applied.

During the site meeting, our understanding was that the analysis could potentially be limited to the areas directly impacted by the proposed construction works. More specifically, this would include the new building footprint and the associated fire access driveway leading to the building. We also understood that other portions of the site, where only minor grading adjustments are proposed, would not necessarily need to be included in the pre- to post-development runoff comparison.

This understanding would also extend to minor asphalt pathways proposed elsewhere on the site, which we understood could be excluded from the stormwater quantity control assessment.

We would appreciate your confirmation as to whether this interpretation remains acceptable from the City's perspective, or if the expectation is to apply the stormwater management criterion to the entire site area.

Best regards,

ÉRIC POTVIN, P.Eng., ing.
Chargé de projet / Infrastructures
Project Manager / Infrastructure

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Appendix A

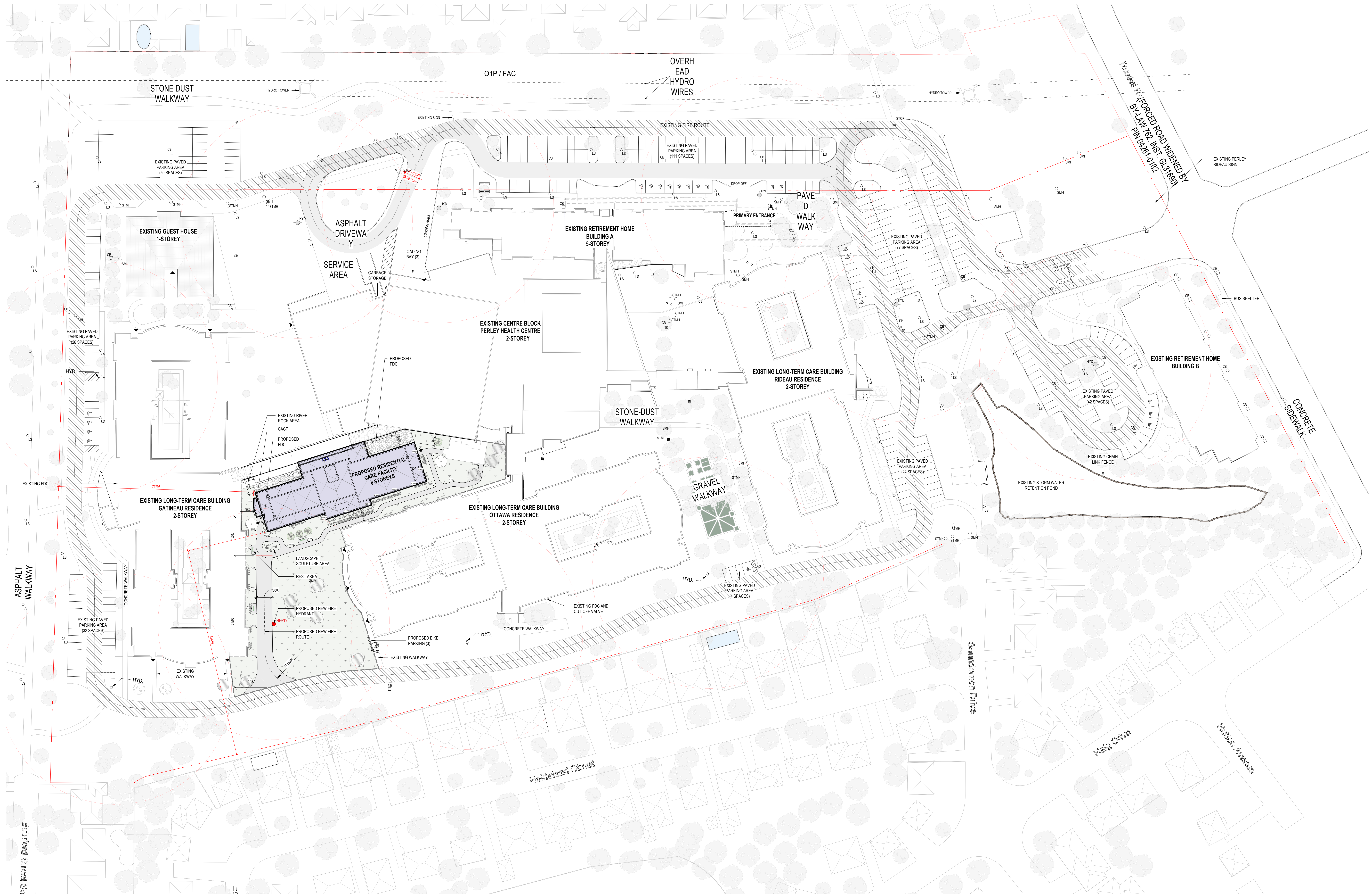
5 - SANITARY FLOW ASSUMPTIONS

Necessary correspondence can be
provided upon request

B

Appendix B Site Plan





GENERAL NOTES

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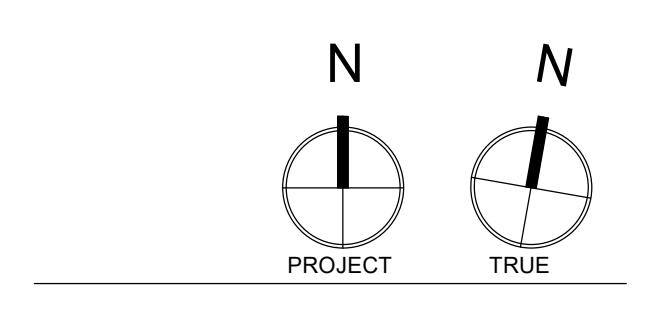
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ARCHITECT
NEUF architect(e)s
 10 Russell Rd Suite 200, Ottawa, ON K1R 5W9
 T 613.234.2274 www.neuf.ca

SEAL



PROJECT
PERLEY HEALTH EXPANSION

LOCATION
 1750 Russell Road
 Ottawa, ON K1G 5Z6

PROJECT No.
 13330

PROJECT DATA		
APPLICABLE BY-LAWS Zoning (By-law No. 2008-250) City of Ottawa New Zoning (By-law 2026-50) City of Ottawa		
MUNICIPAL ADDRESS 1750 RUSSELL ROAD, OTTAWA		
ZONING INFORMATION I2 (S2) Institutional Zone LQ2(21) Large-Scale Institutional and Recreation Zone		
REQUIREMENT / ALLOWED PROPOSED		
USES	RESIDENTIAL CARE FACILITY, OTHERS	RESIDENTIAL CARE FACILITY, RETIREMENT HOME
MINIMUM LOT WIDTH (m)	NO MINIMUM	218.54 m
MINIMUM LOT AREA (m ²)	NO MINIMUM	82,980.00 m ²
MINIMUM BUILDING HEIGHT	NO MINIMUM	23.14 m
MAXIMUM BUILDING HEIGHT	15m @ 12m SETBACK, NO MAXIMUM	22.34 m
MINIMUM FRONT YARD SETBACK	7.5m	305 m
MINIMUM CORNER SIDE YARD SETBACK	7.5m	NOT A CORNER LOT
MINIMUM REAR YARD SETBACK	7.5m	78 m
MINIMUM INTERIOR SIDE YARD SETBACK	7.5m	81 m
MINIMUM WIDTH OF LANDSCAPE AREAS ALONG ALL LOT LINES	3m	PROVIDED
PARKING RATE		
MOTOR VEHICLE	278 (EXCEPTION)	353 (EXISTING)
BICYCLE PARKING (1/1500 m ²)	4500 m ² / 1500 + 3	3
LOADING SPACES	2 for GFA > 2,000 m ²	3 (EXISTING)

SITE STATISTICS			
AREA OF THE SITE			82,980 m ²
EXISTING GROSS FLOOR AREA			55,197 m ²
PROPOSED ADDITIONAL GROSS FLOOR AREA			4,519 m ²
EXISTING RESIDENTIAL CARE FACILITY UNITS			450
EXISTING RETIREMENT HOME UNITS			139
EXISTING GUEST UNITS			12
PROPOSED RESIDENTIAL CARE FACILITY UNITS			120
PROJECT AREA SUMMARY (*)			
GROSS FLOOR AREA (GFA) (By Zoning By-law 2008-250)	GFA, m ²	DEDUCTIONS, m ²	FLOOR AREA
LEVEL 1	844 m ²	344 m ²	1,187 m ²
LEVEL 2	783 m ²	391 m ²	1,175 m ²
LEVEL 3	721 m ²	308 m ²	1,029 m ²
LEVEL 4	721 m ²	308 m ²	1,029 m ²
LEVEL 5	721 m ²	308 m ²	1,029 m ²
LEVEL 6	721 m ²	308 m ²	1,029 m ²
LEVEL 7	0 m ²	773 m ²	773 m ²
TOTAL	4,510 m²	2,742 m²	7,252 m²

PARKING			
EXISTING PARKING REGULAR			333
EXISTING ADA PARKING			20
EXISTING BICYCLE PARKING			64
NEW PARKING			n/a
NEW BARRIER FREE PARKING REQUIRED			n/a
<i>Traffic and Parking (By-law No. 2017-301)</i>			
	REQUIRED	PROPOSED	
TOTAL PARKING	278 (EXCEPTION)	353	
TOTAL ADA PARKING	19 (EXCEPTION)	20	
ZONING BY-LAW AMENITY CALCULATIONS			
	REQUIRED	PROPOSED	
TOTAL REQUIREMENT (NEW RESIDENTIAL CARE FACILITY)	10% x 120 x 25 m² = 300 m²	390 m²	

NOTES:

- PARKING STALLS SIZE:
 - STANDARD: 2000 x 5000mm
 - ADA TYPE A: 3000 x 5000 + ASBLE 1500mm
 - ADA TYPE B: 3000 x 5000 + ASBLE 1500mm
- PARKING SPACES RESERVED FOR PEOPLE WITH DISABILITIES MUST BE IDENTIFIED BY A SIGN IN ACCORDANCE WITH THE BY-LAW REQUIREMENTS AND BUILDING CODE REQUIREMENTS.
- FOR LANDSCAPE PLANTING DETAILS SEE DRAWINGS BY LANDSCAPE ARCHITECT.
- FOR SITE GRADING AND DRAINAGE SEE DRAWINGS BY CIVIL ENGINEER.
- FOR SITE SERVICES INFORMATION SEE DRAWINGS PREPARED BY CIVIL ENGINEER.
- FOR SOIL INVESTIGATION REPORT REFER TO THE REPORT PREPARED BY WATERSON GROUP.
- PROPERTY LINE IS BASED ON SURVEY PREPARED BY ARNS, O'SULLIVAN, VOLLEBECK LTD.
- SLURRY WALL CONCRETE TYPING AT DEEPERED CORNER NOT TO EXCEED 500mm.
- CONTRACTOR TO VERIFY ALL THE DIMENSIONS ON SITE AND REPORT ANY ERRORS TO THE ARCHITECT CONTRACTOR TO CORRECT BEFORE ALL DRAWINGS.
- THE APPLICANT IS RESPONSIBLE FOR ENSURING THAT TREE PROTECTION HOARDING IS MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION IN THE LOCATION AND CONDITION AS APPROVED BY THE PLANNING AND BUILDING DEPARTMENT. NO MATERIALS (BUILDING MATERIALS, SOIL, ETC.) MAY BE STOCKPILED WITHIN THE AREA OF HOARDING. FAILURE TO MAINTAIN THE HOARDING AS ORIGINALLY APPROVED OR THE STORAGE OF MATERIALS WITHIN THE HOARDING WILL BE CAUSE FOR THE LOSS OF CREDIT TO BE HELD FOR TWO YEARS FOLLOWING COMPLETION OF ALL SITE WORKS. HOARDING MUST BE RESPECTED PRIOR TO THE REMOVAL OF ANY TREE HOARDING FROM THE SITE.

ZONING BY-LAW 2008-250, OTTAWA, ONTARIO

DEFINITIONS (SECTION 64)

GROSS FLOOR AREA MEANS THE TOTAL AREA OF EACH FLOOR (WHETHER LOCATED ABOVE, AT OR BELOW GRADE, MEASURED FROM THE INTERIORS OF OUTSIDE WALLS AND INCLUDING FLOOR AREA OCCUPIED BY INTERIOR WALLS AND FLOOR AREA CREATED BY BAY WINDOWS BUT EXCLUDING:

- FLOOR AREA OCCUPIED BY SHARED MECHANICAL, SERVICE AND ELECTRICAL EQUIPMENT THAT SERVE THE BUILDING (BY-LAW 2008-250);
- COMMON HALLWAYS, CORRIDORS, STAIRWELLS, ELEVATOR SHAFTS AND OTHER VOIDS, STEPS AND LANDINGS (BY-LAW 2008-250);
- COMMON LANDSCAPE STORAGE AND WAREHOUSE FACILITIES THAT SERVE THE BUILDING OR TENANTS;
- COMMON STORAGE AREAS THAT ARE ACCESSORY TO A PRINCIPAL USE ON THE LOT; AND (BY-LAW 2008-250);
- COMMON AMENITY AREA AND PLAY AREA ACCESSORY TO A PRINCIPAL USE ON THE LOT; AND (BY-LAW 2008-250);
- LIVING QUARTERS FOR A CARETAKER OF THE BUILDING, (SURFACE OF PLASTER OR GYPSUM BRUTE).

SITE-PLAN LEGEND			
	BARRIER FREE PARKING		FLAG POLE
	BUILDING ENTRANCE / EXIT		FIRE DEPARTMENT SAMESE
	BOLLARD		GAS METER REFER TO MECHANICAL
	CURB		NEW HANDICAPPED PARKING SIGN
	PAINTED PEDESTRIAN CROSSING		STOP SIGN
	PROPERTY LOT LINE		EXISTING TRAFFIC SIGN
	FIRE ROUTE		NEW FIRE HYDRANT
	EXTENT OF WORK		NEW LIGHT STANDARD TALL (SEE ELECTRICAL)
	EXISTING FIRE HYDRANT		NEW LIGHT STANDARD WALL-MOUNTED (SEE ELECTRICAL)
	EXISTING LIGHT STANDARD		NEW SANITARY MANHOLE (SEE CIVIL)
	EX. SANITARY MANHOLE (SEE CIVIL)		NEW STORM MANHOLE (SEE CIVIL)
	EX. STORM MANHOLE (SEE CIVIL)		NEW STORM CATCH BASIN (SEE CIVIL)
	EX. CATCH BASIN (SEE CIVIL)		STORM WATER
			WATER
			SANITARY
			GAS
			HYDRO / COMM
			NEW
			EXIST
			TO REMOVE

SITE PLAN
 1:500

NO. REVISION **DATE (YYYY-MM-DD)**

A **ISSUED FOR SITE PLAN APPLICATION** **2026-02-08**

DRAWN BY: **Author** **CHECKED BY:** **LK/RS**

DATE (YYYY-MM-DD): **03/31/25** **SCALE:** **1:500**

DRAWING TITLE: **SITE PLAN - CAMPUS**

REVISION **DRAWING NUMBER**

A **A110**

Autodesk Docs:143330_PERLEY HEALTH ALT_R24PRSL_E_13330_ARC_INT_R24.rvt

C

Appendix C Civil Drawings





EXISTING	CIMA SURVEY LEGEND	PROPOSED
Sanitary Sewer	Sanitary Sewer	Sanitary Sewer
Storm Sewer	Storm Sewer	Storm Sewer
Underground Telephone (Approx. Loc.)	Underground Telephone (Approx. Loc.)	Underground Telephone (Approx. Loc.)
Underground Cable (Approx. Loc.)	Underground Cable (Approx. Loc.)	Underground Cable (Approx. Loc.)
Fence	Fence	Fence
Overhead Wires	Overhead Wires	Overhead Wires
Underground Lighting Wires	Underground Lighting Wires	Underground Lighting Wires
Catchbasin	Catchbasin	Catchbasin
Manhole/Catchbasin	Manhole/Catchbasin	Manhole/Catchbasin
Manhole	Manhole	Manhole
Fire Hydrant	Fire Hydrant	Fire Hydrant
Valve	Valve	Valve
Check Valve	Check Valve	Check Valve
Sign	Sign	Sign
Survey Station	Survey Station	Survey Station
Elevation	Elevation	Elevation
Utility Pole	Utility Pole	Utility Pole
Anchor	Anchor	Anchor
Light Standard	Light Standard	Light Standard
Gas Valve	Gas Valve	Gas Valve
Gas Meter	Gas Meter	Gas Meter
Manhole	Manhole	Manhole
Invert	Invert	Invert
Top of Grade	Top of Grade	Top of Grade
Location of Elevations	Location of Elevations	Location of Elevations
Top of Concrete Curb/Retaining Wall Elevation	Top of Concrete Curb/Retaining Wall Elevation	Top of Concrete Curb/Retaining Wall Elevation
Property Line / Extent of Work	Property Line / Extent of Work	Property Line / Extent of Work
Easement	Easement	Easement
Borehole (Loc. Approx.)	Borehole (Loc. Approx.)	Borehole (Loc. Approx.)
Shrub	Shrub	Shrub
Deciduous Tree to be Removed	Deciduous Tree to be Removed	Deciduous Tree to be Removed
Coniferous Tree to be Removed	Coniferous Tree to be Removed	Coniferous Tree to be Removed
Deciduous Tree to be Protected	Deciduous Tree to be Protected	Deciduous Tree to be Protected
Coniferous Tree to be Protected	Coniferous Tree to be Protected	Coniferous Tree to be Protected
Work Limit	Work Limit	Work Limit
Overland Flow	Overland Flow	Overland Flow
Temporary Construction Entrance	Temporary Construction Entrance	Temporary Construction Entrance
Asphalt Removal	Asphalt Removal	Asphalt Removal
Full Depth Asphalt Removal	Full Depth Asphalt Removal	Full Depth Asphalt Removal
Interlock Removal	Interlock Removal	Interlock Removal
Self Fence Per City Detail	Self Fence Per City Detail	Self Fence Per City Detail
Tree Protection Fence Per City Detail	Tree Protection Fence Per City Detail	Tree Protection Fence Per City Detail
Saw Cut	Saw Cut	Saw Cut
Sewer Removal	Sewer Removal	Sewer Removal
Sewer Cap	Sewer Cap	Sewer Cap

GENERAL NOTES

1. These architectural documents are the exclusive property of NEUF ARCHITECTS INC. and may not be used, copied, or reproduced without prior written authorization.
2. All dimensions shown on these documents must be verified by the contractor before the commencement of work.
3. The architect must be notified of any errors, omissions, or discrepancies between these documents and those of other professionals.
4. Dimensions shown on these documents must be read, not guessed.

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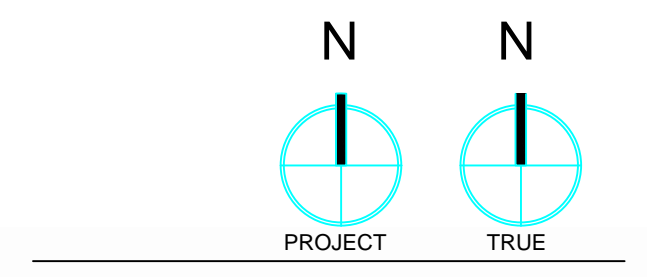
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NEUF ARCHITECTS



Perley Health
 Community of Care

KADUS

PROJECT
PERLEY HEALTH EXPANSION
 LOCATION: 1750 Russell Road Ottawa, ON K1G 5Z6
 PROJECT No.: 13330

NO REVISION DATE (yyyy-mm-dd)
 A ISSUED FOR SITE PLAN APPLICATION 2025-02-04

NOTE OF CAUTION

THE GEOMETRIC COORDINATES OF EVERY ITEM INCLUDED AS PART OF THIS DOCUMENT ARE IN NAD83 - ORIGINAL MTM - REFERENCE SYSTEM AND HAVE NO LEGAL VALUE. THE SITE LAYOUT MUST BE COMPLETED USING THE OFFICIAL BENCHMARKS OF AN ACCREDITED LAND SURVEYOR IN THE NAD83 - ORIGINAL MTM - REFERENCE SYSTEM.

THE UNDERGROUND FEATURES AND INFORMATION THAT APPEAR ON THE DRAWINGS WERE OBTAINED FROM THE PUBLIC UTILITY COMPANIES AND/OR FROM THE CITY EACH RESPECTIVELY.

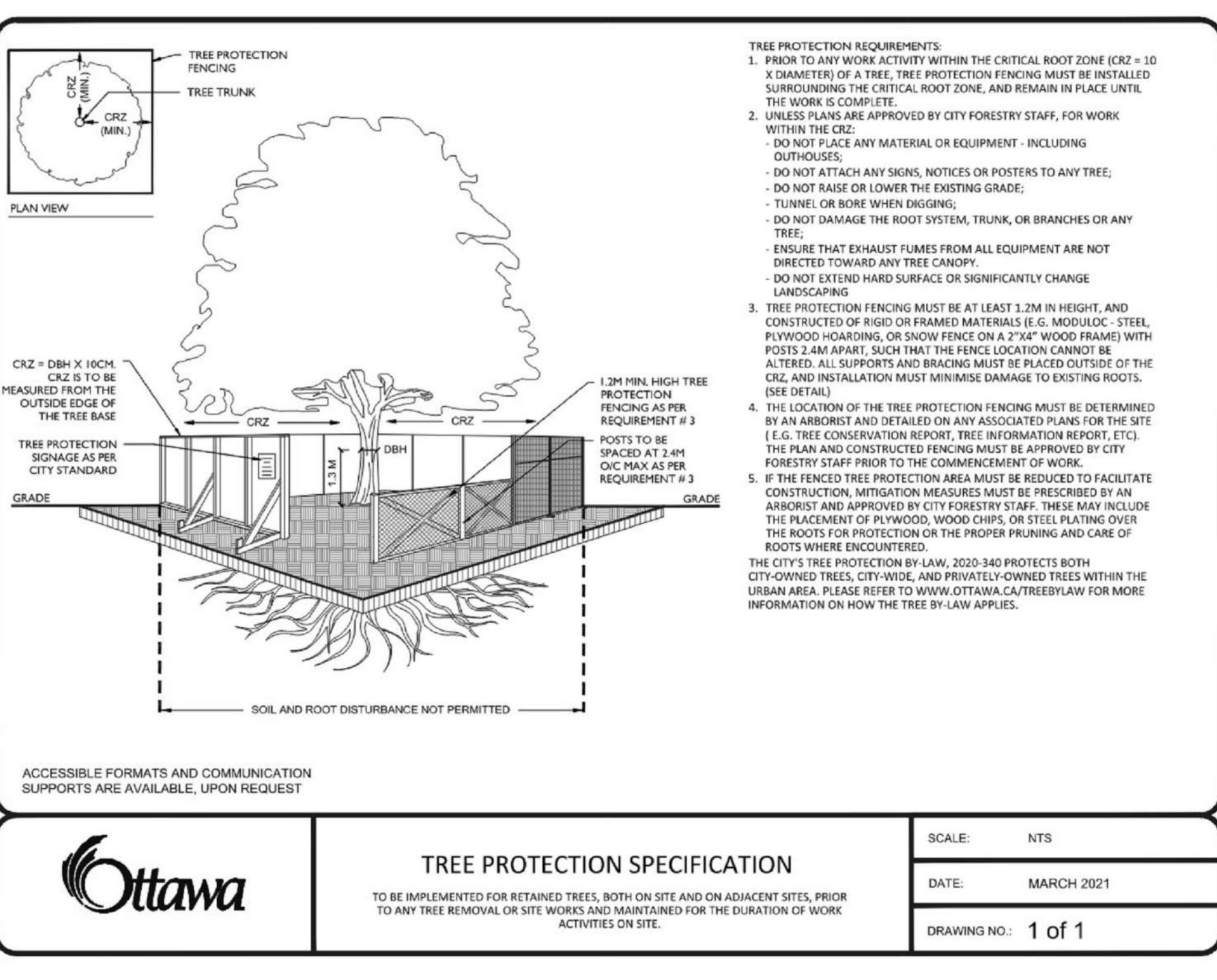
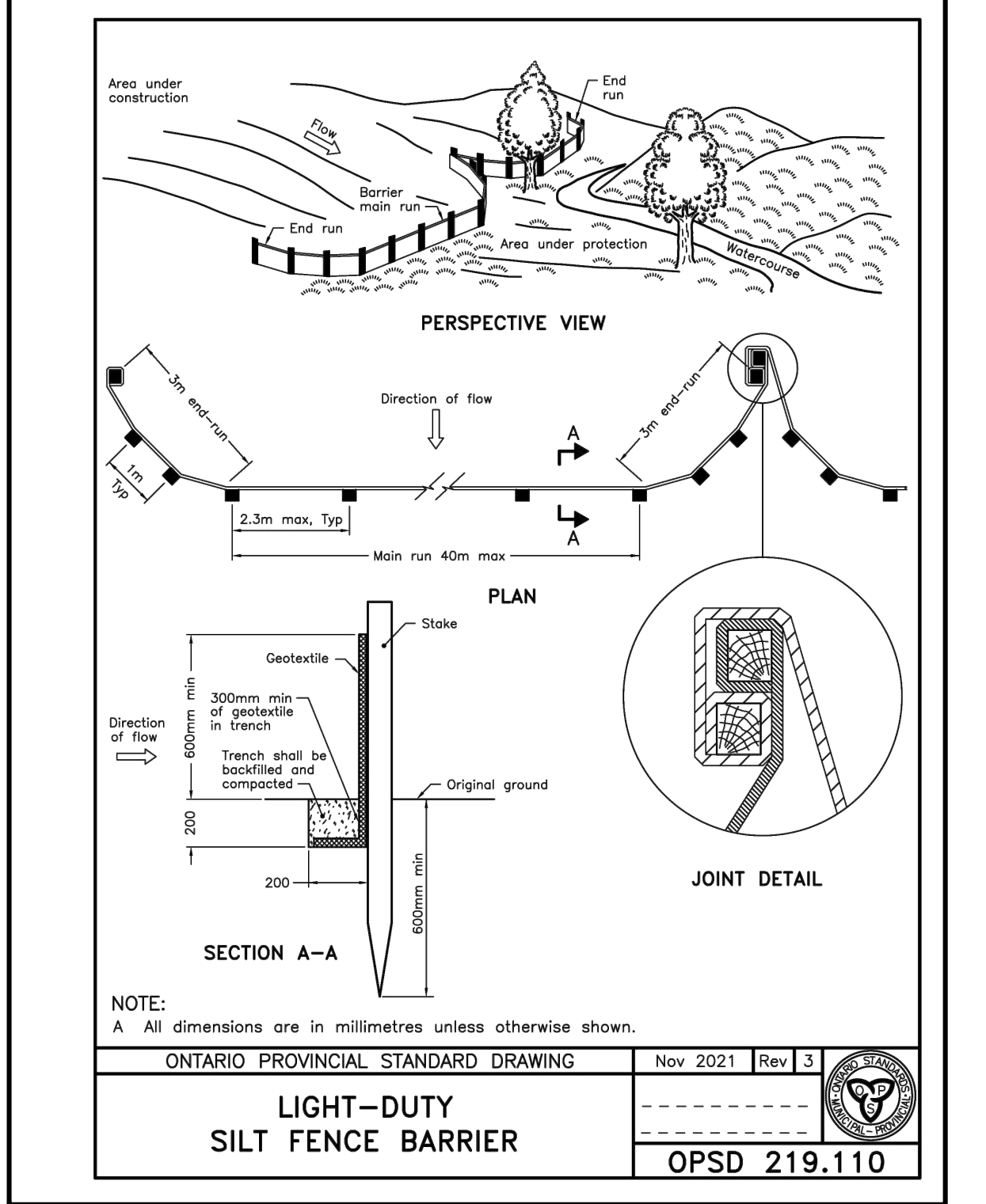
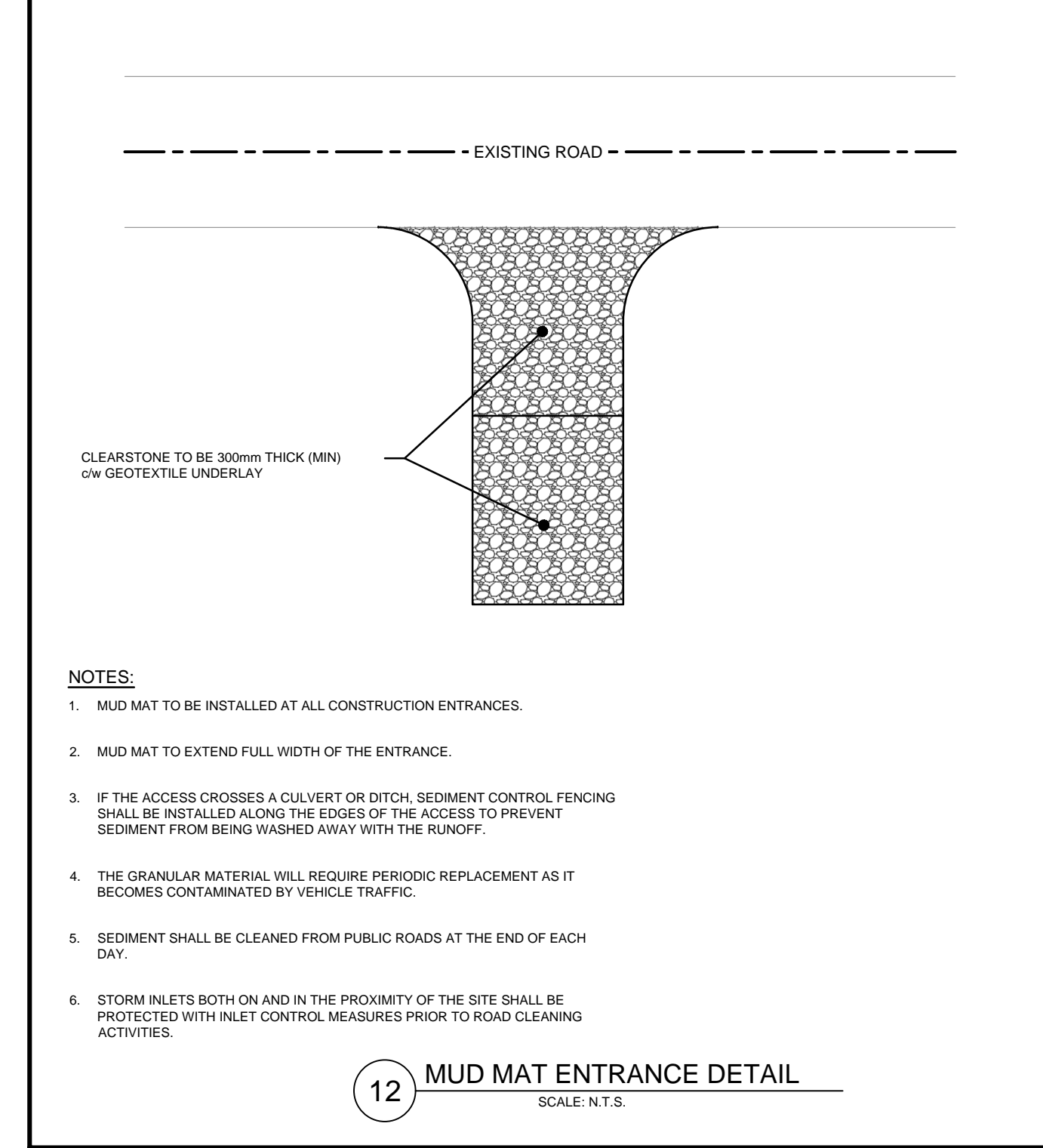
ALL INFORMATION UNDER THE LEGEND EXISTING IS FOR INFORMATION ONLY. COMPLETE OR EXACT LOCATION AND ELEVATION OF UNDERGROUND SERVICES ARE NOT GUARANTEED.

CERTAIN UNDERGROUND FEATURES ON PRIVATE PROPERTY ARE NOT SHOWN ON THE CURRENT DRAWING.

ANYONE WHO PROCEEDS WITH EXCAVATION WORK SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND FEATURES BY EXPLORATORY EXCAVATIONS, AND SHALL ASSUME FULL RESPONSIBILITY IF THERE IS ANY DAMAGE THAT OCCURS DURING WORK.

THE CONTRACTOR WILL HAVE THE RESPONSIBILITY AND THE OBLIGATION TO VALIDATE, BY EXPLORATORY EXCAVATION, THE SIZE OF THE PUBLIC UTILITIES UNDERGROUND SERVICES AND TO WARN THE ENGINEER OF ANY CONFLICT WITH THE PROTECTED WORK.

DESIGNED BY: D.B. CHECKED BY: É.P.
 DRAWN BY: G.D. CHECKED BY: É.P.
 DATE (yyyy-mm-dd): 12/16/25 SCALE: As indicated
 DRAWING TITLE: **SEDIMENT AND EROSION CONTROL & DEMOLITION PLAN**
 REVISION: DRAWING NUMBER:



1. GENERAL GRADING

- 1.1. The Contractor must conform to all laws, codes, ordinances, and regulations adopted by federal, provincial or municipal government councils and government agencies, applying to work to be carried out.
1.2. Unless otherwise indicated, all materials and construction methods to be in accordance with the requirements of the latest edition of the Ontario Provincial Standard Specifications and Drawings (OPSS and OPSD), the Ontario Ministry of Environment, Conservation and Parks (MECP), applicable Conservation Authorities (CA), the municipal standard specifications and drawings, and all other governing authorities as they apply.
1.3. Wherever standards, laws and/or regulations are mentioned they refer to their current versions, modifications included.
1.4. The Contractor is responsible for obtaining all permits required to complete all works and bear cost of same, including road cut permit and water permit and their associated costs.
1.5. The Contractor is responsible for the coordination of his activities with others on site.

- 2. SEDIMENT AND EROSION CONTROL
2.1. Specifically, sediment and erosion control measures to be constructed as per OPSS/MUNI 805.
2.2. The Contractor must implement best management practices, to provide for protection of the area drainage system and the receiving watercourse as well as air pollution from dust and particulate matter, during construction activities. The Contractor acknowledges that failure to implement appropriate erosion and sediment control measures may be subject to penalties imposed by any applicable regulatory agency.
2.3. The Contractor must set up the measures shown on the plan, inspect them frequently and clean and repair or replace the deteriorated structures.
2.4. The light duty slit fence barrier must be installed as per OPSP 219.110.
2.5. Provisions must be made for sediment and erosion control measures prior to stripping the site of vegetation and other deleterious materials. Measures such as silt fences, etc. must be constructed and maintained in order to control sediment, as required by the provincial and municipal governing authorities.

- 5. EXCAVATION AND BACKFILL
5.1. Subgrade preparation must be completed as per Section "4.0 General Subgrade Preparation".
5.2. The management of excess materials to comply with OPSS/MUNI 180 and any excess soils with O.Reg 406/19.
5.3. Topsoil and deleterious fill, such as those containing organic materials, must be stripped from under any buildings, paved areas, pipe bedding, and other settlement sensitive structures.
5.4. Subgrade fill used for grading beneath asphalt or concrete pavement must consist of OPSS Select Subgrade Material or equivalent, approved by the Geotechnical Engineer prior to delivery to the site. Subgrade fill used below rigid surfaces, such as concrete sidewalks and concrete slabs, must not contain more than 25% silt.
5.5. Non-specified fills and on-site excavated soils may be used in landscaping areas where settlement of the ground surface is of minor concern. This material must be spread in thin lifts and compacted by the tracks of spreading equipment to minimize voids. When used to build up subgrade level in areas to be paved fill should be compacted in thin lifts.

- 8. MUNICIPAL SERVICES - GENERAL
8.1. The location of existing underground municipal services and public utilities as shown on the plans are approximate, the contractor must determine the exact location, size, material and elevation of all existing utilities (on-site and off-site) prior to any excavation work. Damage to any existing services and/or excavations during construction, whether or not shown on the drawings must be repaired by the contractor at his own expense.
8.2. Prior to any construction, Contractor to perform a C.C.T.V. inspection of the existing 3000 storm sewer on site which is planned for re-use as per OPSS/MUNI 409. Report must be provided to the Engineer in two (2) copies and the C.C.T.V. inspection in DVD format only.
8.3. Terminate and plug water and sewer service connections at 1.0 meter from edge of the building/underground parking.
8.4. Single service lateral trenches must be as per City of Ottawa Detail S6 and combined service lateral trenches must be as per City of Ottawa Detail S7.
8.5. The Contractor must complete trench and backfill compaction as per OPSS/MUNI 401 and OPSS/MUNI 501

- 11. SANITARY SEWER
11.1. Sanitary pipe materials must be SDR 35 conforming to OPSS 1841, unless noted otherwise on the drawings. Sewer pipe and fittings must be certified to CSA standards B182.2 or CSA B182.7. Furthermore, sanitary sewer, sanitary lateral and associated appurtenances must be constructed in accordance with the OPSS/MUNI 410.
11.2. The allowable deflected pipe diameter when using flexible pipe is as follows:
11.2.1. Pipes 100 to 750 mm: 7.5% of the base inside diameter of the pipe.
11.3. Final backfill material for sanitary sewers must be approved native material or select subgrade material in conformance with OPSS/MUNI 212 and City of Ottawa Special Provision F-2100.
11.4. All sanitary sewers to be C.C.T.V. inspected by the Contractor as per OPSS/MUNI 409. Report must be provided to the Engineer in two (2) copies and the C.C.T.V. inspection in DVD format only.
11.5. Sanitary manholes to be installed as per OPSS/MUNI 407 and conform to OPSS 1351.
11.6. Excavating, backfilling, and compacting for sanitary manholes to be completed as per OPSS/MUNI 402, except for section 422.07.03.01 - Bedding which is replaced with the following:
Bedding material shall consist of crushed stone Granular A compacted in 150mm layers down to the top of the building slab. Compaction shall be as per OPSS 501 and note 1.10 of this drawing.

- 1.6. Independent geotechnical laboratory for quality control:
1.6.1. An independent geotechnical laboratory hired by the Owner will perform material testing, inspection and quality control services.
1.6.2. Geotechnical laboratory to review asphalt and concrete mix designs as requested.
1.6.3. The Contractor must provide equipment required for executing inspection and testing by appointed geotechnical firm.
1.6.4. The Contractor must provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test specimens.
1.6.5. Employment of geotechnical laboratory does not relax responsibility to perform work in accordance with Contract Documents.
1.6.6. If defects are revealed during inspection and/or testing, appointed geotechnical firm will request additional inspection and/or testing to ascertain full degree of defect. Contractor to correct defect and irregularities at his own cost. Contractor to pay costs for retesting and reinspection.

- 2.6. When the sediment and erosion control measures have to be removed in order to complete a portion of the work, these same measures must be reinstated.
2.7. When storing soil on site in piles the Contractor must cover each pile with tarps, straw or a geotextile fabric to avoid fine particle transport by wind and/or streaming rainfall.
2.8. During the construction period, sediment capture silt sacks or filter cloths must be installed and maintained between the frame and cover of all catchbasins and catchbasin/manholes to minimize sediments entering the storm sewer system. All landscaping areas must be completed prior to the removal of the silt sacks and filter cloths.
2.9. At all times the Contractor is responsible to maintain the access roads clean and free of mud, debris and sediments. When clearing a road for access roads, the Contractor must take the necessary precautions to clear the surfaces covered with sediment prior to cleaning with water.
2.10. For dust control, Contractor to apply calcium chloride (Type I - OPSS 2501 and CAN/CSG8-15-1) and water with equipment approved by the Owner's representative at rate in accordance to OPSS/MUNI 506 when directed by Owner's representative.

- 5.7. In the event that bedrock excavation is encountered, it is expected that some bedrock removal may be required. Consideration should be given to line-drilling in conjunction with hoe-ramping or controlled blasting. Bedrock removal by hoe-ramping may be sufficient in areas of weathered bedrock and where only small quantities of removal are required. Prior to any blasting a pre-blast or pre-consultation survey of the existing structures within proximity of the blasting must be carried out. It is expected that line-drilling in conjunction with hoe-ramping, rock grinding and controlled blasting will be required to remove the bedrock for the underground parking levels. In areas of weathered bedrock and where only a small quantity of bedrock is to be removed, bedrock removal may be possible by hoe-ramping.
5.8. Rock excavation must conform to OPSS/MUNI 403 and to all laws, codes, ordinances and regulations adopted by federal, provincial and municipal government councils and government agencies, applying to the work to be carried out.
5.9. Construction operations could cause vibrations, and possibly, sources of nuisance to the community. Vibrations caused by blasting or construction operations (e.g. piling equipment, hoist rams, compactors, dozers, cranes, etc.) could cause detrimental vibrations on the adjoining buildings and structures as well as being a source of nuisance to the community. Therefore, means to reduce the vibration levels as much as possible must be incorporated in the construction operations to maintain a cooperative environment with the residents.
As a general guideline to reduce the risks of damage to the existing structures, peak particle velocity (measured at the structures) during construction must not exceed 20 mm/s for frequencies below 40 Hz, and 50 mm/s for frequencies 40 Hz and higher. The warning level limits are 10 mm/s for frequencies below 40 Hz, and 40 mm/s for frequencies 40 Hz and higher.

- 6. MATERIALS COMPACTION
6.1. Structural fill used for grading beneath the footings of buildings, signs and light standards must consist of OPSS Granular 'A' or Granular 'B' Type II Material.
6.2. In the event that bedrock excavation is encountered, it is expected that some bedrock removal may be required. Consideration should be given to line-drilling in conjunction with hoe-ramping or controlled blasting. Bedrock removal by hoe-ramping may be sufficient in areas of weathered bedrock and where only small quantities of removal are required. Prior to any blasting a pre-blast or pre-consultation survey of the existing structures within proximity of the blasting must be carried out. It is expected that line-drilling in conjunction with hoe-ramping, rock grinding and controlled blasting will be required to remove the bedrock for the underground parking levels. In areas of weathered bedrock and where only a small quantity of bedrock is to be removed, bedrock removal may be possible by hoe-ramping.
6.3. Rock excavation must conform to OPSS/MUNI 403 and to all laws, codes, ordinances and regulations adopted by federal, provincial and municipal government councils and government agencies, applying to the work to be carried out.
6.4. The Contractor must complete trench and backfill compaction as per OPSS/MUNI 401 and OPSS/MUNI 501

- 8.6. The Contractor is responsible for making or arranging all connections to the existing sewers as per municipal requirements. Prior to connection, the Contractor must provide, to the Engineer and the City for approval, all test results performed on the internal services. Test results must include C.C.T.V. inspection of sewers, infiltration/infiltration tests for sewers and manholes, deflection tests of sewers, watermain hydrostatic leakage test, flushing and disinfecting operations, and bacteriological water analysis.
8.7. Advise the City Public Works at least 72 hours in advance before any connection to the City sewers. Coordinate with City as required.
8.8. The Contractor must determine the exact invert (geodetic elevation), diameter and construction material of the existing conduits at the proposed connections. He must also carry out, if necessary, exploratory excavations in order to determine the exact location and extent of existing duct banks. This information must immediately be provided to the Engineer prior to start undertaking any municipal services work and a 48 hour period must be allocated to the Engineer for design review.
8.9. The Contractor is responsible for all excavation, backfill and reinstatement of all areas disturbed during construction to existing conditions or better and all associated works to the satisfaction of the Engineer and municipal authorities.
8.9.1. Asphalt reinstatement must be in accordance with OPSS/MUNI 310 and City of Ottawa Standard Detail R10.
8.9.2. Landscape areas to be reinstated in accordance to landscaping drawings and specifications.
8.10. Within landscaping areas, backfill for service trenches may consist of excavated material replaced and compacted in lifts.
8.11. A minimum of 150 mm of OPSS Granular A must be used for pipe bedding for sewer and water pipes and must extend to the spring line of the pipe. Cover material from the spring line to at least 300 mm above the pipe must also consist of Granular A material. Bedding and cover material must be placed in maximum 225 0 mm lifts.

- 1.7. The location of existing underground municipal services and public utilities as shown on the plans are approximate. The Contractor must determine the exact location, size, material and elevation of all existing utilities (on-site and off-site) prior to any excavation work. Damage to any existing services and/or existing utilities during construction, whether or not shown on the drawings must be repaired by the Contractor at his own expense.

- 2.11. At the end of the construction period, the Contractor is responsible for removal of the temporary sediment and erosion control measures and reconditioning the affected areas.
2.12. This plan is a "Living Document" which may be revised in the event that the control measures are not sufficient.

- 5.10. Excavation side slopes in sound bedrock may be completed with almost vertical side walls. A minimum of 1 m horizontal ledge must remain between the bottom of the overburden and the top of the bedrock surface to provide an area for potential sloping. The 1 m horizontal ledge set back can be eliminated with a shoring program which has drilled piles extending below the proposed founding elevation.

- 6.1. Construction of granular foundation must conform to OPSS.
6.2. Granular materials used on site must conform to the requirements of OPSS/MUNI 1010.
6.3. Road cut reinstatement as per City of Ottawa Detail R10.
6.4. Construction of asphalt must conform to OPSS.

- 8.12. Where hard surface areas are considered above the trench backfill, the trench backfill material within the frost zone (about 1.8 m below finished grade) and above the cover material should match the soils exposed at the trench walls to minimize differential frost heaving. The trench backfill should be placed in maximum 225 mm thick loose lifts. All cobbles larger than 200 mm in their longest dimension should be segregated from re-use as trench backfill.

- 1.8. Site preparation includes clearing, grubbing, stripping of topsoil, demolition, removal of unsuitable materials, cut, fill and rough grading of all areas to receive finished surfaces.

- 3. DEMOLITION AND REMOVALS
3.1. The Contractor must visit the premises in order to be fully aware of existing conditions on site, including all elements to be removed and demolished. No claim will be accepted due to a poor evaluation of the work to be completed.
3.2. The Contractor must protect and maintain in service the existing works which must remain in place. If they are damaged, the Contractor must immediately make the replacements and necessary repairs to the satisfaction of the Owner's representative and without additional expense to the Owner.
3.3. The Contractor must perform the necessary clearing and grubbing in accordance with OPSS/MUNI 201.
3.4. The Contractor must carry out necessary saw cuts even if they are not shown on the drawings.

- 6.5. Excavation side slopes in sound bedrock may be completed with almost vertical side walls. A minimum of 1 m horizontal ledge must remain between the bottom of the overburden and the top of the bedrock surface to provide an area for potential sloping. The 1 m horizontal ledge set back can be eliminated with a shoring program which has drilled piles extending below the proposed founding elevation.

- 6.5. Pavement structures, curbs, and sidewalks
6.1. Construction of granular foundation must conform to OPSS.
6.2. Granular materials used on site must conform to the requirements of OPSS/MUNI 1010.
6.3. Road cut reinstatement as per City of Ottawa Detail R10.
6.4. Construction of asphalt must conform to OPSS.

- 9. WATERMAIN
9.1. Water pipe materials must be Pressure Class 150, DR 18, manufactured to AWWA C-900 and CSA B137.3 or Pressure Class 250/90/1620 kPa AWWA C-909 and CSA B137.3.1 standards. Pipe shall have the cast iron outside diameter dimensions, be blue in colour and supplied complete with gaskets. Furthermore, watermain, water service connections and associated appurtenances must be constructed in accordance with the OPSS/MUNI 441.
9.2. Except where specified on plan, all watermain must be installed with a minimum of 2.40 metres cover from finished grade. Where a minimum of 2.40 metres cover is not reached, thermal insulation is required per City of Ottawa Details W22 and W23.
9.3. Tracer wire to be as per City of Ottawa Detail W36.
9.4. Cathodic protection must be installed as per City of Ottawa Details W40 and W42.
9.5. Thrust block and restraints must be as per City of Ottawa Details W25.3, W25.4, W25.5 and W25.6.
9.6. Valves to be installed as per OPSS and conform to the following:
9.6.1. All valves must open in a clockwise direction;
9.6.2. Valves between 100-300mm range to be resilient seat gate valves (AWWA C515) with mechanical joint connections.
9.7. Valve box assembly to be as per City of Ottawa Detail W24. In asphalt, install floating valve boxes equivalent to Bibby-Site-Cross equipped with a ductile iron floating top extension (i.e. adjustable road leveler). In concrete, installed sliding valve boxes equivalent to Bibby-Site-Cross equipped with standard sliding flat top (no floating extension).

- 1.10. Compaction must conform for the following requirements:
1.10.1. Exposed subgrade: 95% Standard Proctor maximum dry density (SPMDD)
1.10.2. Subgrade fill (landscaping areas): 95% Standard Proctor maximum dry density (SPMDD)
1.10.3. Subgrade fill (pavement areas - OPSS Select Subgrade Material): 98% Standard Proctor maximum dry density (SPMDD)
1.10.4. Pavement Granular Subbase foundations: 100% Standard Proctor maximum dry density (SPMDD)
1.10.5. Pavement Granular Base foundations: 100% Standard Proctor maximum dry density (SPMDD)
1.10.6. Asphalt pavement: OPSS MUNI 310
1.10.7. Structural fill (building and light standard footprints OPSS Granular 'A' or Granular 'B' Type II Material): 98% Standard Proctor for Maximum Dry Density (SPMDD)

- 3.5. The Contractor must protect and maintain in service the existing works which must remain in place. If they are damaged, the Contractor must immediately make the replacements and necessary repairs to the satisfaction of the Owner's representative and without additional expense to the Owner.
3.6. The Contractor must discard recyclable demolition materials in collaboration with a regional recycling company. The Contractor must be able to provide proof, upon request, that the materials were properly recycled and that the chosen recycling company is recognized in the recycling field.
3.7. All other demolition materials must be disposed off-site at authorized licensed landfills and in conformity with the applicable laws and regulations. The Contractor must be able to provide, upon request, copies of the disposal tickets.

- 6.6. Asphalt mix design must be reviewed and approved by a Geotechnical Engineer before paving.
6.7. For all concrete placement during cold weather Contractor must place material in accordance to City of Ottawa Special Provision F-9040.

- 9.8. When a watermain pipe crosses a sewer pipe, installation must be as per City of Ottawa Details W25 and/or W-25.2.
9.9. All watermain must be thoroughly flushed and cleaned to remove all dirt and debris prior to the dissection process.
9.10. All watermain must be hydrostatically and bacteriologically tested as per provincial and municipal regulations. It is the Contractor's responsibility to ensure that all requirements are followed.
9.11. The Contractor must make arrangements with and give a minimum of 24 hours' notice to the City for the closing off of necessary valves in the water distribution system. The City will operate valves at the time of tie-ins, etc. at no expense to the Contractor under normal conditions; however the Contractor will be responsible for all costs associated with emergency shutdowns if they occur outside of the normal working hours of the City (Mondays to Friday, 7:00 a.m. to 5:00 p.m.).
9.12. Hydrostatic testing to be completed as per OPSS 441.07.24. Testing must be completed under the supervision of the Contract Administrator. The test section will be either a section between valves or the completed watermain. Test pressure to be 1035 kPa.
9.13. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

- 9.12. Where hard surface areas are considered above the trench backfill, the trench backfill material within the frost zone (about 1.8 m below finished grade) and above the cover material should match the soils exposed at the trench walls to minimize differential frost heaving. The trench backfill should be placed in maximum 225 mm thick loose lifts. All cobbles larger than 200 mm in their longest dimension should be segregated from re-use as trench backfill.

- 1.11. It is anticipated that groundwater infiltration into excavations should be low to moderate and controllable using open sumps. The Contractor should be prepared to direct water away from all subgrades, regardless of the source to prevent disturbance to the founding medium. Dewatering of excavations to be as per OPSS/MUNI 517. As required under the "Ontario Water Resources Act (OWRA)", the Contractor must register all water taking activities on Ontario's "Environmental Activity and Sector Registry (EASR)" if water taking exceeds 50,000 l/day and obtain a Permit to Take Water (PTTW) if water taking exceeds 400,000 l/day. Furthermore, Contractor must submit all necessary measures required to ensure dewatering operations does not affect in any way the integrity of the existing surrounding buildings and must plan his work accordingly. Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16.

- 3.8. The Contractor must conduct all removals required to make the work complete.
3.9. Unless otherwise specified, all materials, products and others coming from the demolition belong to the Contractor.
3.10. Surfaces and works located outside of the construction work limit must be reinstated as they were before beginning of work.

- 6.7. Tactile Walking Surface Indicators (TWSI) to be constructed as per detail SC7.3. Product shall be from the following list or approved equivalent.
Manufacturer Specific Model (when applicable)
ADA Solutions Ironstone
Advantage Cast Iron Safety Detection
Bibby Site-Cross System
Cedar Infrastructure
East Jordan Duralast
Hempel
Neopel
OUC
Star Pipe Products

- 9.13. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

- 9.13. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

- 1.12. Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements and as follows:
1.12.1. Provide flocculation tanks, settling basins, or other treatment facilities to remove suspended solids or other materials to within the required parameters of the receiving body before discharging to storm sewers, watercourses or drainage areas.
1.12.2. Before discharging to storm sewers, watercourses or drainage areas, discharge water must be sampled and tested to ensure quality requirements in accordance with City of Ottawa Sewer Use By-Law No. 2003-514 and the MECP are adhered to. The Contractor is to perform all additional sampling and testing as required by City of Ottawa. All associated fees to be paid by the Contractor.
1.12.3. Where water is not suitable for discharge into the adjacent storm sewers, watercourses or drainage areas it must be discharged into the on-site sanitary sewer collection system, or disposed off-site at an approved disposal facility.
1.12.4. Combined Sewer Discharge: When discharging to the combined sewer, the Contractor must obtain a Sanitary/Combined Sewer Agreement for Dewatering from the City of Ottawa in accordance with City of Ottawa Sewer Use By-Law No. 2003-514 and pay all associated fees.
A copy of the signed Combined Sewer Agreement for Dewatering must be provided to the Departmental Representative in advance of dewatering and discharge.
The Contractor must ensure all requirements of the Discharge Agreement are adhered to and all prerequisite requirements of the Agreement are in place prior to commencing dewatering.
1.12.4.3. Provide flow meter and record discharge rate in accordance with City of Ottawa requirements.
1.12.4.4. Dewatering discharge rate to combined sewer not to exceed rate specified by City.

- 4. GENERAL SUBGRADE PREPARATION
4.1. Earth removal must be inspected by an experienced Geotechnical Engineer to ensure that all unsuitable materials are removed prior to the placement of fill, including concrete and/or anchors, and to confirm the compaction degree and condition of the founding soils. All unsuitable material must be hauled off site and disposed as per provincial and municipal regulations.
4.2. Subgrade must be approved by experienced geotechnical personnel before proceeding with placement of fill.
4.3. All soft, wet or disturbed areas revealed under surface compaction must be removed to a minimum depth of 500 mm and replaced with compacted suitable subgrade fill as directed by the Geotechnical Engineer and/or an approved non-erosive Class 1 geotextile, as per OPSS/MUNI 1860. Transition around sub-excavation, where backfill and native material are not of similar nature, must be sloped at 3 horizontal to 1 vertical, within 1.2 m of finished surface.

- 7. MISCELLANEOUS
7.1. Free standing signs to comply with Detail 401.
7.2. Existing pavement markings in municipal right-of-way to be reinstated if erased/partially removed during construction. Pavement markings to be "Organic Solvent Based" as per OPSS/MUNI 710 and OPSS/MUNI 1712.
7.3. Tactile Walking Surface Indicators (TWSI) to be constructed as per detail SC7.3. Product shall be from the following list or approved equivalent.

- 9.14. The Contractor must make arrangements with and give a minimum of 24 hours' notice to the City for the closing off of necessary valves in the water distribution system. The City will operate valves at the time of tie-ins, etc. at no expense to the Contractor under normal conditions; however the Contractor will be responsible for all costs associated with emergency shutdowns if they occur outside of the normal working hours of the City (Mondays to Friday, 7:00 a.m. to 5:00 p.m.).
9.15. Hydrostatic testing to be completed as per OPSS 441.07.24. Testing must be completed under the supervision of the Contract Administrator. The test section will be either a section between valves or the completed watermain. Test pressure to be 1035 kPa.
9.16. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

- 9.16. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

- 1.13. The Contractor must maintain benchmarks and landmark references as is. Otherwise these references will be repositioned by a certified land surveyor at the Contractor's expense.
1.14. The Contractor is the only person in charge of safety on the building site. The Contractor is responsible for providing adequate protection of the workers, other personnel and the general public, protection of materials, as well as maintaining in good condition the completed works and works to be completed. The Contractor must supply, install and maintain an appropriate safety fence along the work perimeter until the work is complete. The Contractor must provide at any time: A sufficient number barriers, posters, guards and others to ensure safety. Necessary conveniences for the completion of the work such as heating, lighting, ventilation, etc.
1.15. Temporary excavations in the overburden must be completed as per the requirements of the Occupational Health and Safety Act (OHS/A), O.Reg. 213/91, Part III - Excavations. The side slopes of excavations in the soil and fill overburden materials should either be cut back at acceptable slopes or should be retained by shoring systems from the start of the excavation until the structure is backfilled. The excavation side slopes above the groundwater level extending to a maximum depth of 3 m should be cut back at 1H:1V or flatter. The flatter slope is required for excavation below groundwater level. The subsurface soil is considered to be mainly a Type 2 and 3 soil according to the Occupational Health and Safety Act and Regulations for Construction Projects. Slopes in excess of 3 m in height should be periodically inspected by the geotechnical consultant in order to detect if the slopes are exhibiting signs of distress.

- 4.7. Excess soils generated must be managed in accordance O.Reg. 406/19 made under the Environmental Protection Act, R.S.O. 1990, c.19 (EPA) and the applied by reference "Rules for Soil Management and Excess Soil Quality Standards" (the "Soil Rules") as well as other regulatory amendments related to the management of excess soil. Excess soil is defined as non-hazardous soil, or soil mixed with rock, that has been excavated as part of a project and removed from the project area for the project. As it relates to this Contract, the Project Leader is "the Client", as per the definition under O.Reg. 406/19.
4.7.1. Where excess soils are anticipated to be generated, a notice is to be filed to the Resource Productivity and Recovery Authority (R/PRA or successor organization) Excess Soils Registry (the "Registry") prior to the removal of excess soil from the project area unless exempt in accordance with the Regulation. The Contractor is to provide "the Client" all information required for filing the notice to the Registry.
4.7.2. A Soil Management Plan is to be developed by the Contractor for submission to "the Client". Where applicable, the Soil Management Plan is to be prepared in accordance with the MECP Management of Excess Soil - A Guide for Best Management Practices and in accordance with O.Reg. 406/19.
4.7.3. The Contractor is responsible for retaining a Qualified Person (QP), as per the definition under O.Reg. 153/04 to evaluate and provide all the necessary advice required in accordance with O.Reg. 406/19. The services may include but not be limited to an Assessment of Past Uses, Sampling and Analysis Plan, Soil Characterization Report, and Excess Soil Destination Assessment Report, collectively described as the "Planning Documents", as specified within the Soil Rules. The Contractor may rely on existing Planning Documents and/or site characterization reports where provided "within the Contract Documents" by the Engineer in relation to Excess Soils. The Contractor is responsible to finalize any preliminary Planning Document reports required, identify proposed soil destination site(s) for "the Client" approval, and satisfy all associated requirements specified by the selected destination site.

- 7.4. The Contractor is responsible to notify "the Client" if actual construction activities and/or site conditions encountered are not consistent, or appear not to be consistent, with the information presented within the Planning Documents.
7.5. The Contractor is responsible to implement a tracking system in accordance with O.Reg. 406/19 to track each load of excess soil during its transportation and deposit at the approved destination site (i.e. reuse site, Class 1 soil management site, local waste transfer facility, landfilling site or dump, and any transportation to and from a Class 2 soil management site).

- 9.17. Storm pipe materials must be SDR 35 conforming to OPSS 1841, unless noted otherwise on the drawings. Sewer pipe and fittings must be certified to CSA standards B182.2 or CSA B182.7. Furthermore, storm sewer, storm lateral and associated appurtenances must be constructed in accordance with the OPSS/MUNI 410.
9.18. The allowable deflected pipe diameter when using flexible pipe is as follows:
9.18.1. Pipes 100 to 750 mm: 7.5% of the base inside diameter of the pipe.
9.19. Final backfill material for storm sewers must be approved native material or select subgrade material in conformance with OPSS/MUNI 212.
9.20. All storm sewers to be C.C.T.V. inspected by the Contractor as per OPSS/MUNI 409. Report must be provided to the Engineer in two (2) copies and the C.C.T.V. inspection in DVD format only.
9.21. Adjustment or rebuilding of manholes, manhole/catchbasins, catchbasins, ditch inlets and valve chambers to be completed as per OPSS/MUNI 408.
9.22. The Contractor must implement best management practices to provide for protection of receiving storm sewer or drainage during construction activities (i.e. catchbasin inserts (or approved equivalent), straw bale check dams, any other sediment control measures required around all disturbed areas). Dewatering must be sumped into sediment traps.

- 9.21. The Contractor must make arrangements with and give a minimum of 24 hours' notice to the City for the closing off of necessary valves in the water distribution system. The City will operate valves at the time of tie-ins, etc. at no expense to the Contractor under normal conditions; however the Contractor will be responsible for all costs associated with emergency shutdowns if they occur outside of the normal working hours of the City (Mondays to Friday, 7:00 a.m. to 5:00 p.m.).
9.22. Hydrostatic testing to be completed as per OPSS 441.07.24. Testing must be completed under the supervision of the Contract Administrator. The test section will be either a section between valves or the completed watermain. Test pressure to be 1035 kPa.
9.23. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

- 1.16. The Contractor must pace deliveries and removals in order to minimize and control stockpiles.
1.17. Stockpile material must be stored away from excavations at a distance at least equal to the depth of the excavation. Construction traffic should be limited near open excavation.
1.18. Cleanliness on the site:
1.18.1. The Contractor must clean roadways at his own cost as directed by the Owner's representative.
1.18.2. All site roads and walkways to and from the construction zone must be kept clean at all times, from mud, dirt, granular material, debris, etc.
1.18.3. The Contractor must leave the work area clean at the end of each day.
1.18.4. Materials and equipment must be laid out in an organized and safe manner.
1.18.5. All material, equipment and temporary structures which are no longer necessary for the execution of the Contract must be removed from the site.
1.18.6. If required the Contractor must reduce noise, dust, interference, obstruction, etc., in conformity with the requirements of the provincial and municipal authorities having jurisdiction.

- 4.8. If contaminated material is encountered during the work, the Contractor must dispose off-site all materials from the contaminated area in accordance with the requirements of the MECP and OPSS/MUNI 180. Prior to the start of work the Contractor must provide the name and location of landfill(s) where the contaminated materials will be disposed to the Consultant. The Contractor must obtain from the landfill Owner documents confirming that he has the right to accept the contaminated material. During the work, the contractor must provide the Consultant copies of all check-in receipts issued by the landfill Owner.
4.9. The Contractor is responsible for providing a confirmation that the imported material used as subgrade fill is free of any contaminants such as Petroleum Hydrocarbons (C-C₁₀), PAH (Polycyclic Aromatic Hydrocarbons), MAH (Monocyclic Aromatic Hydrocarbons) and metals like mercury, silver, arsenic, cadmium, cobalt, chromium, copper, iron, manganese, molybdenum, nickel, lead and zinc.

- 9.24. The Contractor must make arrangements with and give a minimum of 24 hours' notice to the City for the closing off of necessary valves in the water distribution system. The City will operate valves at the time of tie-ins, etc. at no expense to the Contractor under normal conditions; however the Contractor will be responsible for all costs associated with emergency shutdowns if they occur outside of the normal working hours of the City (Mondays to Friday, 7:00 a.m. to 5:00 p.m.).
9.25. Hydrostatic testing to be completed as per OPSS 441.07.24. Testing must be completed under the supervision of the Contract Administrator. The test section will be either a section between valves or the completed watermain. Test pressure to be 1035 kPa.
9.26. Contractor must coordinate the supply and installation of water meter and remote water meter for the building with the mechanical engineer.

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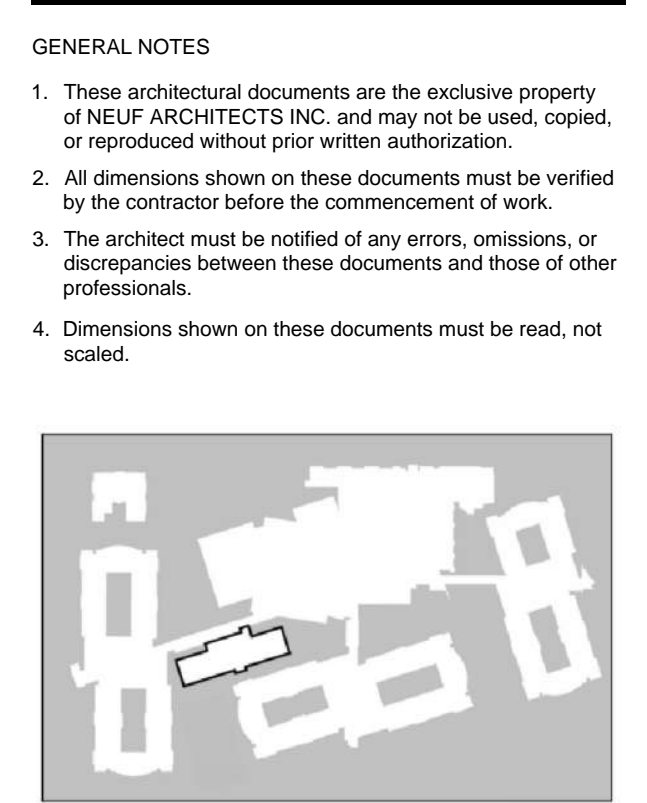
- 1.19. During the construction period the Contractor is responsible for installing and maintaining temporary traffic signage, including traffic signs, traffic markings and temporary traffic lights, and flagmen, as required by the Owner, the Consultant, the Municipality and other governing authorities.
1.20. The Contractor must control surface runoff from precipitation during construction.

- 4.8. If contaminated material is encountered during the work, the Contractor must dispose off-site all materials from the contaminated area in accordance with the requirements of the MECP and OPSS/MUNI 180. Prior to the start of work the Contractor must provide the name and location of landfill(s) where the contaminated materials will be disposed to the Consultant. The Contractor must obtain from the landfill Owner documents confirming that he has the right to accept the contaminated material. During the work, the contractor must provide the Consultant copies of all check-in receipts issued by the landfill Owner.
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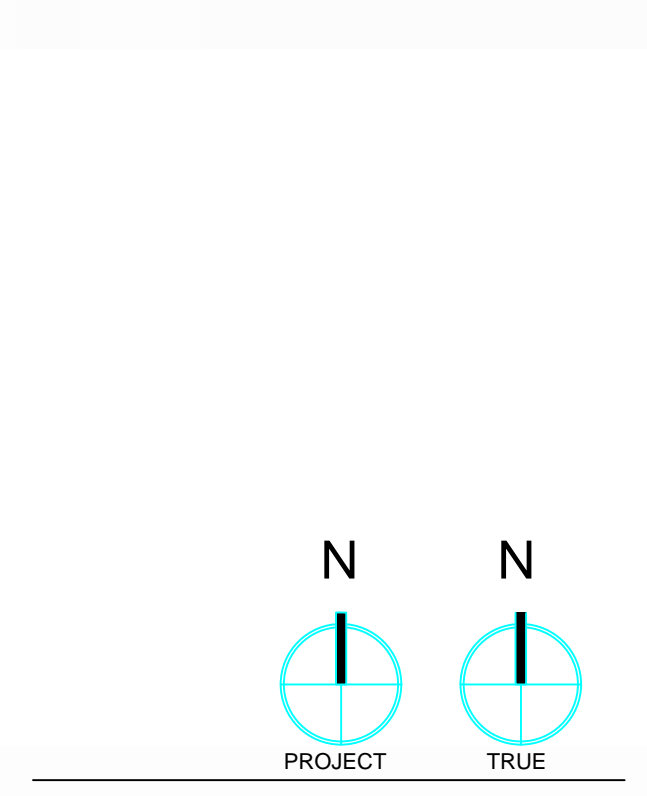


Table with 3 columns: NO, REVISION, DATE (yyyy-mm-dd). Row 1: A, ISSUED FOR SITE PLAN APPLICATION, 2025-04-04.

DESIGNED BY: D.B., CHECKED BY: E.P.
DRAWN BY: G.D., CHECKED BY: E.P.
DATE (yyyy-mm-dd): 12/16/25, SCALE: As indicated
DRAWING TITLE: CIVIL NOTES AND SPECIFICATIONS

Table with 2 columns: REVISION, DRAWING NUMBER.



EXISTING	LEGEND	PROPOSED
—	FENCE	—
—	OVERHEAD WIRES	—
—	WOOD AREA	—
—	CATCHBASIN	—
—	MANHOLE/CATCHBASIN	—
—	MANHOLE	—
—	FIRE HYDRANT	—
—	VALVE	—
—	CHECK VALVE	—
—	SURVEY STATION	—
—	UTILITY POLE	—
—	INCISED LIGHT STANDARD	—
—	GAS VALVE	—
—	GAS METER	—
—	DIAMETER	—
—	INVERT	—
—	TOP OF GRADE	—
—	LOCATION OF ELEVATIONS	—
—	T/O CONCRETE CURB/RETAINING WALL ELEVATION	—
—	PROPERTY LINE / EXTENT OF WORK	—
—	BOREHOLE (LOC. APPROX.)	—
—	SHRUB	—
—	WORK LIMIT	—
—	SAMESE CONNECTION	—
—	OVERLAND FLOW	—
—	SOFT LANDSCAPING AREA (SEE LANDSCAPE)	—
—	CONCRETE SIDEWALK	—
—	PROPOSED ASPHALT ROADWAY	—
—	ASPHALT PATHWAY	—
—	PROPOSED CLEAR STONE	—
—	EXISTING CLEAR STONE	—
—	ASPHALT ROADWAY REINSTATEMENT DETAIL R10	—

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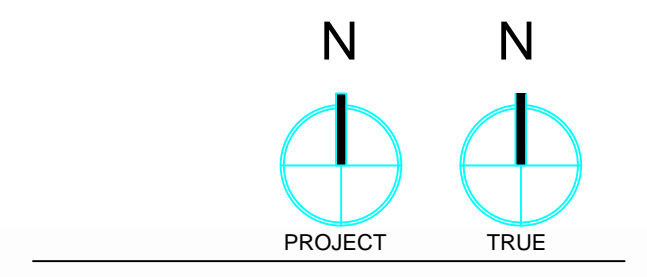
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PROJECT
PERLEY HEALTH EXPANSION
 1750 Russell Road
 Ottawa, ON K1G 5Z6

PROJECT No. **13330**

NO	REVISION	DATE (yyyy-mm-dd)
A	ISSUED FOR SITE PLAN APPLICATION	2025-02-04

Preliminary
DO NOT USE FOR CONSTRUCTION

DESIGNED BY: **D.B.** CHECKED BY: **É.P.**
 DRAWN BY: **G.D.** CHECKED BY: **É.P.**

DATE (yyyy-mm-dd): **12/16/25** SCALE: **As indicated**

GRADING PLAN

REVISION	DRAWING NUMBER

NOTE OF CAUTION

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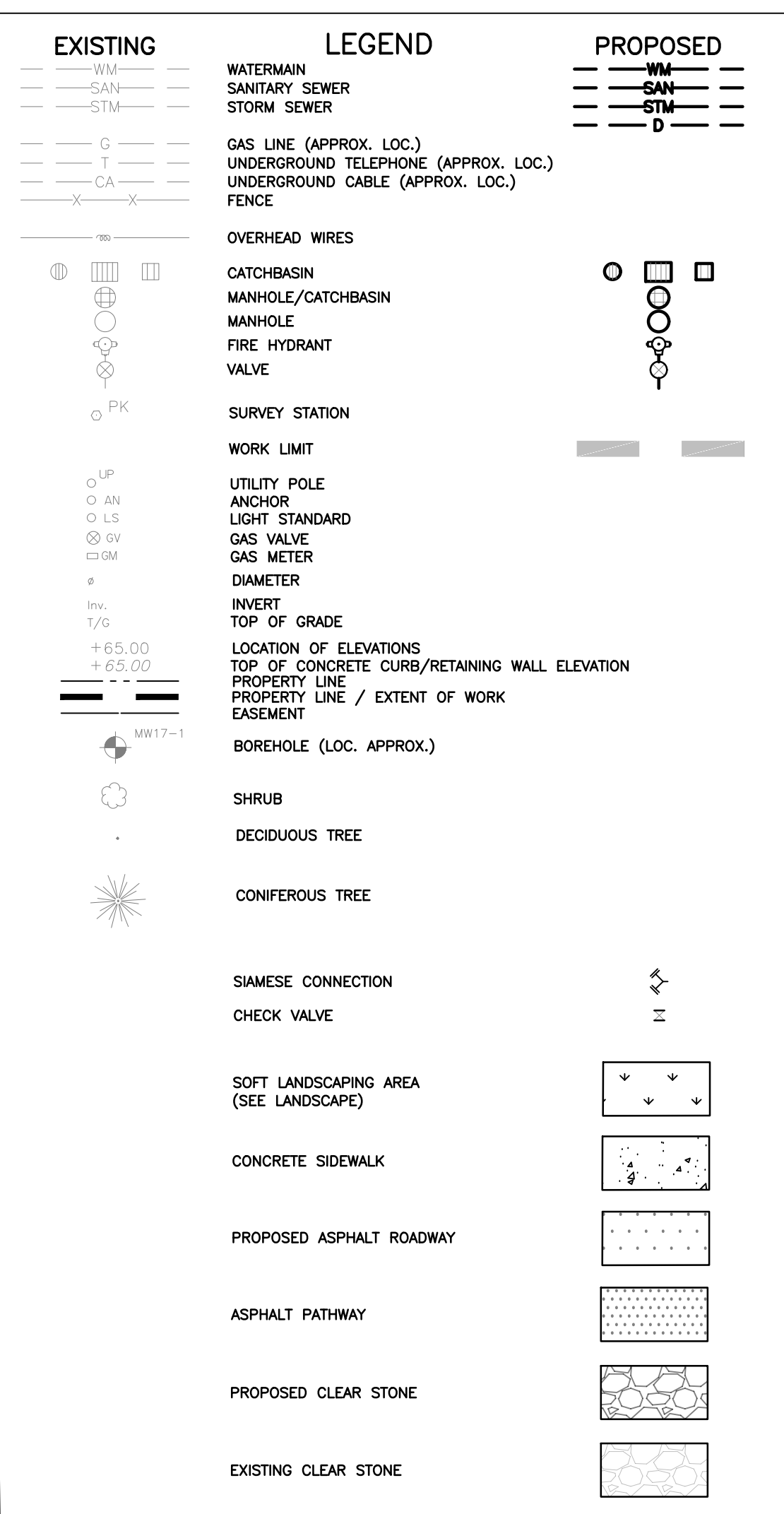
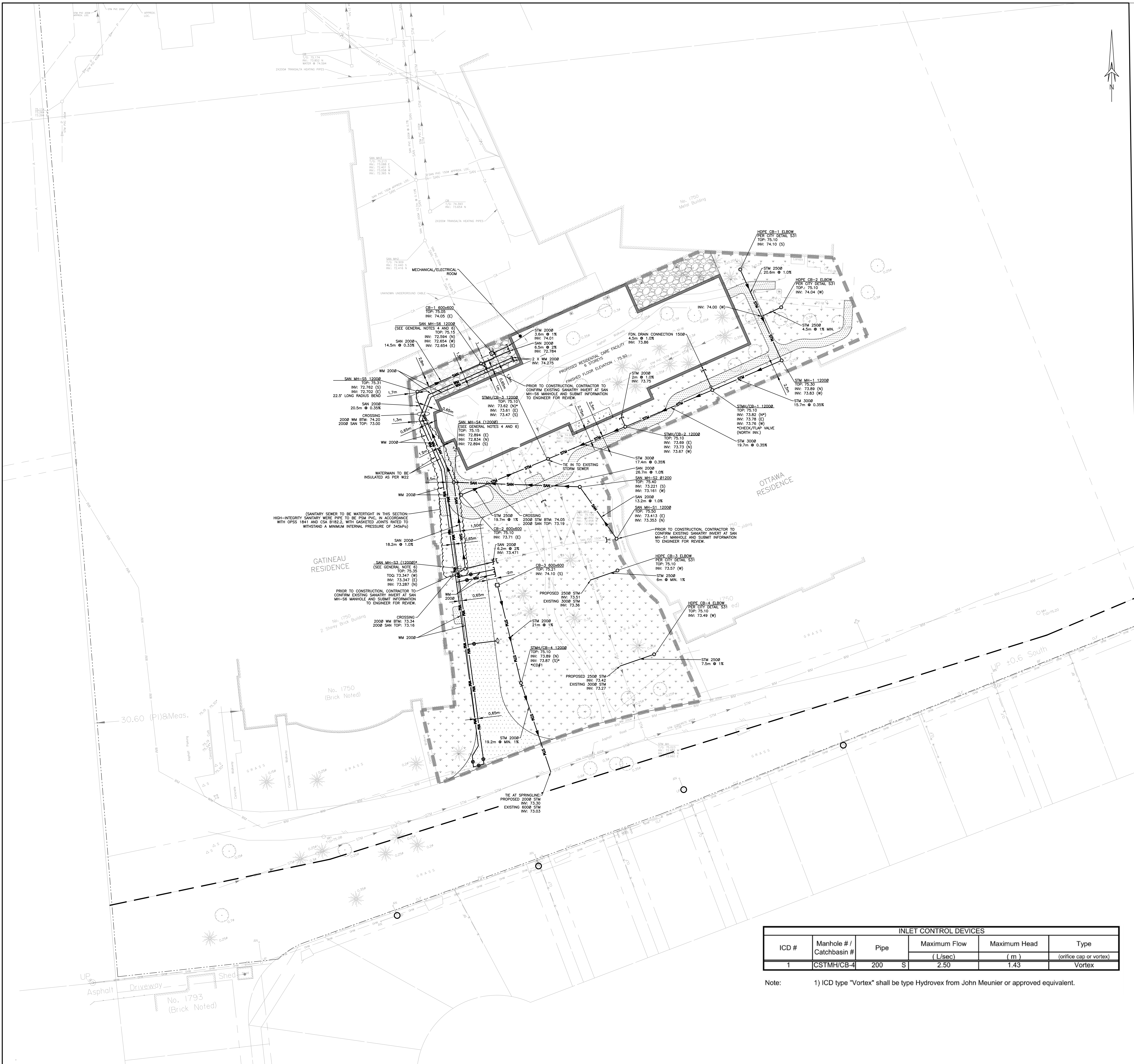
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ALL INFORMATION UNDER THE LEGEND EXISTING IS FOR INFORMATION ONLY. COMPLETE OR EXACT LOCATION AND DEPTH OF UNDERGROUND SERVICES ARE NOT GUARANTEED.

CERTAIN UNDERGROUND FEATURES ON PRIVATE PROPERTY ARE NOT SHOWN ON THE CURRENT DRAWING.

ANYONE WHO PROCEEDS WITH EXCAVATION WORK SHALL VERIFY THE EXACT LOCATION OF ALL UNDERGROUND FEATURES BY EXPLORATORY EXCAVATIONS, AND SHALL ASSUME FULL RESPONSIBILITY IF THERE IS ANY DAMAGE THAT OCCURS DURING WORK.

THE CONTRACTOR WILL HAVE THE RESPONSIBILITY AND THE OBLIGATION TO VALIDATE, BY EXPLORATORY EXCAVATION, THE SIZE OF THE PUBLIC UTILITIES UNDERGROUND SERVICES AND TO WARN THE ENGINEER OF ANY CONFLICT WITH THE PROJECTED WORK.



- GENERAL NOTES:**
- FOUNDATION DRAIN BACKWATER VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14 (REFER TO MECHANICAL).
 - SANITARY BACKWATER VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14.1. (REFER TO MECHANICAL).
 - WATER METER TO BE LOCATED INSIDE BUILDING (REFER TO MECHANICAL).
 - SAN MH-56, SAN MH-58, SAN MH-59 AND FRAME TO BE WATER-TIGHT AS PER OISS 401.030.
 - SAN MH-54, SAN MH-55, SAN MH-56 TO BE INSULATED AS PER OISS 401.030.
 - INSULATE SAN MH-53, SAN MH-54, SAN MH-55 AS PER DETAIL W23 AND WATERMAIN IN PROXIMITY.
 - BUILDING FOUNDATION DRAIN, BUILDING AIR WELL DRAINS AND TRENCH DRAIN FOR UNDERGROUND PARKING ENTRANCE FROM PARKING STREET TO BE PLUMBED INTO UNDERGROUND CISTERN WEST OF BUILDING. BUILDING ROOF DRAIN TO BE DIRECTED INTO UNDERGROUND CISTERN VIA GRAVITY (REFER TO MECHANICAL).

INLET CONTROL DEVICES					
ICD #	Manhole # / Catchbasin #	Pipe	Maximum Flow (L/sec)	Maximum Head (m)	Type
1	CSTMH/CB-4	200 S	2.50	1.43	Vortex

Note: 1) ICD type "Vortex" shall be type Hydrovex from John Meunier or approved equivalent.

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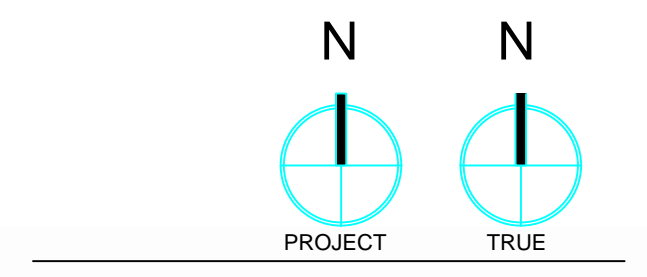
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NEUF ARCHITECTS



Perley Health
 Community of Care

KADUS

PROJECT
PERLEY HEALTH EXPANSION
 LOCATION: 1750 Russell Road, Ottawa, ON K1G 5Z6
 PROJECT No.: 13330

NO	REVISION	DATE (yyyy-mm-dd)
A	ISSUED FOR SITE PLAN APPLICATION	2005-02-04

DESIGNED BY: D.B.
CHECKED BY: E.P.

DRAWN BY: G.D.
CHECKED BY: E.P.

DATE (yyyy-mm-dd): 12/16/25
SCALE: As indicated

SERVICING PLAN

REVISION: DRAWING NUMBER:



EXISTING	LEGEND	PROPOSED
Watermain	Watermain	
Sanitary Sewer	Sanitary Sewer	
Storm Sewer	Storm Sewer	
Underground Telephone (Approx. Loc.)	Underground Telephone (Approx. Loc.)	
Fence	Fence	
Overhead Wires	Overhead Wires	
Underground Lighting Wires	Underground Lighting Wires	
Catchbasin	Catchbasin	
Manhole/Catchbasin	Manhole/Catchbasin	
Fire Hydrant	Fire Hydrant	
Valve	Valve	
Check Valve	Check Valve	
Sign	Sign	
Survey Station	Survey Station	
Elevation	Elevation	
Utility Pole	Utility Pole	
Anchor	Anchor	
Light Standard	Light Standard	
Gas Valve	Gas Valve	
Gas Meter	Gas Meter	
Diameter	Diameter	
Invert	Invert	
Top of Grade	Top of Grade	
Location of Elevations	Location of Elevations	
Top of Concrete Curb/Retaining Wall Elevation	Top of Concrete Curb/Retaining Wall Elevation	
Property Line	Property Line	
Basement	Basement	
Borehole (Loc. Approx.)	Borehole (Loc. Approx.)	
Shrub	Shrub	
Work Limit	Work Limit	
Overland Flow	Overland Flow	

LEGEND	PROPOSED
Storm Drainage Boundary	
Area ID	A1
Area in m2	5037 0.28
2-Year Runoff Coefficient	0.1

- GENERAL NOTES:**
- FOUNDATION DRAIN BACKWATER VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14 (REFER TO MECHANICAL).
 - SANITARY BACKWATER VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14.1 (REFER TO MECHANICAL).
 - ALL FLOOR BRANS WITHIN THE UNDERGROUND PARKING GARAGE MUST DISCHARGE TO THE SANITARY DRAINAGE LATERAL VIA SLUMP PUMP (REFER TO MECHANICAL).
 - WATER METER TO BE LOCATED INSIDE BUILDING (REFER TO MECHANICAL).
 - SEWER LATERALS MUST CROSS THE WATERMAIN WITH A MINIMUM CLEARANCE OF 300MM. ABOVE THE WATERMAIN OR 0.3 M BELOW THE WATERMAIN. THE CONTRACTOR MUST CONFIRM THE EXACT INVERT (GEODETIC ELEVATION), DIAMETER AND CONSTRUCTION MATERIAL OF THE EXISTING WATERMAIN AT THE PROPOSED CROSSINGS. IN THE EVENT OF A CONFLICT BETWEEN NEW SEWER LATERALS AND THE EXISTING WATERMAIN, A PORTION OF THE WATERMAIN CAN BE RECONSTRUCTED LOCALLY AS PER EITHER THE CITY OF OTTAWA DETAIL W22 OR W22.2. THE WEST ALSO CARRY SIZE, IF NECESSARY, EXCESSIVE LOCATIONS IN ORDER TO DETERMINE THE EXACT LOCATION AND INVERTS OF EXISTING ROCK BANKS. THIS INFORMATION MUST IMMEDIATELY BE PROVIDED TO THE ENGINEER PRIOR TO START UNDER ANY MUNICIPAL SERVICES WORK AND A 48 HOUR PERIOD MUST BE ALLOCATED TO THE ENGINEER FOR DESIGN REVIEW.
 - BUILDING FOUNDATION DRAIN, BUILDING AIR WELL DRAIN, AND TRUCK DRAIN FOR UNDERGROUND PARKING ENTRANCE FROM RETAINING STREET TO BE PUMPED INTO UNDERGROUND CISTERN WEST OF BUILDING. BUILDING ROOF DRAIN TO BE DICTATED INTO UNDERGROUND CISTERN VIA GRAVITY (REFER TO MECHANICAL).

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THE CONTRACTOR WILL HAVE THE RESPONSIBILITY AND THE OBLIGATION TO VALIDATE, BY EXPLORATORY EXCAVATION, THE SIZE OF THE PUBLIC UTILITIES UNDERGROUND SERVICES AND TO WARN THE ENGINEER OF ANY CONFLICT WITH THE PROJECTED WORK.

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- The architect must be notified of any errors, omissions, or discrepancies between these documents and those of other professionals.
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 P.Eng. 9, 2007
 PROVINCE OF ONTARIO

NEUF ARCHITECTS

Perley Health
 Community of Care

KADUS

PROJECT
PERLEY HEALTH EXPANSION

LOCATION 1750 Russell Road
Ottawa, ON K1G 5Z6

PROJECT No. 13330

NO. REVISION DATE (yyyy-mm-dd)
 A ISSUED FOR SITE PLAN APPLICATION 2025-02-04

DESIGNED BY: D.B. **CHECKED BY:** E.P.
DRAWN BY: G.D. **CHECKED BY:** E.P.

DATE (yyyy-mm-dd) 12/16/25 **SCALE** As indicated

DRAWING TITLE
STORM WATER MANAGEMENT PLAN (PRE-DEVELOPMENT)

REVISION **DRAWING NUMBER**



EXISTING	LEGEND	PROPOSED
—	FENCE	—
—	OVERHEAD WIRES	—
—	WOOD AREA	—
—	CATCHBASIN	—
—	MANHOLE/CATCHBASIN	—
—	MANHOLE	—
—	FIRE HYDRANT	—
—	VALVE	—
—	CHECK VALVE	—
—	SURVEY STATION	—
—	UTILITY POLE	—
—	ANCHOR	—
—	LIGHT STANDARD	—
—	GAS VALVE	—
—	GAS METER	—
—	DAMETER	—
—	INVERT	—
—	TOP OF GRADE	—
—	LOCATION OF ELEVATIONS	—
—	1/2 CONCRETE CURB/RETAINING WALL ELEVATION	—
—	PROPERTY LINE	—
—	PROPERTY LINE / EXTENT OF WORK	—
—	EASEMENT	—
—	BORERHOLE (LOC. APPROX.)	—
—	SHRUB	—
—	WORK LIMIT	—
—	SWIPE CONNECTION	—
—	OVERLAND FLOW	—
—	SOFT LANDSCAPING AREA (SEE LANDSCAPE)	—
—	CONCRETE SIDEWALK	—
—	PROPOSED ASPHALT ROADWAY	—
—	ASPHALT PATHWAY	—
—	PROPOSED CLEAR STONE	—
—	EXISTING CLEAR STONE	—

LEGEND	PROPOSED
—	STORM DRAINAGE BOUNDARY
—	AREA ID
—	AREA IN m ²
—	100-YEAR RUNOFF COEFFICIENT

- GENERAL NOTES:**
- FOUNDATION DRAIN BACKFLOW VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14 (REFER TO MECHANICAL).
 - SAWTOOTH BACKFLOW VALVE REQUIRED ON SERVICE LATERAL PER CITY DETAIL S14.1 (REFER TO MECHANICAL).
 - ALL FLOOR DRAINS WITHIN THE UNDERGROUND PARKING GARAGE MUST DISCHARGE TO THE SECONDARY SERVICE LATERAL VIA SWAMP PUMP (REFER TO MECHANICAL).
 - WATER METER TO BE LOCATED INSIDE BUILDING (REFER TO MECHANICAL).
 - SEWER LATERALS MUST CROSS THE WATERMAIN WITH A MINIMUM CLEARANCE OF EITHER 0.5m ABOVE THE WATERMAIN OR 0.3 m BELOW THE WATERMAIN. THE CONTRACTOR MUST CONFIRM THE EXACT INVERT (EGGSETTS ELEVATION), DRAINER AND CONSTRUCTION MATERIAL OF THE EXISTING WATERMAIN AT THE PROPOSED CROSSINGS. IN THE EVENT OF A CONFLICT BETWEEN NEW SEWER LATERALS AND THE EXISTING WATERMAIN, A PORTION OF THE WATERMAIN CAN BE RECONSTRUCTED LOCAL AS PER EITHER THE CITY OF OTTAWA DETAIL W25 OR W25.2. HE MUST ALSO CARRY OUT IF NECESSARY, OPERATIONAL EXERCISES IN ORDER TO DETERMINE THE EXACT LOCATION AND INVERTS OF EXISTING SLOTTED BARRIS. THIS INFORMATION MUST IMMEDIATELY BE PROVIDED TO THE ENGINEER PRIOR TO START UNDERGOING ANY MECHANICAL SERVICES WORK AND A 48 HOUR PERIOD MUST BE ALLOCATED TO THE ENGINEER FOR DESIGN REVIEW.
 - BUILDING FOUNDATION DRAIN, BUILDING AIR WELL DRAIN, AND TROUGH DRAIN FOR UNDERGROUND PARKING ENTRANCE FROM RAYMOND STREET TO BE PUMPED INTO UNDERGROUND SYSTEM WEST OF BUILDING. BUILDING ROOF DRAIN TO BE DIRECTED INTO UNDERGROUND SYSTEM VIA GRIFFITY (REFER TO MECHANICAL).

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 FEB. 9, 2025
 PROVINCE OF ONTARIO

NEUF ARCHITECTS

Perley Health Community of Care

KADUS

PROJECT:
PERLEY HEALTH EXPANSION

LOCATION: 1750 Russell Road
Ottawa, ON K1G 5Z6

PROJECT No.: 13330

NO. REVISION DATE (yyyy-mm-dd)
 A ISSUED FOR SITE PLAN APPLICATION 2025-02-04

DESIGNED BY: D.B. **CHECKED BY:** É.P.
DRAWN BY: G.D. **CHECKED BY:** É.P.

DATE (yyyy-mm-dd): 12/16/25 **SCALE:** As indicated

DRAWING TITLE: STORM WATER MANAGEMENT PLAN (POST-DEVELOPMENT)

REVISION: **DRAWING NUMBER:**

CIMA+ PROJECT NAME: Perley Health Expansion
 CIMA+ PROJECT NUMBER: Z0017061
 CLIENT: Perley Health
 PROJECT STATUS: Site Plan Application

STORMWATER MANAGEMENT - PRELIMINARY RETENTION CALCULATIONS

APPLICABLE DESIGN GUIDELINES
 1. City of Ottawa Sewer Design Guidelines, 2025

STORMWATER MANAGEMENT SUMMARY - STORAGE AND DRAWDOWN

DESIGN CRITERIA
 Rainfall event: 100 years
 Total allowable release rate: 35.9 L/s/ha
 Total allowable release flow: 8.5 L/s

Notes:
 1. These sub-areas are the only ones considered in the post-development SWM calculations as the remaining areas which will be slightly affected by construction will either remain the same or be improved. The City as agreed to this condition (see Appendix A for email confirmation).
 2. The total available retention volume (i.e. V_{max}) is conservative and excludes all storm pipe and structure volumes.
 3. Sub-catchment area NC1 is excluded from the total release flow since the total uncontrolled areas of the rest of the site are being improved by this construction.

Sub-Area	Total Area (m ²)	Available Storage Area (m ²)	Catchbasin Roof Drain Elevation (m)	Maximum Ponding Elevation (m)	Y _{sub} (m)	V _{sub} (m ³)	V _{sub} (m ³)	V _{sub} (m ³)	Y _{sub} (m)	Elev _{sub} (m)	A _{sub} (m ²)	Release Flow Q (L/s)	Release Rate Q (L/s/ha)	Drawdown Time (min)	Comments
A1	594	375	75.10	75.32	0.22	27.5	21.2	21.2	0.19	75.30	522	2.5	22.9	186	Access road
A2	502	261	75.21	75.35	0.14	12.2	6.8	6.8	0.10	75.30	374	3.3	124.0	11	Access road
NC1	266	0	-	-	-	0.0	2.2	2.2	0.00	-	-	-	-	-	Unimproved Flow
B1	1260	1200	-	-	-	60.0	49.1	49.1	0.14	0.15	1140	6.0	47.6	138	Long Term Care BLDG
Total	2326	1936	-	-	-	99.7	77.2	77.2	-	-	-	8.5	-	-	-

DEFINITIONS OF ABBREVIATIONS USED IN CALCULATION TABLE
 NC = Area is not controlled (unimproved)
 Available Area = Area of water accumulated in sub-area at Max. Elev.
 Catchbasin Elev. = Elevation of catchbasin inlet (top of grate).
 Max. Elev. = Maximum elevation of water that may be accumulated within sub-area.
 Y_{sub} = Maximum depth of water that may be accumulated within the sub-area.
 V_{sub} = Maximum volume of water (capacity) that may be accumulated within the sub-area.
 V_{sub} = Volume of water generated by rainfall.
 V_{sub} = Total volume of water accumulated within the sub-area in the event of a specific rainfall.
 Y_{sub} = Depth of water generated by rainfall.
 Elev_{sub} = Elevation of water generated by rainfall.
 A_{sub} = Area of water generated by rainfall.
 Q = Release flow rate.
 Tank Release Rate = Release rate from the underground storage tank equal to 1/2 the allowable release rate.
 Drawdown Time = Time required for the total volume of water accumulated within sub-area to subside.

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D

Appendix D Water Servicing Design Calculations



PROJECT NAME: Perley Health Expansion - Site Feasibility
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

WATER CONSUMPTION CALCULATIONS

APPLICABLE DESIGN GUIDELINES:

- Ottawa Design Guidelines - Water Distribution (2025)
- MOE Design Guidelines for Drinking-Water Systems

RESIDENTIAL AND COMMERCIAL WATER DEMANDS:

RESIDENTIAL DESIGN CRITERIA:

Residential Average Day Demand: 280 L/c/day
 Maximum Day Peaking Factor: 3.7 x Average Daily Demand
 Maximum (Peak Hour) Peaking Factor: 5.6 x Average Daily Demand

Per Unit Populations:

Unit Type	Persons Per Unit
Single Family	3.4
Semi-detached	2.7
Duplex	2.3
Townhouse (row)	2.7
Apartments:	
Bachelor	1.4
1 Bedroom	1.4
2 Bedroom	2.1
3 Bedroom	3.1
Average Apt.	1.8

EQUIVALENT POPULATION :

Unit Type	Number of Units	Persons Per Unit	Population
Proposed LTC Residence	120	2.37	284
Total	120		284

COMMERCIAL DESIGN CRITERIA:

Contributing Commercial Area: 0.000 gross ha (including activities room, gym and yoga)
 Commercial Average Day Demand: 28,000 L/gross ha/d
 Maximum Day Peaking Factor: 1.5 x Average Daily Demand
 Maximum (Peak Hour) Peaking Factor: 1.8 x Maximum Daily Demand

WATER DEMANDS:

Demand Type	Average Daily Demand (L/s)	Maximum Daily Demand (L/s)	Maximum (Peak) Hour Demand (L/s)
Residential	0.92	3.44	5.17
Commercial	-	-	-
Total	0.92	3.44	5.17

NOTES:

- Maximum Day and Maximum Hour residential peaking factors determined using Table 3-3 of the MOE Design Guidelines for Drinking-Water System for 0 to 500 persons.
- Given basic day demand greater than 50 m3/day (0.57 L/s), two connections, separated by an isolation valve required.
- Population is based on the Building Code Matrix received from the Architect

Prepared by: David Boswell

Date: 2026-02-03

Verified by: Éric Potvin
PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion - Site Feasibility
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

FIRE FLOW ASSESSMENT - OBC

APPLICABLE DESIGN GUIDELINES:

1. Ontario Building Code, 2024
2. Ottawa Design Guidelines - Water Distribution (2025)

STEP A - DETERMINE THE WATER SUPPLY COEFECIENT

Coefficient K	10.0
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STEP B - DETERMINE THE FLOOR AREA

Floor/Level	Floor Area Per Level (sq. m.)
TOTAL FLOOR AREA (A):	1,080

STEP C - DETERMINE THE HEIGHT IN STOREYS

Floor/Level	Number of Storeys	Percent of Floor Area Considered
Gross Floor Area (GFA) Ground Level:	1	100%
GFA Level 2:	1	100%
GFA Level 3:	1	100%
GFA Level 4:	1	100%
GFA Level 5:	1	100%
GFA Level 6:	1	100%
GFA Level 7: Mechanical Penthouse	1	Treated as Additional Volume in Step D
HEIGHT IN STOREYS:	7	

STEP D - DETERMINE THE TOTAL VOLUME OF THE BUILDING

STOREY HEIGHT (m)	3.60
MAIN VOLUME (m³)	23328.0
ADDITIONAL VOLUME (e.g. Penthouse) (m³)	4058.3
TOTAL VOLUME (m³)	27,386.3

STEP E - DETERMINE THE TOTAL OF SPATIAL COEFFECIENT VALUES FROM PROPERTY LINE EXPOSURES

CARDINAL DIRECTION	DISTANCE FROM NEAREST BUILDING	COEFFECIENT
North	6.0	0.4
South	4.7	0.5
East	4.7	0.5
West	5.9	0.5

Spatial Coefficient Total	2.0
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PROJECT NAME: Perley Health Expansion - Site Feasibility
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

FIRE FLOW ASSESSMENT - OBC

STEP F - DETERMINE MINIMUM SUPPLY OF WATER

MINIMUM WATER VOLUME	547,725.00	Litres
MINIMUM WATER SUPPLY	9,000	Litres per Minute
	150.00	L/s
	2,378	USGPM

NOTES/COMMENTS:

STEP A - DETERMINE THE WATER SUPPLY COEFECIENT

1. The building is "Non-combustible Construction" with a minimum of 1 hour rating between floors and units, as confirmed by the architect.
2. Major occupancy classification of the building is B-2: care and treatment occupancies.

STEP B - DETERMINE THE FLOOR AREA

1. Assumed average of all floor areas

STEP C - DETERMINE THE HEIGHT IN STOREYS

1. The subjected building is 6 storeys with a mechanical penthouse

STEP D - DETERMINE THE TOTAL VOLUME OF THE BUILDING

1. Storey height is 3.6 m according the the architectural plans.
2. Volume for the mechanical room on the roof is calculated sepearately due to varying height.

STEP E - DETERMINE THE TOTAL OF SPATIAL COEFFECIENT VALUES FROM PROPERTY LINE EXPOSURES

1. No notes or comments.

STEP F - DETERMINE MINIMUM SUPPLY OF WATER

1. As stated in the City of Ottawa Design Guidelines - Water Distribution (2025), since the OBC-based method resulted in a fire flow requirement of 9,000 L/min, the amended FUS method will instead be used to determine the fire protection requirements.

Prepared by: _____ David Boswell _____

Date: 2026-02-03

Verified by: _____ Eric Potvin _____
PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion - Site Feasibility
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

FIRE FLOW ASSESSMENT - FUS

APPLICABLE DESIGN GUIDELINES:

1. Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection, 2020
2. Ottawa Design Guidelines - Water Distribution (2025) including Appendix H
3. MOE Design Guidelines for Drinking-Water Systems

STEP A - DETERMINE THE TYPE OF CONSTRUCTION

Type of Construction	Coefficient (C)	Value Selected (C)
Fire-resistive Construction (> 2 hours)	0.6	0.8
Non-combustible Construction	0.8	
Ordinary Construction	1.0	
Wood Frame Construction	1.5	

STEP B - DETERMINE THE FLOOR AREA

Floor/Level	Floor Area Per Level (sq. ft.)	Floor Area Per Level (m ²)	Fire Resistive Building (> 2 hours)	Protected (vertical) Openings	Area of Structure Considered (m ²)	Percent of Floor Area Considered
Gross Floor Area (GFA) Ground Level:	12,777	1,187	NO	YES	1,187	100%
GFA Level 2:	12,648	1,175			294	25%
GFA Level 3:	11,076	1,029			257	25%
GFA Level 4:	11,076	1,029			0	0%
GFA Level 5:	11,076	1,029			0	0%
GFA Level 6:	11,076	1,029			0	0%
GFA Level 7: Mechanical Penthouse	8,321	773			0	0%
TOTAL FLOOR AREA (A):	78,050	7,251.0				

STEP C - DETERMINE THE HEIGHT IN STOREYS

Floor/Level	Number of Storeys	Percent of Floor Area Considered
Ground Level:	1	100%
Level 2:	1	25%
Level 3:	1	25%
Level 4:	1	0%
Level 5:	1	0%
Level 6:	1	0%
Level 7:	1	0%
HEIGHT IN STOREYS:	7	

STEP D - DETERMINE BASE FIRE FLOW (ROUND TO NEAREST 1,000 L/min)

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

Where:

- F is the required fire flow in L/min
- C is the coefficient related to the type of construction, and;
- A is the total floor area of the building in m²

Coefficient Related to Type of Construction (C) = **0.8**
 Floor Area Considered (A) = **1,738 m²**

REQUIRED (BASE) FIRE FLOW (F) =	7,000 L/min (Rounded to Nearest 1,000 L/min)
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PROJECT NAME: Perley Health Expansion - Site Feasibility
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FIRE FLOW ASSESSMENT - FUS

STEP E - DETERMINE THE INCREASE OR DECREASE FOR OCCUPANCY AND APPLY TO STEP D (STEP D x STEP E, DO NOT ROUND)

Occupancy Class	Occupancy Factor	Value Selected (C)
Non-combustible	0.75	0.75
Limited combustible	0.85	
Combustible	1.00	
Free burning	1.15	
Rapid burning	1.25	

REQUIRED (BASE) FIRE FLOW (F) = 5,250 L/min (Not rounded)

STEP F - DETERMINE THE DECREASE, IF ANY, FOR AUTOMATIC SPRINKLER PROTECTION AND APPLY TO VALUE IN STEP D ABOVE (DO NOT ROUND)

Sprinkler System Design	Sprinkler Design Charge	Value Selected (C)	Total Charge
Automatic sprinkler system conforming to NFPA standards	-30%	Yes	-30%
Standard water supply	-10%	Yes	-10%
Fully supervised system	-10%	Yes	-10%
TOTAL CHARGE FOR SPRINKLER SYSTEM			-50%

DECREASE FOR SPRINKLER PROTECTION = -3,500 L/min (Not rounded)

STEP G - DETERMINE THE TOTAL INCREASE FOR EXPOSURES AND APPLY TO VALUE IN STEP D ABOVE (DO NOT ROUND)

Façade	Separation Distance (m)	Length-height Factor of Exposed Wall (m-storeys)	Assumed Construction of Exposed Wall of Adjacent Structure	Total Charge
North Façade	6	75	Non combustible	9.00%
East Façade (fire/party wall)	5	32	Non combustible	7.00%
South Façade	5	83	Non combustible	9.00%
West Façade	6	32	Non combustible	7.00%
TOTAL CHARGE FOR EXPOSURES				32%

INCREASE FOR EXPOSURES = 2,240 L/min (Not rounded)

STEP H - DETERMINE FIRE FLOW INCLUDING ALL INCREASES AND REDUCTIONS ((STEP E + STEP F + STEP G, ROUND TO NEAREST 1,000 L/min)

TOTAL REQUIRED FIRE FLOW (RFF) = 4,000 L/min (Rounded to Nearest 1,000 L/min)
66.67 L/s
1,057 USGPM



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PROJECT STATUS: Site Plan Application

FIRE FLOW ASSESSMENT - FUS

NOTES/COMMENTS:

STEP A - DETERMINE THE TYPE OF CONSTRUCTION

1. The subjected building type is found to be non-combustible construction based on the Building Code Matrix

STEP B - DETERMINE THE FLOOR AREA

1. Assumed vertical openings and exterior vertical communications are properly protected (one hour rating), thus only the area of the largest floor plus 25% of each of the two immediately adjoining floors accounted for per Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection, 2020
2. According to the Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (2020), a fire wall with a fire-resistance rating of two hours or more, in accordance with the National Building Code of Canada, may be used to subdivide a building or separate it from an adjoining building. It is assumed that the party wall to the north will have a minimum two-hour fire-resistance rating.

STEP C - DETERMINE THE HEIGHT IN STOREYS

1. No notes or comments

STEP D - DETERMINE BASE FIRE FLOW (ROUND TO NEAREST 1,000 L/min)

1. No notes or comments.

STEP E - DETERMINE THE INCREASE OR DECREASE FOR OCCUPANCY AND APPLY TO STEP D (STEP D x STEP E, DO NOT ROUND)

1. Occupancy selected based on Care and Treatment establishment which will fall under B-2 occupancy type "Non-combustible to Limited Combustible". Based on Building Code Matrix, Non-Combustible is selected.

STEP F - DETERMINE THE DECREASE, IF ANY, FOR AUTOMATIC SPRINKLER PROTECTION AND APPLY TO VALUE IN STEP D ABOVE (DO NOT ROUND)

1. Per building Code Matrix, Entire building is proposed with sprinkler system and will be fully supervised with alarm.
2. Assumed adjacent buildings are also fully protected with automatic sprinkler system and are in compliance with NFPA standards, which allows to add the
3. Assumed standard municipal water supply is available.

STEP G - DETERMINE THE TOTAL INCREASE FOR EXPOSURES AND APPLY TO VALUE IN STEP D ABOVE (DO NOT ROUND)

1. Assumed subjected building is made of non-combustible construction with unprotected exterior openings, warranting exposure charges per Table 6 of Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection, 2020

STEP H - DETERMINE FIRE FLOW INCLUDING ALL INCREASES AND REDUCTIONS ((STEP E + STEP F + STEP G, ROUND TO NEAREST 1,000 L/min)

1. No notes or comments.

Prepared by: David Boswell

Date: 2026-02-03

Verified by: Eric Potvin
PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion - Site Feasibility
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

HYDRAULIC ANALYSIS - WATER

	Q (US gpm)	Start pressure (PSI)	Q (L/s)	Start pressure (m)	Start pressure (kPa)
		End pressure (PSI)		End pressure (m)	End pressure (kPa)
Qd ave	14.59	125.99 * 115.60	0.92	88.58 81.27	868.66 797.03
Q peak hourly	81.89	125.71 * 115 (OK if ≥ 40)	5.17	88.38 81.08	866.75 795 (OK if ≥ 276)
Q max day + fire flow	1111.23	89.81 * 79 (OK if ≥ 20)	70.11	63.14 55.84	619.19 548 (OK if ≥ 140)

Calculated flow 1108 galUS/min **Flow / pressure test results from:**
 Static Pressure 126 psi Hydrant at Gatineau Residence (Southwest end of facility)
 Dynamic Pressure 90 psi Class AA (June 13, 2025)

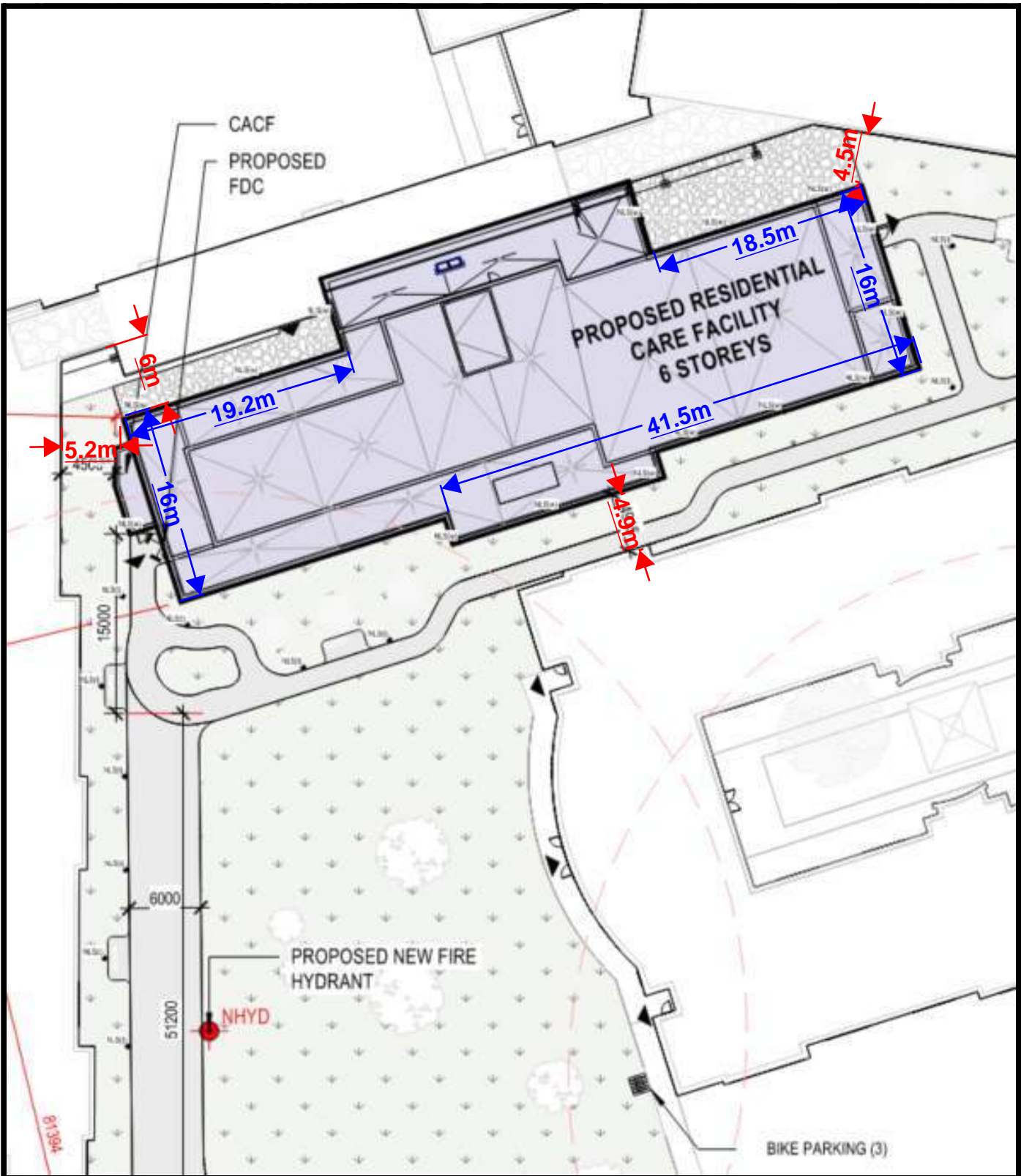
Pipe length 150 m
 Selected pipe diameter 200 mm
 Calculated pressure loss (friction) 4.90 m
 Calculated pressure loss (elevation) 2.40 m

* Estimated flow (NFPA 24 & 291) = calculated flow * $\frac{(\text{static pressure} - \text{target pressure})^{0.54}}{(\text{static pressure} - \text{dynamic pressure})^{0.54}}$

Start Pressure: pressure available at the connection point of the new watermain network to the existing network
End Pressure : pressure available in the network at the most critical point

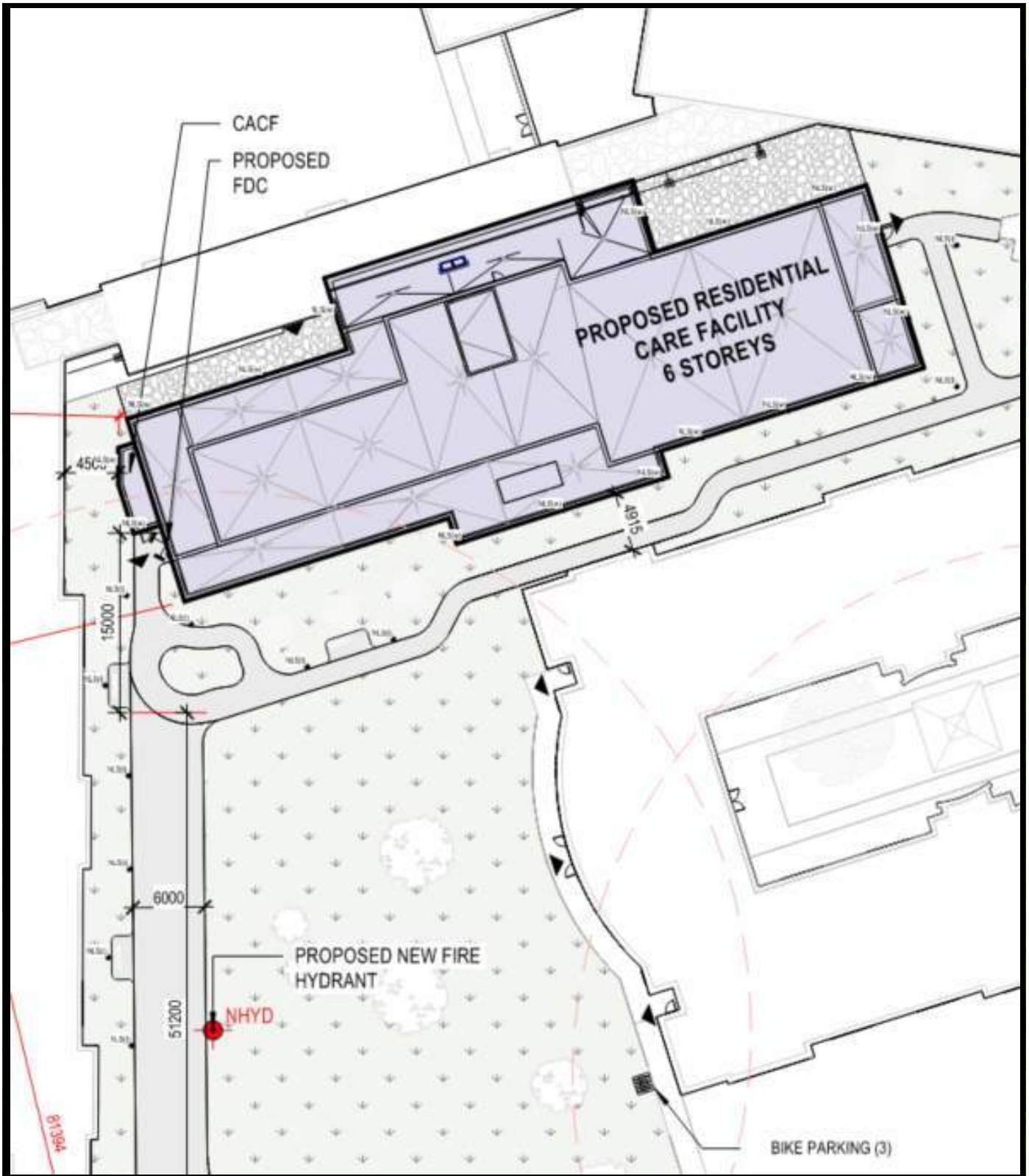
Prepared by: _____ David Boswell _____ **Date:** _____ 02/03/2026 _____

Verified by: _____ Eric Potvin, P.Eng. _____ **Date:** _____ 02/03/2026 _____
PEO Number: _____ PEO# 100208490 _____



EXPOSURE SEPARATION DISTANCES

DRAWN BY: D. Boswell	DESIGNED BY: D. Boswell	APPROVED BY: Eric Potvin	SCALE: NTS	DATE: 2026/02/04	PROJECT No: Z0017061	SHEET No: 1 of 1	FIGURE No: 1
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FIRE HYDRANT COVERAGE

DRAWN BY: D. Boswell	DESIGNED BY: D. Boswell	APPROVED BY: Eric Potvin	SCALE: NTS	DATE: 2026/02/04	PROJECT No: Z0017061	SHEET No: 1 of 1	FIGURE No: 2
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204 Nellie Street, Hammond, Ontario K0A 2A0 Phone # (613) 805 - 2356

FIRE HYDRANT FLOW DATA

Property Name: Perley Rideau		Property Location: 1750 russell Rd		
Contact:		Phone #	Date: June 13, 2025	Time:
Technicians:				

Test # 1				
Flow Location: South West corner of facility		Hydrants Turns N/A		
Pressure Gauge location: South end of facility		Valve Box Location N/A		Valve Box turns N/A
Static pressure psi	Nozzle size	Pitot Reading psi	GPM	Residual pressure psi
126	2"	10	529	90
126	2"	12	579	90
Total GPM 1108				

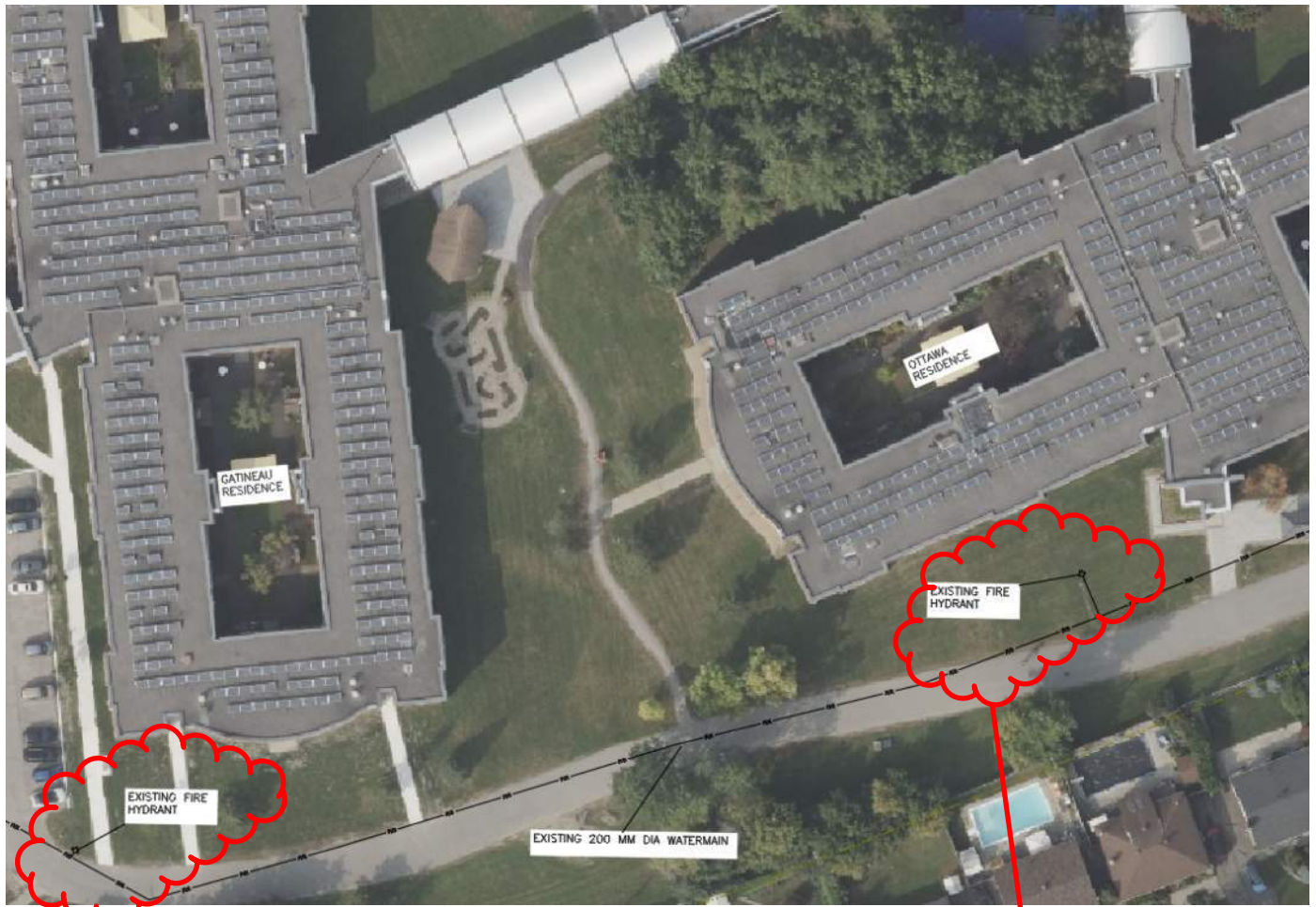
Test # 2				
Flow Location: South end of facility		Hydrants Turns N/A		
Pressure Gauge location: South west end of facility		Valve Box Location N/A		Valve Box turns N/A
Static pressure psi	Nozzle size	Pitot Reading psi	GPM	Residual pressure psi
115	2"	12	579	104
115	2"	14	626	104
Total GPM: 1205				

Test # 3				
Flow Location		Hydrants Turns		
Pressure Gauge location		Valve Box Location		Valve Box turns
Static pressure psi	Nozzle size	Pitot Reading psi	GPM	Residual pressure psi

Test # 4				
Flow Location		Hydrants Turns		
Pressure Gauge location		Valve Box Location		Valve Box turns
Static pressure psi	Nozzle size	Pitot Reading psi	GPM	Residual pressure psi

Test # 5				
Flow Location		Hydrants Turns		
Pressure Gauge location		Valve Box Location		Valve Box turns
Static pressure psi	Nozzle size	Pitot Reading psi	GPM	Residual pressure psi

Notes: Tested with hoses 25' in length. Unknown if fire pump is connected to main, or if actuated. Believed to have two 500gpm domestic pumps and a 500 gpm fire pump.



TEST No.1

TEST No.2

E

Appendix E Sanitary Flow and Pipe Capacity Calculations



PROJECT NAME: Perley Health Expansion
 CIMA+ PROJECT NUMBER: Z0017061
 CLIENT: Perley Health
 PROJECT STATUS: Site Plan Application

GATINEAU LTC

WASTEWATER PEAK FLOW DETERMINATION

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2012
2. City of Ottawa Technical Bulletin ISTB-2018-01

DOMESTIC CONTRIBUTIONS:

RESIDENTIAL DESIGN CRITERIA:

Residential Average Flow: (1) 280 L/c/day
 Residential Peak Factor (P.F.): Harmon Equation (Min 2.0 and Max 4.0)

Per Unit Populations:

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000} \right)^{\frac{1}{2}}} \right) * K$$

where:
 P=Population
 K=Correction Factor =0.8

AVERAGE FLOW - DOMESTIC:

Unit Type	Number of Units	Persons Per Unit	Population	Average Flow (L/s)
Gatineau LTC North	80	1	80	0.26
Gatineau LTC South	80	1	80	0.26
Total	160		160	0.52

For the design of new systems, the average residential flow of 280 L/capita per day (as noted in Figure 4.3) shall be used. The peaking factor shall be derived from the Harmon Formula with the minimum permissible peaking factor being 2.0 and the maximum being 4.0. A correction factor of 0.8 shall then be applied to the Harmon Peaking factor.

- Infiltration Allowance (Dry weather): 0.05 L/s/effective gross ha (for all areas)
- Infiltration Allowance (Wet weather): 0.28 L/s/effective gross ha (for all areas)
- Infiltration Allowance (Total I/I): 0.33 L/s/effective gross ha (for all areas)

PEAK FLOW - DOMESTIC:

Population: (2) 160 persons
 Average Dry Weather Flow: (3) = (1) x (2) 0.52 L/s
 Peaking Factor (P.F.): (4) 3.55
Peak Domestic Flow: (5) = (3) x (4) 1.84 L/s

EXTRANEEOUS FLOWS (Typical values for Partially Separated Sewers):
 Local Street Level Analysis (less than or equal to 10 ha):
 Wet Weather Extraneous Flow: 5.0 L/s/gross ha (rare event)
 Annual event to be determined at design
 Neighborhood Level Analysis (between 10 ha and 100 ha):
 Wet Weather Extraneous Flow: 3.0 L/s/gross ha (rare event)
 Annual event to be determined at design
 Large Drainage area – Collector Level Analysis (greater than 100 ha):
 Wet Weather Extraneous Flow: 2.0 L/s/gross ha (rare event)
 Annual event to be determined at design

EXTRANEEOUS FLOW CONTRIBUTION - INFLOW AND INFILTRATION:

EXTRANEEOUS DESIGN CRITERIA:

Dry Weather Infiltration: 0.05 L/s/effective gross ha (for all areas)
 Wet Weather Infiltration: 0.28 L/s/effective gross ha (for all areas)

PEAK FLOW - EXTRANEEOUS:

Effective Gross Area: (11) 0.73 ha
 Total Infiltration Allowance: (12) 0.33 L/s/effective gross ha (for all areas)
Peak Extraneous Flow: (13) = (11) x (12) 0.24 L/s

Total Estimated Avg. Dry Weather Flow Rate:	0.52	L/s
Total Estimated Peak Dry Weather Flow Rate:	1.84	L/s
Total Estimated Peak Wet Weather Flow Rate:	2.08	L/s

NOTES:

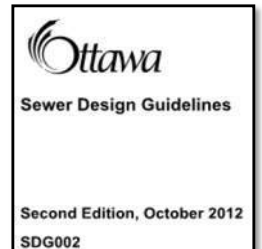
1. Base sanitary flow, population densities, and infiltration rate are based on City of Ottawa design guidelines.
2. Harmon Equation has been used to calculate the residential peak factor for sanitary flows (see above) - maximum value of 4.0.

Prepared by: David Boswell, EIT

Date: 2025-06-06

Verified by: Éric Potvin, P. Eng

Date: 2025-06-06





PROJECT NAME: Perley Health Expansion
 CIMA+ PROJECT NUMBER: Z0017061
 CLIENT: Perley Health
 PROJECT STATUS: Site Plan Application

OTTAWA LTC

WASTEWATER PEAK FLOW DETERMINATION

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2012
2. City of Ottawa Technical Bulletin ISTB-2018-01

DOMESTIC CONTRIBUTIONS:

RESIDENTIAL DESIGN CRITERIA:

Residential Average Flow: (1) 280 L/c/day
 Residential Peak Factor (P.F.): Harmon Equation (Min 2.0 and Max 4.0)

Per Unit Populations:

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000} \right)^{\frac{1}{2}}} \right) * K$$

where:
 P=Population
 K=Correction Factor =0.8

AVERAGE FLOW - DOMESTIC:

Unit Type	Number of Units	Persons Per Unit	Population	Average Flow (L/s)
Ottawa LTC West	80	1	80	0.26
Total	80		80	0.26

For the design of new systems, the average residential flow of 280 L/capita per day (as noted in Figure 4.3) shall be used. The peaking factor shall be derived from the Harmon Formula with the minimum permissible peaking factor being 2.0 and the maximum being 4.0. A correction factor of 0.8 shall then be applied to the Harmon Peaking factor.

- Infiltration Allowance (Dry weather): 0.05 L/s/effective gross ha (for all areas)
- Infiltration Allowance (Wet weather): 0.28 L/s/effective gross ha (for all areas)
- Infiltration Allowance (Total II): 0.33 L/s/effective gross ha (for all areas)

PEAK FLOW - DOMESTIC:

Population: (2) 80 persons
 Average Dry Weather Flow: (3) = (1) x (2) 0.26 L/s
 Peaking Factor (P.F.): (4) 3.62
Peak Domestic Flow: (5) = (3) x (4) 0.94 L/s

EXTRANEEOUS FLOWS (Typical values for Partially Separated Sewers):
 Local Street Level Analysis (less than or equal to 10 ha):
 Wet Weather Extraneous Flow: 5.0 L/s/gross ha (rare event)
 Annual event to be determined at design
 Neighborhood Level Analysis (between 10 ha and 100 ha):
 Wet Weather Extraneous Flow: 3.0 L/s/gross ha (rare event)
 Annual event to be determined at design
 Large Drainage area – Collector Level Analysis (greater than 100 ha):
 Wet Weather Extraneous Flow: 2.0 L/s/gross ha (rare event)
 Annual event to be determined at design

EXTRANEEOUS FLOW CONTRIBUTION - INFLOW AND INFILTRATION:

EXTRANEEOUS DESIGN CRITERIA:

Dry Weather Infiltration: 0.05 L/s/effective gross ha (for all areas)
 Wet Weather Infiltration: 0.28 L/s/effective gross ha (for all areas)

PEAK FLOW - EXTRANEEOUS:

Effective Gross Area: (11) 0.145 ha
 Total Infiltration Allowance: (12) 0.33 L/s/effective gross ha (for all areas)
Peak Extraneous Flow: (13) = (11) x (12) 0.05 L/s

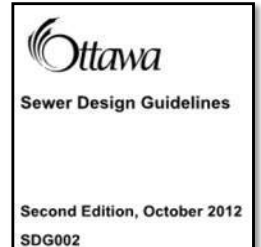
Total Estimated Avg. Dry Weather Flow Rate:	0.26	L/s
Total Estimated Peak Dry Weather Flow Rate:	0.94	L/s
Total Estimated Peak Wet Weather Flow Rate:	0.99	L/s

NOTES:

1. Base sanitary flow, population densities, and infiltration rate are based on City of Ottawa design guidelines.
2. Harmon Equation has been used to calculate the residential peak factor for sanitary flows (see above) - maximum value of 4.0.

Prepared by: David Boswell, EIT Date: 2025-06-06

Verified by: Éric Potvin, P. Eng Date: 2025-06-06





PROJECT NAME: Perley Health Expansion
 CIMA+ PROJECT NUMBER: Z0017061
 CLIENT: Perley Health
 PROJECT STATUS: Site Plan Application

PERLEY RIDEAU HEALTH CENTRE

WASTEWATER PEAK FLOW DETERMINATION

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2012
2. City of Ottawa Technical Bulletin ISTB-2018-01

STANDARD COMMERCIAL & INSTITUTIONAL CONTRIBUTIONS:

COMMERCIAL AND INSTITUTIONAL DESIGN CRITERIA:

Standard Average Flow: (6) 28,000 L/gross ha/d
 Standard Peak Factor: 1.5 If commercial/institutional contribution >20%, otherwise use 1.0

AVERAGE FLOW:

Contributing Standard Area: (7) 0.732 gross ha (including amenity areas)
 Average Dry Weather Flow: (8) = (6) x (7) 0.24 L/s

HIGH FLOW COMMERCIAL & INSTITUTIONAL CONTRIBUTIONS:

Usage	Area (m ²)	# of Seats	L/day/seat	L/day	L/s
Jo's and Denny's Pub	130.00	34	125	4250	0.049189815
Cafeteria	600.00	186	125	23250	0.269097222
Hair Salon	50.00	8	650	5200	0.060185185
Laundry	100.00	5	1200	6000	0.069444444
Sub-Total	880.00			38,700.00	0.45

of Machines

PEAK FLOW:

Peaking Factor: (9) 1.50

Peak Commercial Flow: (10) = (8) x (9) 1.03 L/s

EXTRANEOUS FLOW CONTRIBUTION - INFLOW AND INFILTRATION:

EXTRANEOUS DESIGN CRITERIA:

Dry Weather Infiltration: 0.05 L/s/effective gross ha (for all areas)
 Wet Weather Infiltration: 0.28 L/s/effective gross ha (for all areas)

PEAK FLOW - EXTRANEOUS:

Total Effective Gross Area: (11) 0.55 ha
 Total Infiltration Allowance: (12) 0.33 L/s/effective gross ha (for all areas)

Peak Extraneous Flow: (13) = (11) x (12) 0.18 L/s

Total Estimated Avg. Dry Weather Flow Rate:	0.24	L/s
Total Estimated Peak Dry Weather Flow Rate:	1.03	L/s
Total Estimated Peak Wet Weather Flow Rate:	1.21	L/s

NOTES:

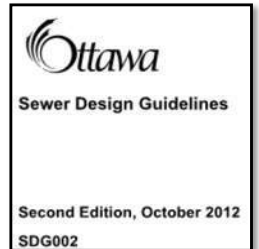
1. Base sanitary flow, population densities, and infiltration rate are based on City of Ottawa design guidelines.
2. Harmon Equation has been used to calculate the residential peak factor for sanitary flows (see above) - maximum value of 4.0.

Prepared by: David Boswell, EIT

Date: 2025-06-06

Verified by: Éric Potvin, P. Eng

Date: 2025-06-06





PROJECT NAME: Perley Health Expansion
 CIMA+ PROJECT NUMBER: Z0017061
 CLIENT: Perley Health
 PROJECT STATUS: Site Plan Application

NEW LONG TERM CARE ADDITION

WASTEWATER PEAK FLOW DETERMINATION

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2012
2. City of Ottawa Technical Bulletin ISTB-2018-01

DOMESTIC CONTRIBUTIONS:

RESIDENTIAL DESIGN CRITERIA:

Residential Average Flow: (1) 280 L/c/day
 Residential Peak Factor (P.F.): Harmon Equation (Min 2.0 and Max 4.0)

Per Unit Populations:

$$P.F. = 1 + \left(\frac{14}{4 + \left(\frac{P}{1000} \right)^{\frac{1}{2}}} \right) * K$$

where:
 P=Population
 K=Correction Factor =0.8

AVERAGE FLOW - DOMESTIC:

Unit Type	Number of Units	Persons Per Unit	Population	Average Flow (L/s)
NEW LONG TERM CARE ADDITION	120	1	120	0.39
Total	120		120	0.39

For the design of new systems, the average residential flow of 280 L/capita per day (as noted in Figure 4.3) shall be used. The peaking factor shall be derived from the Harmon Formula with the minimum permissible peaking factor being 2.0 and the maximum being 4.0. A correction factor of 0.8 shall then be applied to the Harmon Peaking factor.

- Infiltration Allowance (Dry weather): 0.05 L/s/effective gross ha (for all areas)
- Infiltration Allowance (Wet weather): 0.28 L/s/effective gross ha (for all areas)
- Infiltration Allowance (Total I/I): 0.33 L/s/effective gross ha (for all areas)

PEAK FLOW - DOMESTIC:

Population: (2) 120 persons
 Average Dry Weather Flow: (3) = (1) x (2) 0.39 L/s
 Peaking Factor (P.F.): (4) 3.58
Peak Domestic Flow: (5) = (3) x (4) 1.39 L/s

EXTRANEEOUS FLOWS (Typical values for Partially Separated Sewers):
 Local Street Level Analysis (less than or equal to 10 ha):
 Wet Weather Extraneous Flow: 5.0 L/s/gross ha (rare event)
 Annual event to be determined at design

Neighborhood Level Analysis (between 10 ha and 100 ha):
 Wet Weather Extraneous Flow: 3.0 L/s/gross ha (rare event)
 Annual event to be determined at design

Large Drainage area – Collector Level Analysis (greater than 100 ha):
 Wet Weather Extraneous Flow: 2.0 L/s/gross ha (rare event)
 Annual event to be determined at design

EXTRANEEOUS FLOW CONTRIBUTION - INFLOW AND INFILTRATION:

EXTRANEEOUS DESIGN CRITERIA:

Dry Weather Infiltration: 0.05 L/s/effective gross ha (for all areas)
 Wet Weather Infiltration: 0.28 L/s/effective gross ha (for all areas)

PEAK FLOW - EXTRANEEOUS:

Effective Gross Area: (11) 0.19 ha
 Total Infiltration Allowance: (12) 0.33 L/s/effective gross ha (for all areas)
Peak Extraneous Flow: (13) = (11) x (12) 0.06 L/s

Total Estimated Avg. Dry Weather Flow Rate:	0.39	L/s
Total Estimated Peak Dry Weather Flow Rate:	1.39	L/s
Total Estimated Peak Wet Weather Flow Rate:	1.45	L/s

NOTES:

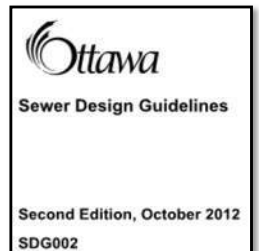
1. Base sanitary flow, population densities, and infiltration rate are based on City of Ottawa design guidelines.
2. Harmon Equation has been used to calculate the residential peak factor for sanitary flows (see above) - maximum value of 4.0.

Prepared by: David Boswell, EIT

Date: 2025-06-06

Verified by: Éric Potvin, P. Eng

Date: 2025-06-06





PROJECT NAME: Perley Health Utility Relocation
CIMA+ PROJECT NUMBER: Z0017061 (360)
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

Manning Coefficient:	0.013
Maximum permitted velocity :	3.00 m/s
Minimum permitted velocity :	0.60 m/s

Hydraulic Calculations for Sanitary Sewers
Pago Point Residential Development plus Existing Residential on Pago Road

Section	Dia.	Length	Slope	Invert upstream	Invert downstream	Capacity (full)	Velocity (full)	Flow	Velocity (actual)	Error Message			% Full
										Flow Velocity		Pipe Capacity	
mm	mm	m	%	m	m	m ³ /s	m/s	m ³ /s	m/s	maximum	minimum		
EXISTING													
Ott West Bldg - MH1	150	13.0	4.37%	73.460	72.892	0.032	1.80	0.00099	0.82	O.K.	O.K.	O.K.	3%
Gat South Bldg - MH1	150	26.0	2.08%	73.500	72.958	0.022	1.24	0.00104	0.62	O.K.	O.K.	O.K.	5%
MH1 - MH2	200	69.4	0.54%	72.804	72.440	0.024	0.77	0.00202	0.46	O.K.	increase velocity	O.K.	8%
MH2 - MH3	200	12.7	0.12%	72.416	72.401	0.011	0.36	0.00202	0.27	O.K.	increase velocity	O.K.	18%
Gat North Bldg - MH3	150	13.5	2.00%		75.213	0.022	1.22	0.00104	0.61	O.K.	O.K.	O.K.	5%
Perley Health West Bldg - MH3	150	18.5	2.00%		73.09	0.022	1.22	0.00121	0.64	O.K.	O.K.	O.K.	5%
MH3 - Municipal Network	200	69.0	0.71%	72.365	71.879	0.028	0.88	0.00427	0.63	O.K.	O.K.	O.K.	15%
PHASE 1													
Ott West Bldg - MHS1	150	2.0	4.37%	73.500	73.413	0.032	1.80	0.00099	0.82	O.K.	O.K.	O.K.	3%
MHS1 - MHS2	200	13.2	1.00%	73.353	73.221	0.033	1.04	0.00099	0.47	O.K.	increase velocity	O.K.	3%
MHS2 - MHS4	200	26.7	1.00%	73.161	72.894	0.033	1.04	0.00099	0.47	O.K.	increase velocity	O.K.	3%
Gat South Bldg - MHS3	150	5.4	2.08%	73.460	73.347	0.022	1.24	0.00104	0.62	O.K.	O.K.	O.K.	5%
Sewer Cap - MHS3	200	6.2	2.00%	73.471	73.347	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MHS3 - MHS4	200	18.2	2.49%	73.347	72.894	0.052	1.65	0.00104	0.61	O.K.	O.K.	O.K.	2%
MHS4 - MHS5	200	20.5	0.35%	72.834	72.762	0.019	0.62	0.00208	0.41	O.K.	increase velocity	O.K.	11%
MHS5 - MHS6	200	14.5	0.33%	72.702	72.654	0.019	0.60	0.00208	0.39	O.K.	increase velocity	O.K.	11%
New LTC Bldg - MHS6	200	6.5	2.00%	72.784	72.654	0.046	1.48	0.00145	0.67	O.K.	O.K.	O.K.	3%
MHS6 - MH2	200	28.5	0.54%	72.594	72.440	0.024	0.77	0.00353	0.54	O.K.	increase velocity	O.K.	15%
MH2 - MH3	200	12.7	0.12%	72.416	72.401	0.011	0.36	0.00353	0.32	O.K.	increase velocity	O.K.	32%
Gat North Bldg - MH3	150	13.5	2.00%		75.213	0.022	1.22	0.00104	0.61	O.K.	O.K.	O.K.	5%
Perley Health West Bldg - MH3	150	18.5	2.00%		73.09	0.022	1.22	0.00121	0.64	O.K.	O.K.	O.K.	5%
MH3 - Municipal Network	200	69.0	0.71%	72.365	71.879	0.028	0.88	0.00578	0.68	O.K.	O.K.	O.K.	21%

Remarks :

- Sewer runs generally do not achieve minimum flushing velocities (0.6m/s) under actual peak flow conditions, where the height of flow is less that 30% of the sewer

Prepared by: _____	David Boswell	Date: _____	Feb 03, 2026
Verified by: _____	Éric Potvin, P. Eng	Date: _____	Feb 03, 2026

F

Appendix F Storm Servicing and Stormwater Management Calculations



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

STORM RUNOFF COEFFICIENT DETERMINATION (PRE-DEVELOPMENT)

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

PRE-DEVELOPMENT RUNOFF COEFFICIENT DETERMINATION:

Area	Pervious Area m ²	Pervious Area Runoff Coefficient	Impervious Area m ²	Impervious Area Runoff Coefficient	Total Area m ²	Weighted Runoff Coefficient (2-year)	Weighted Runoff Coefficient (100-year)
A1	4496	0.20	542	0.90	5037	0.28	0.34
TOTAL	4496	0.20	542	0.90	5037	0.28	0.34

NOTES:

For 25 year storms add 10% to C value
 For 50 year storms add 20% to C value
 For 100 year storms add 25% to C value

Prepared by: David Boswell

Date: 2026-02-02

Verified by: Eric Potvin, P.Eng.
PEO# 100173201

Date: 2026-02-02



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

STORM PRE-DEVELOPMENT FLOW

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

PRE-DEVELOPMENT FLOW DETERMINATION:

DESIGN CRITERIA:

Design Storm (year):	2	
IDF Regression Constants: (a)	732.951	
(b)	6.199	
(c)	0.810	
IDF Curve Equation (mm/hr):	$I = a / (\text{Time in min} + b)^c$	
Rational Formula (L/s):	$Q = 2.78C \cdot I \cdot A$	where: Q = Flow (L/s) C = Runoff Coefficient I = Rainfall Intensity (mm/hr) A = Area

PRE-DEVELOPMENT ALLOWABLE RELEASE RATE - 2-YEAR EVENT:

Catchment ID	Area (A) ha	Runoff Coefficient (C)	Time of Concentration (tc) min	Intensity (I) mm/hr	Allowable Release Rate (Q) L/s	Release Flow Per Unit Area (Q/ha) L/s/ha
A1	0.504	0.28	24	46.95	18.1	35.9
Total	0.504				18.1	35.9

NOTES:

1. IDF Parameters per City of Ottawa Sewer Design Guidelines, 2025 (Macdonald-Cartier International Airport)

Prepared by: David Boswell, EIT

Date: 2026-02-02

Verified by: Eric Potvin, P.Eng.
PEO# 100173201

Date: 2026-02-02



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

STORM PRE-DEVELOPMENT FLOW

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

PRE-DEVELOPMENT FLOW DETERMINATION:

DESIGN CRITERIA:

Design Storm (year):	100	
IDF Regression Constants: (a)	1735.688	
(b)	6.014	
(c)	0.820	
IDF Curve Equation (mm/hr):	$I = a / (\text{Time in min} + b)^c$	
Rational Formula (L/s):	$Q = 2.78C \cdot I \cdot A$	where: Q = Flow (L/s) C = Runoff Coefficient I = Rainfall Intensity (mm/hr) A = Area

PRE-DEVELOPMENT ALLOWABLE RELEASE RATE - 2-YEAR EVENT:

Catchment ID	Area (A) ha	Runoff Coefficient (C)	Time of Concentration (tc) min	Intensity (I) mm/hr	Allowable Release Rate (Q) L/s	Release Flow Per Unit Area (Q/ha) L/s/ha
A1	0.504	0.28	24	108.03	41.6	82.6
Total	0.504				41.6	82.6

NOTES:

1. IDF Parameters per City of Ottawa Sewer Design Guidelines, 2025 (Macdonald-Cartier International Airport)

Prepared by: David Boswell, EIT

Date: 2026-02-02

Verified by: Eric Potvin, P.Eng.
PEO# 100173201

Date: 2026-02-02

[https://cimac365.sharepoint.com/sites/Z0017061/Documents/partages/_Documents/300_CONC_DES/360_Calc/260123_SPA/Predevelopment Storm Flows/\[260114_ Storm 2yr Pre-Development Flow.xlsx\]Pre Development Flow](https://cimac365.sharepoint.com/sites/Z0017061/Documents/partages/_Documents/300_CONC_DES/360_Calc/260123_SPA/Predevelopment Storm Flows/[260114_ Storm 2yr Pre-Development Flow.xlsx]Pre Development Flow)



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

STORMWATER MANAGEMENT – PRELIMINARY RETENTION CALCULATIONS

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

STORMWATER MANAGEMENT SUMMARY - STORAGE AND DRAWDOWN

DESIGN CRITERIA:

Rainfall event 100 years
 Total allowable release rate 35.9 L/s/ha
 Total allowable release flow 8.5 L/s
 Total release flow 8.5 L/s

Eric Potvin:
 Shared ICD located in A1 = 2.5 L/s

Sub-Area	Total Area (m ²)	Available Storage Area (m ²)	Catchbasin/ Roof Drain Elevation (m)	Maximum Ponding Elevation (m)	Y _{max} (m)	V _{max} (m ³)	V _{rain} (m ³)	V _{occ} (m ³)	Y _{rain} (m)	Elev _{rain} (m)	A _{rain} (m ²)	Release Flow Q (L/s)	Release Rate Q (L/s/ha)	Drawdown Time (min)	Comments
A1	594	375	75.10	75.32	0.22	27.5	21.2	21.2	0.19	75.30	522	2.5	22.9	186	Access road
A2	502	261	75.21	75.35	0.14	12.2	6.8	6.8	0.10	75.30	374				Access road
NC1	266	0	-	-	-	0.0	2.2	2.2	0.00	-	-	3.3	124.0	11	Unattenuated Flow
B1	1260	1200	-	-	0.15	60.0	49.1	49.1	0.14	0.15	1140	6.0	47.6	136	Long Term Care BLDG
Total	2356	1836				99.7	77.2	77.2				8.5			

NOTES:

- These sub-areas are the only ones considered in the post-development SWM calculations as the remaining areas which will be slightly affected by construction will either remain the same or be improved. The City as agreed to this condition (see Appendix A for email confirmation).
- The total available retention volume (i.e. Vmax) is conservative and excludes all storm pipe and structure volumes.
- Sub-catchment area NC1 is excluded from the total release flow since the total uncontrolled areas of the rest of the site are being improved by this construction.

DEFINITIONS OF ABBREVIATIONS USED IN CALCULATION TABLE

NC = Area is not controlled (unattenuated)
 Available Area = Area of water accumulated in sub-area at Max. Elev.
 Catchbasin Elev. = Elevation of catchbasin inlet (top of grate).
 Max. Elev. = Maximum elevation of water that may be accumulated within sub-area.
 Y_{max} = Maximum depth of water that may be accumulated within the sub-area.
 V_{max} = Maximum volume of water (capacity) that may be accumulated within the sub-area.
 V_{rain} = Volume of water generated by rainfall.

V_{occ} = Total volume of water accumulated within the sub-area in the event of a specific rainfall.
 Y_{rain} = Depth of water generated by rainfall.
 Elev_{rain} = Elevation of water generated by rainfall.
 A_{rain} = Area of water generated by rainfall.
 Q = Release flow rate.
 Tank Release Rate = Release rate from the underground storage tank equal to 1/2 the allowable release rate.
 Drawdown Time = Time required for the total volume of water accumulated within sub-area to subside.

Prepared by: David Boswell, EIT

Date: 2026-02-03

Verified by: Eric Potvin, P.Eng.
 PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

RETENTION CALCULATIONS FOR SITE AREA - A1

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

REQUIRED STORAGE VOLUME DETERMINATION:

DESIGN CRITERIA:

Rainfall Station:		City of Ottawa Sewer Design Guidelines, 2012 (Macdonald-Cartier Airport)			
Release Rate Per Unit Area (Q/ha):	0.00 L/s/ha		Concrete/Roof	0	0.95
Area (A):	0.06 ha		Landscape	469	0.20
Runoff Coefficient (C):	0.43		Pavers	0	0.80
Rainfall Event:	100 year		Gravel	0	0.5
Release Rate (Q):	0.0000 m³/s		Asphalt	125	0.90
Discharge Factor (K):	1		Total	594	0.35

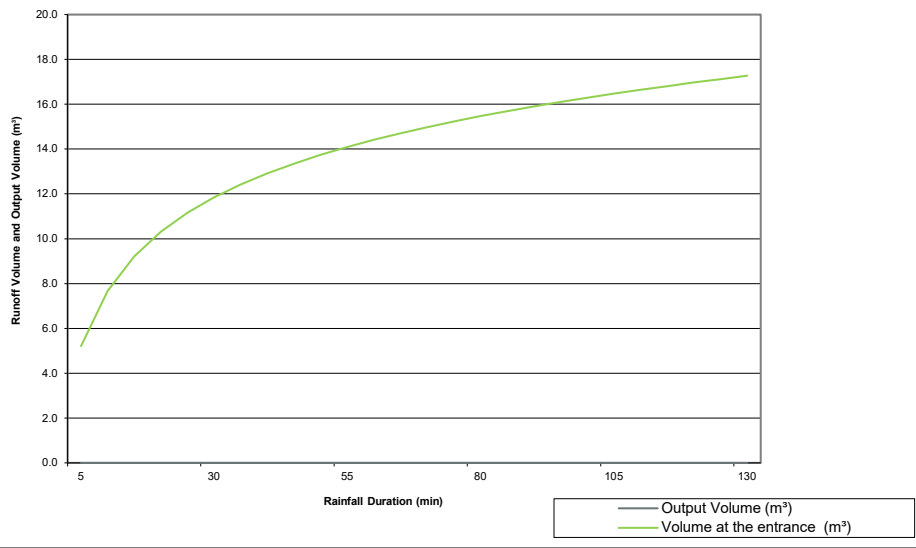
Regression Constants	2 year	5 year	10 year	25 year	50 year	100 year
A	732.951	998.071	1174.184	1402.844	1569.58	1735.688
B	6.199	6.053	6.014	6.018	6.014	6.014
C	0.810	0.814	0.816	0.819	0.82	0.82

Required Retention Volume: 21.2 m³

Rainfall Duration (min) T (1)	Rainfall Intensity (mm/h) I (2)	Runoff Volume (m³) CIAT (3)	Output Volume (m³) kQT (4)	Retention Volume (m³) (3)-(4) (5)
5.0	242.7	5.2	0.0	5.2
10.0	178.6	7.7	0.0	7.7
15.0	142.9	9.2	0.0	9.2
20.0	120.0	10.3	0.0	10.3
25.0	103.8	11.2	0.0	11.2
30.0	91.9	11.8	0.0	11.8
35.0	82.6	12.4	0.0	12.4
40.0	75.1	12.9	0.0	12.9
45.0	69.1	13.4	0.0	13.4
50.0	64.0	13.7	0.0	13.7
55.0	59.6	14.1	0.0	14.1
60.0	55.9	14.4	0.0	14.4
65.0	52.6	14.7	0.0	14.7
70.0	49.8	15.0	0.0	15.0
75.0	47.3	15.2	0.0	15.2
80.0	45.0	15.5	0.0	15.5
85.0	43.0	15.7	0.0	15.7
90.0	41.1	15.9	0.0	15.9
95.0	39.4	16.1	0.0	16.1
100.0	37.9	16.3	0.0	16.3
105.0	36.5	16.5	0.0	16.5
110.0	35.2	16.6	0.0	16.6
115.0	34.0	16.8	0.0	16.8
120.0	32.9	17.0	0.0	17.0
125.0	31.9	17.1	0.0	17.1
130.0	30.9	17.3	0.0	17.3
Design Volume:				21.2

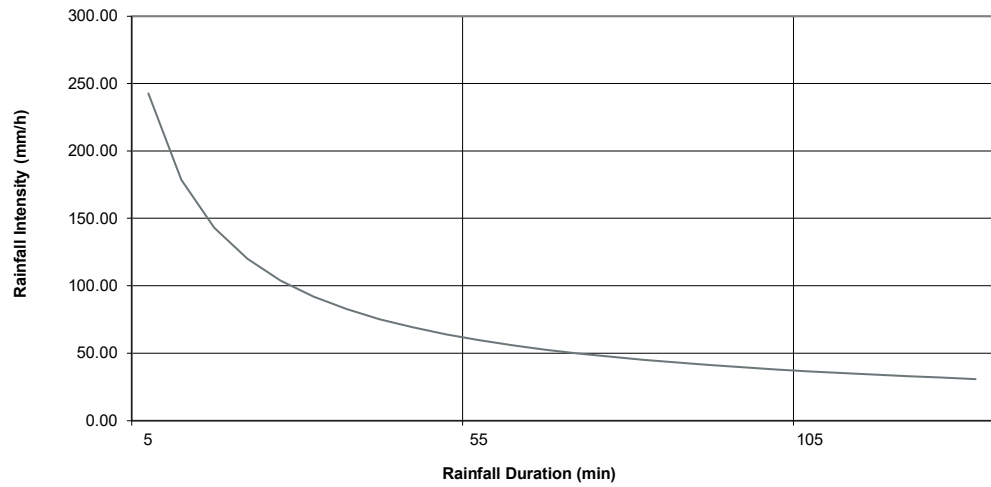
ATTENUATED AREAS

Required Retention Determination Using the Rational Method



I-D-F Rainfall Curve

100 year event



Prepared by: David Boswell, EIT

Date: 2026-02-03

Verified by: Eric Potin, P.Eng.
PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

RETENTION CALCULATIONS FOR SITE AREA - A2

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

REQUIRED STORAGE VOLUME DETERMINATION:

DESIGN CRITERIA:

Rainfall Station:		City of Ottawa Sewer Design Guidelines, 2012 (Macdonald-Cartier Airport)			
Release Rate Per Unit Area (Q/ha):	50.00 L/s/ha		Concrete/Roof	0	0.95
Area (A):	0.05 ha		Landscape	367	0.20
Runoff Coefficient (C):	0.49		Pavers	0	0.80
Rainfall Event:	100 year		Gravel	0	0.5
Release Rate (Q):	0.0025 m³/s		Asphalt	135	0.90
Discharge Factor (K):	1		Total	502	0.39

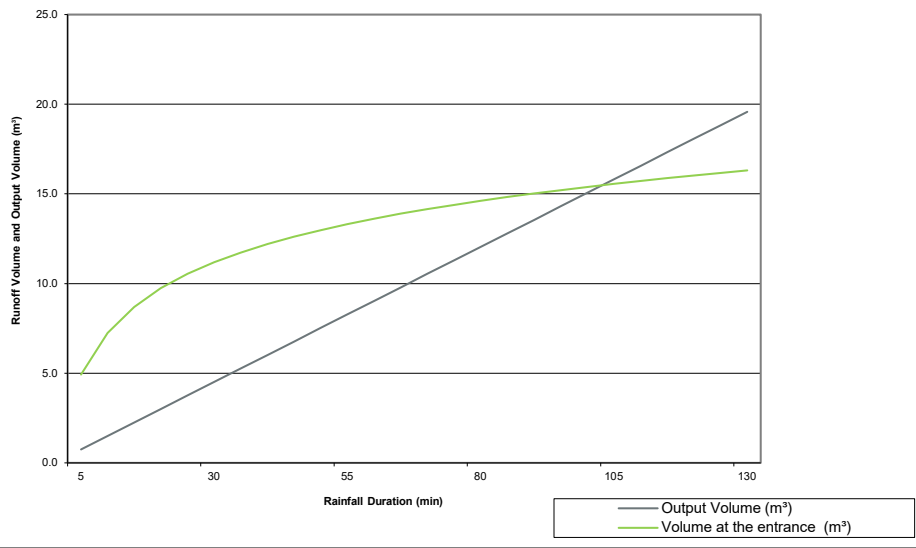
Regression Constants	2 year	5 year	10 year	25 year	50 year	100 year
A	732.951	998.071	1174.184	1402.844	1569.58	1735.688
B	6.199	6.053	6.014	6.018	6.014	6.014
C	0.810	0.814	0.816	0.819	0.82	0.82

Required Retention Volume: 6.8 m³

Rainfall Duration (min) T (1)	Rainfall Intensity (mm/h) I (2)	Runoff Volume (m³) CIAT (3)	Output Volume (m³) kQT (4)	Retention Volume (m³) (3)-(4) (5)
5.0	242.7	4.9	0.8	4.2
10.0	178.6	7.3	1.5	5.7
15.0	142.9	8.7	2.3	6.4
20.0	120.0	9.7	3.0	6.7
25.0	103.8	10.5	3.8	6.8
30.0	91.9	11.2	4.5	6.7
35.0	82.6	11.7	5.3	6.5
40.0	75.1	12.2	6.0	6.2
45.0	69.1	12.6	6.8	5.8
50.0	64.0	13.0	7.5	5.5
55.0	59.6	13.3	8.3	5.0
60.0	55.9	13.6	9.0	4.6
65.0	52.6	13.9	9.8	4.1
70.0	49.8	14.2	10.5	3.6
75.0	47.3	14.4	11.3	3.1
80.0	45.0	14.6	12.0	2.6
85.0	43.0	14.8	12.8	2.0
90.0	41.1	15.0	13.6	1.5
95.0	39.4	15.2	14.3	0.9
100.0	37.9	15.4	15.1	0.3
105.0	36.5	15.6	15.8	-0.3
110.0	35.2	15.7	16.6	-0.8
115.0	34.0	15.9	17.3	-1.4
120.0	32.9	16.0	18.1	-2.0
125.0	31.9	16.2	18.8	-2.7
130.0	30.9	16.3	19.6	-3.3
Design Volume:				6.8

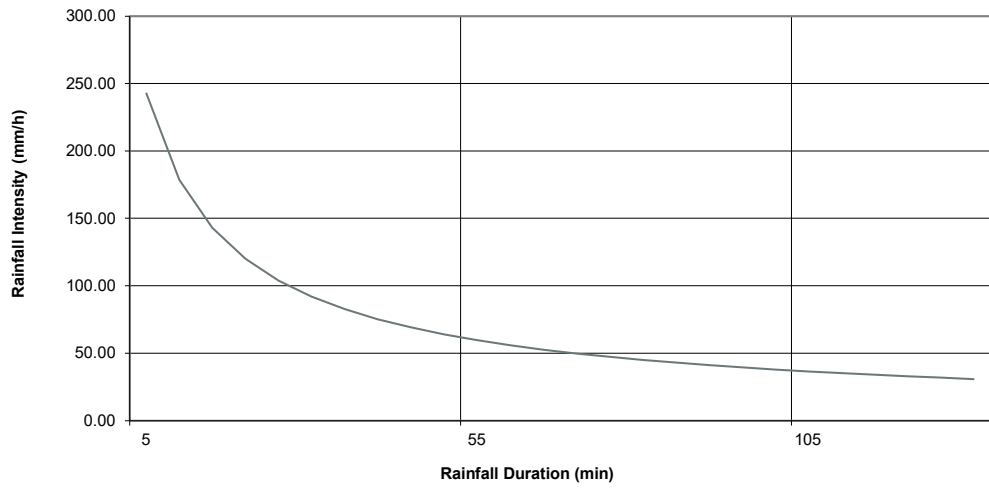
ATTENUATED AREAS

Required Retention Determination Using the Rational Method



I-D-F Rainfall Curve

100 year event



Prepared by: David Boswell, EIT

Date: 2026-02-03

Verified by: Eric Potin, P.Eng.
PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

RETENTION CALCULATIONS FOR SITE AREA - NC1

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

REQUIRED STORAGE VOLUME DETERMINATION:

DESIGN CRITERIA:

Rainfall Station:		City of Ottawa Sewer Design Guidelines, 2012 (Macdonald-Cartier Airport)			
Release Rate Per Unit Area (Q/ha):	124.00 L/s/ha		Concrete/Roof	0	0.95
Area (A):	0.03 ha		Landscape	183	0.20
Runoff Coefficient (C):	0.52		Pavers	0	0.80
Rainfall Event:	100 year		Gravel	0	0.5
Release Rate (Q):	0.0033 m³/s		Asphalt	83	0.90
Discharge Factor (K):	1		Total	266	0.42

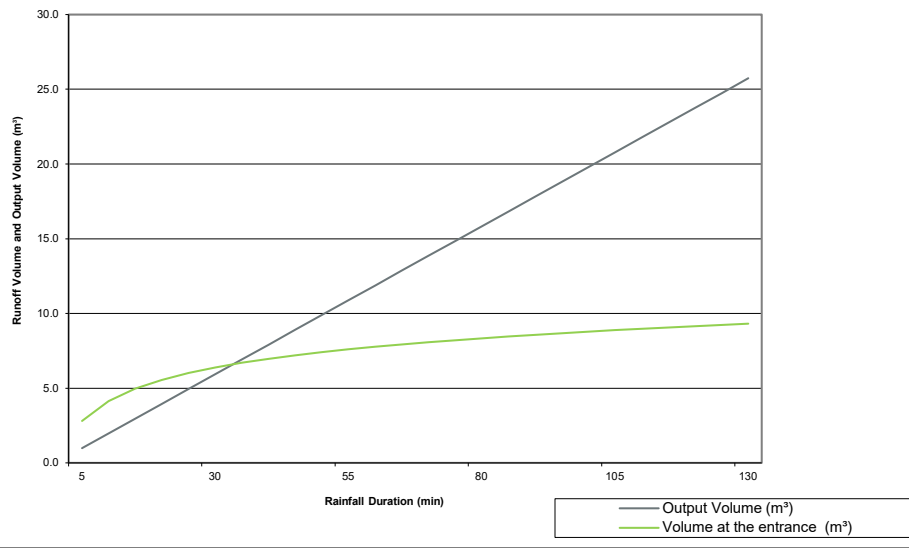
Regression Constants	2 year	5 year	10 year	25 year	50 year	100 year
A	732.951	998.071	1174.184	1402.844	1569.58	1735.688
B	6.199	6.053	6.014	6.018	6.014	6.014
C	0.810	0.814	0.816	0.819	0.82	0.82

Required Retention Volume: 2.161297 m³

Rainfall Duration (min) T (1)	Rainfall Intensity (mm/h) I (2)	Runoff Volume (m³) CIAT (3)	Output Volume (m³) kQT (4)	Retention Volume (m³) (3)-(4) (5)
5.0	242.7	2.8	1.0	1.8
10.0	178.6	4.1	2.0	2.2
15.0	142.9	5.0	3.0	2.0
20.0	120.0	5.6	4.0	1.6
25.0	103.8	6.0	4.9	1.1
30.0	91.9	6.4	5.9	0.5
35.0	82.6	6.7	6.9	-0.2
40.0	75.1	7.0	7.9	-0.9
45.0	69.1	7.2	8.9	-1.7
50.0	64.0	7.4	9.9	-2.5
55.0	59.6	7.6	10.9	-3.3
60.0	55.9	7.8	11.9	-4.1
65.0	52.6	7.9	12.9	-4.9
70.0	49.8	8.1	13.9	-5.8
75.0	47.3	8.2	14.8	-6.6
80.0	45.0	8.3	15.8	-7.5
85.0	43.0	8.5	16.8	-8.4
90.0	41.1	8.6	17.8	-9.2
95.0	39.4	8.7	18.8	-10.1
100.0	37.9	8.8	19.8	-11.0
105.0	36.5	8.9	20.8	-11.9
110.0	35.2	9.0	21.8	-12.8
115.0	34.0	9.1	22.8	-13.7
120.0	32.9	9.2	23.7	-14.6
125.0	31.9	9.2	24.7	-15.5
130.0	30.9	9.3	25.7	-16.4
Design Volume:				2.2

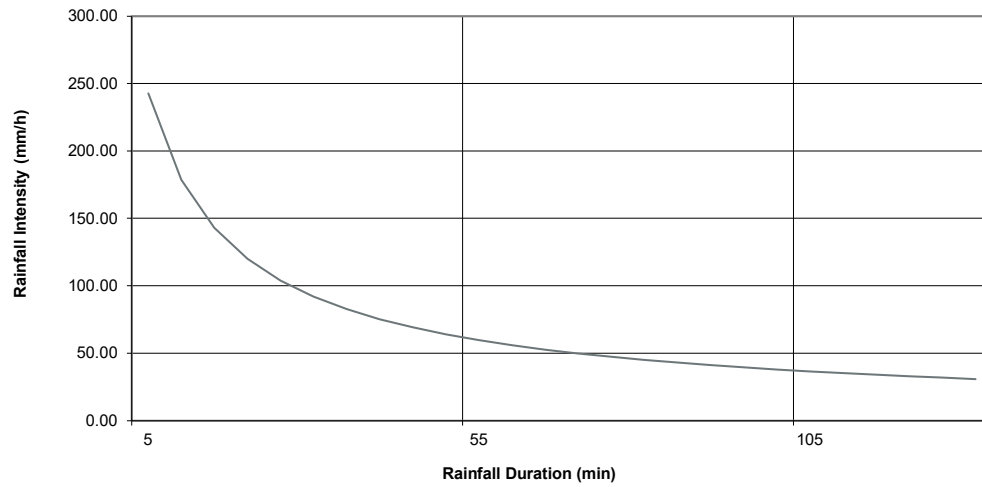
ATTENUATED AREAS

Required Retention Determination Using the Rational Method



I-D-F Rainfall Curve

100 year event



Prepared by: David Boswell, EIT

Date: 2026-02-03

Verified by: Eric Potin, P.Eng.
PEO# 100208490

Date: 2026-02-03



PROJECT NAME: Perley Health Expansion
CIMA+ PROJECT NUMBER: Z0017061
CLIENT: Perley Health
PROJECT STATUS: Site Plan Application

RETENTION CALCULATIONS FOR SITE AREA - B1

APPLICABLE DESIGN GUIDELINES:

1. City of Ottawa Sewer Design Guidelines, 2025

REQUIRED STORAGE VOLUME DETERMINATION:

DESIGN CRITERIA:

Rainfall Station:	City of Ottawa Sewer Design Guidelines, 2012 (Macdonald-Cartier Airport)				
Release Rate Per Unit Area (Q/ha):	47.63 L/s/ha		Concrete/Roof	1260	0.95
Area (A):	0.13 ha		Landscape	0	0.20
Runoff Coefficient (C):	1.00		Pavers	0	0.80
Rainfall Event:	100 year		Gravel	0	0.5
Release Rate (Q):	0.006 m³/s		Asphalt	0	0.90
Discharge Factor (K):	1		Total	1260	0.95

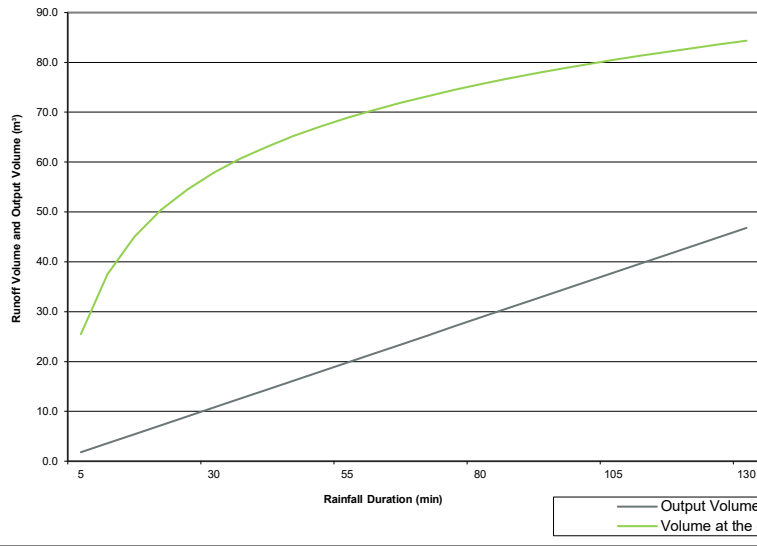
Regression Constants	2 year	5 year	10 year	25 year	50 year	100 year
A	732.951	998.071	1174.184	1402.844	1569.58	1735.688
B	6.199	6.053	6.014	6.018	6.014	6.014
C	0.810	0.814	0.816	0.819	0.82	0.82

Required Retention Volume: 49.1 m³

Rainfall Duration (min) <i>T</i> (1)	Rainfall Intensity (mm/h) <i>I</i> (2)	Runoff Volume (m³) <i>CIAT</i> (3)	Output Volume (m³) <i>kQT</i> (4)	Retention Volume (m³) <i>(3)-(4)</i> (5)
5.0	242.7	25.5	1.8	23.7
10.0	178.6	37.5	3.6	33.9
15.0	142.9	45.0	5.4	39.6
20.0	120.0	50.4	7.2	43.2
25.0	103.8	54.5	9.0	45.5
30.0	91.9	57.9	10.8	47.1
35.0	82.6	60.7	12.6	48.1
40.0	75.1	63.1	14.4	48.7
45.0	69.1	65.3	16.2	49.0
50.0	64.0	67.2	18.0	49.1
55.0	59.6	68.9	19.8	49.1
60.0	55.9	70.4	21.6	48.8
65.0	52.6	71.9	23.4	48.5
70.0	49.8	73.2	25.2	48.0
75.0	47.3	74.4	27.0	47.4
80.0	45.0	75.6	28.8	46.8
85.0	43.0	76.7	30.6	46.1
90.0	41.1	77.7	32.4	45.3
95.0	39.4	78.7	34.2	44.5
100.0	37.9	79.6	36.0	43.6
105.0	36.5	80.5	37.8	42.7
110.0	35.2	81.3	39.6	41.7
115.0	34.0	82.1	41.4	40.7
120.0	32.9	82.9	43.2	39.7
125.0	31.9	83.6	45.0	38.6
130.0	30.9	84.4	46.8	37.5
Design Volume:				49.1

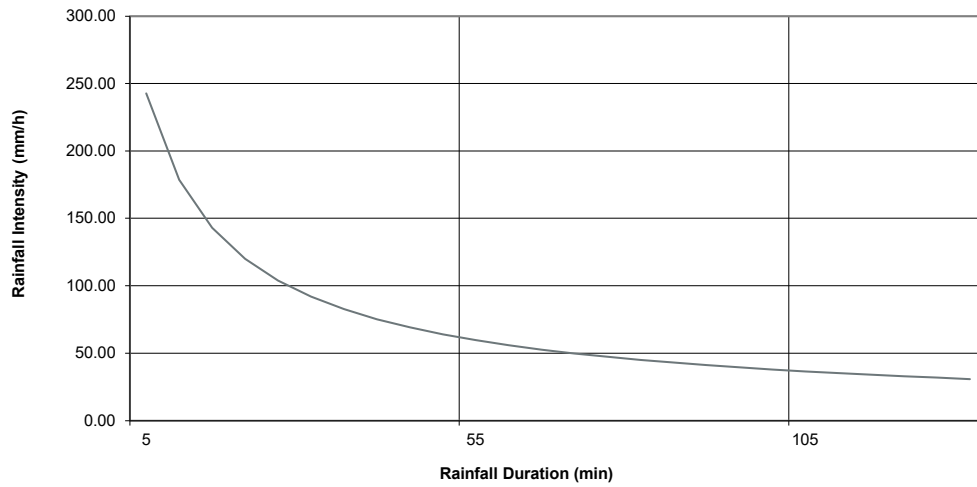
ATTENUATED AREAS

Required Retention Determination Using the Rational Method



I-D-F Rainfall Curve

100 year event



Prepared by: David Boswell, EIT

Date: 2026-02-03

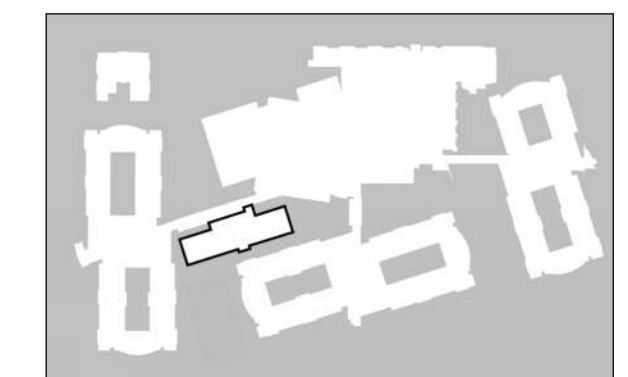
Verified by: Eric Potin, P.Eng.
PEO# 100208490

Date: 2026-02-03

G

Appendix G Building Roof – Technical References

- GENERAL NOTES
1. These architectural documents are the exclusive property of NEUF ARCHITECTS INC. and may not be used, copied, or reproduced without prior written authorization.
 2. All dimensions shown on these documents must be verified by the contractor before the commencement of work.
 3. The architect must be notified of any errors, omissions, or discrepancies between these documents and those of other professionals.
 4. Dimensions shown on these documents must be read, not scaled.



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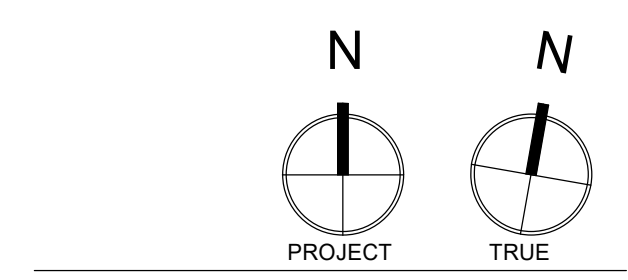
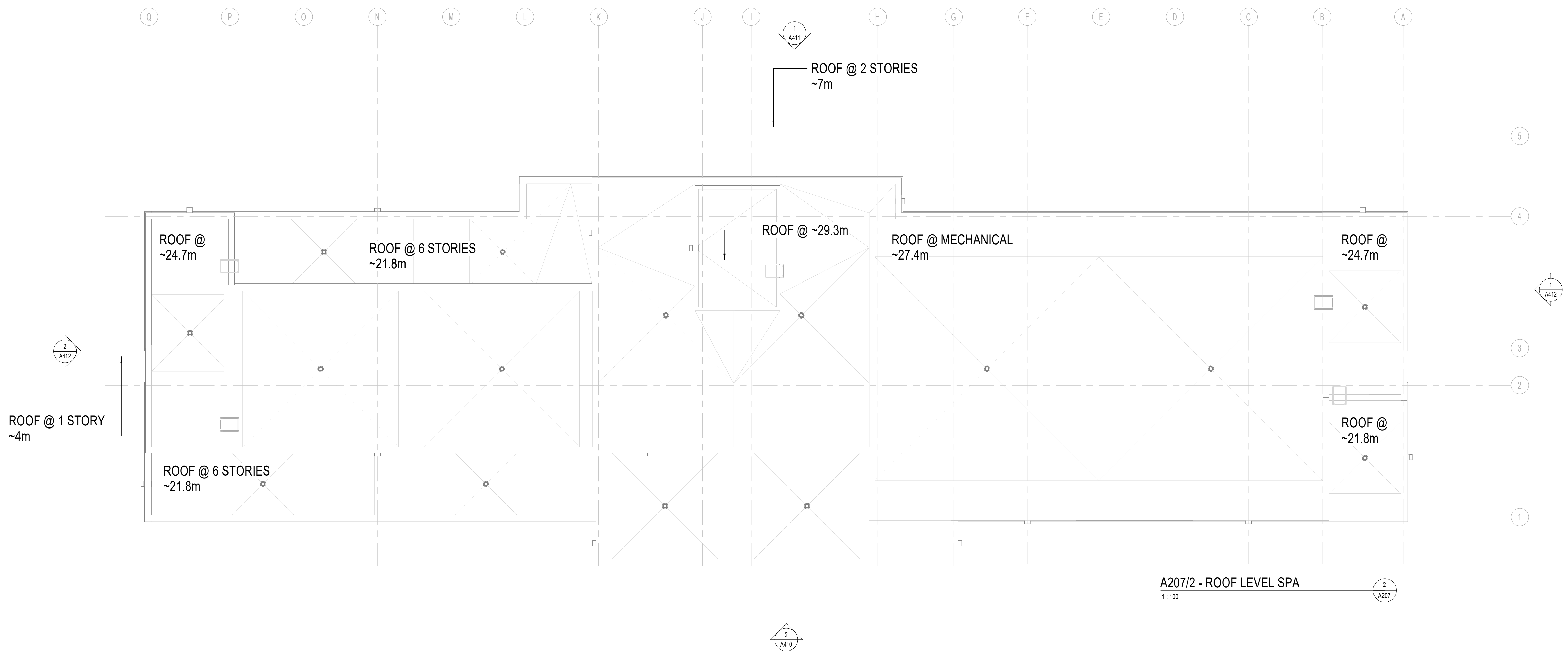
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FOTENN PLANNING + DESIGN
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CLIENT REPRESENTATIVE
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 T 613.820.5600 kadusgroup.com

ARCHITECT
NEUF architect(e)s
 10 Riverside Square #200, Ottawa, ON K1N 5W8
 T 613.234.2274 www.neuf.ca

SEAL



PROJECT
PERLEY HEALTH EXPANSION

LOCATION: **1750 Russell Road Ottawa, ON K1G 5Z6** PROJECT No: **13330**

NO	REVISION	DATE (yyyy-mm-dd)

DRAWN BY: _____ CHECKED BY: _____

DATE (yyyy-mm-dd) **12/15/25** SCALE **1 : 100**

DRAWING TITLE
FLOOR PLANS - SPA

REVISION _____ DRAWING NUMBER **A207**



Adjustable Accutrol Weir

Tag: _____

Adjustable Flow Control for Roof Drains

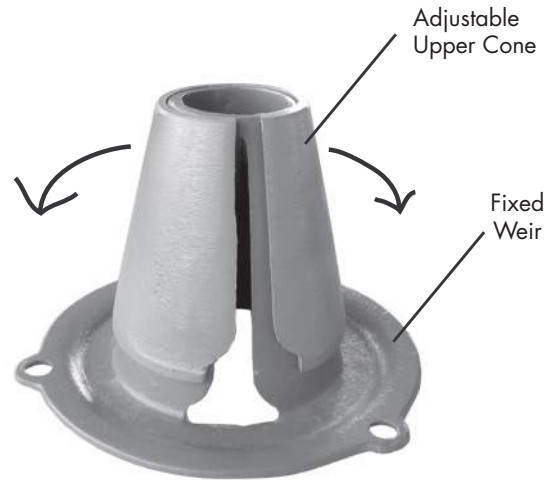
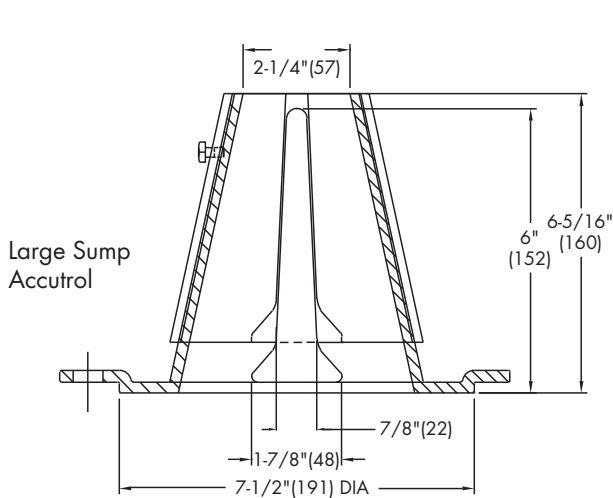
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
 Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2" of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3" of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
 [5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.



1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____
 Job Location _____
 Engineer _____

Contractor _____
 Contractor's P.O. No. _____
 Representative _____

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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