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Prepared for:

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Site Servicing Report

282 Laurier Avenue East

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

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1.0 INTRODUCTION

1.1 Background

In 2021, J.L. Richards & Associates Limited (JLR) was retained by Smart Living Properties (SLP) to prepare a Site Servicing Report (SSR) and detailed design drawings of civil infrastructure in support of a three-storey building addition to the east side of the existing six-storey residential apartment building sited at 280 Laurier Avenue East, in the City of Ottawa. In 2023, SLP revised the Site Plan to include a fourth storey on the building addition which will now require a sprinkler system. It is noted that the new building addition will be given a different municipal address (282 Laurier Avenue East) however the lot will not be severed from the existing building. This SSR has been prepared to document the detailed civil engineering design for the Site Plan Application (SPA) to the City of Ottawa.

This report has been prepared to outline the design objectives and criteria, servicing constraints and strategies for developing the subject lands with water, wastewater, storm and stormwater management services in accordance with:

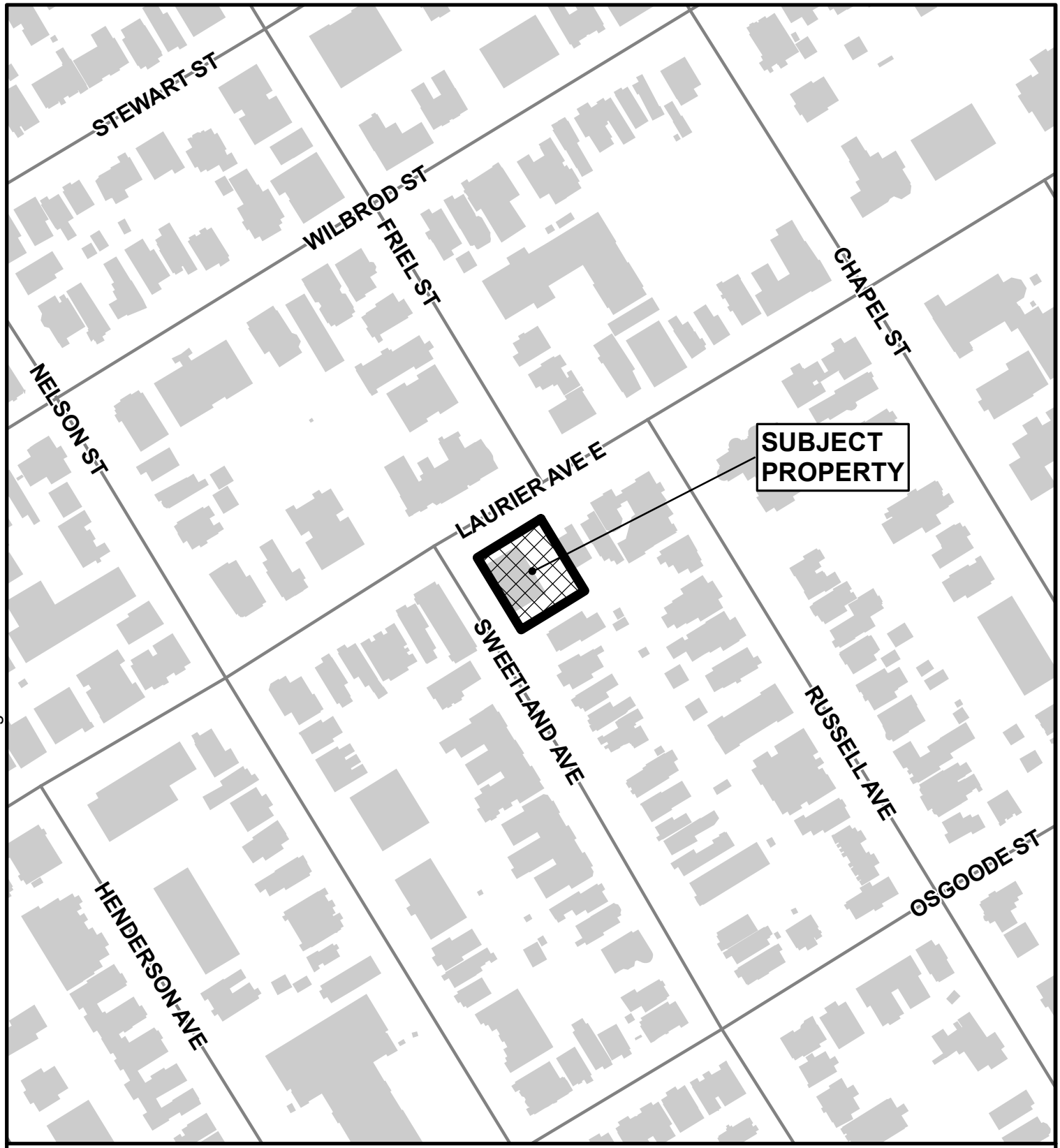
i) The November 2009 Servicing Study Guidelines for Development Applications in the City of Ottawa (City);
ii) The Ottawa Sewer Design Guidelines (2012) and associated Technical Bulletins;
iii) The discussions held during a pre-consultation meeting (November 23, 2023) with City staff, and
iv) Subsequent email correspondence with the owner (SLP), its architect and the City.

A copy of the Topographical Survey is included in Appendix ‘A’ while a copy of the pre-consultation meeting and follow-up email correspondence has been included in Appendix ‘B’.

1.2 Site Description

The subject property is located within the urban limits of the City of Ottawa. The site is bounded by Laurier Avenue East to the north and by Sweetland Avenue to the west (refer to Figure 1 for Location Plan). The subject site currently consists of an existing building which is surrounded by a paved “L” shaped parking area. Based on the aerial image, the subject site currently consists primarily of asphalt and the building with a small strip of grass adjacent to the neighbouring property on Laurier Avenue East.

A topographical survey was completed by Annis, O’Sullivan, Vollebekk (AOV) Limited and compiled on February 12, 2021 (refer to Appendix ‘A’). The current topography of the subject property indicates an existing drainage boundary to the east of the existing building, which causes the current parking area to slope north towards Laurier Avenue East and west towards Sweetland Avenue. Currently, storm runoff generated on the site either sheet flows onto Laurier Avenue East, sheet flows onto Sweetland Avenue, or is collected by an on-site catch basin that discharges into the Sweetland Avenue storm sewer system. The existing building roof is assumed to discharge into the Sweetland Avenue storm sewer system. There is also an existing drain at the bottom of the exterior basement stairs which is assumed to be a standalone sump pit that infiltrates into the ground.



PROJECT:

SMART LIVING PROPERTIES - 280 LAURIER AVE. E.

280 LAURIER AVE. E., OTTAWA, ON

DRAWING:

LOCATION PLAN

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DESIGN:	TB
DRAWN:	TB
CHECKED:	LJ
JLR #:	31383

DRAWING #:

FIGURE 1

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1.3 Building Configuration and Zoning

SLP wishes to construct a four-storey building addition (18 units) to the east side of the existing six-storey building (40 units), for which the existing building services (sanitary and storm) are proposed to remain. It is proposed to upgrade the water service from a 76 mm diameter service to a 108 mm diameter service.

The subject property is currently zoned Residential Fourth Density Zone, Subzone UD [R4UD (480)], which allows for a maximum building height of 14.5 m (By-law 2020-290). It has been assumed that this SSR can also be used as a Design Brief to support a Zoning By-Law Amendment (ZBLA), should one be required.

1.4 Existing Infrastructure

This report was prepared to demonstrate that the site redevelopment can be supported by the existing municipal infrastructure. The subject property is bounded by existing municipal infrastructure as illustrated below in Figure 2, which consists of the following (refer to Appendix 'C' for a copy of the background drawings):

Watermain

- Existing 203 mm diameter PVC watermain along Laurier Avenue East;
- Existing 203 mm diameter PVC/DI watermain along Sweetland Avenue.

Sanitary

- Existing 250 mm diameter PVC sanitary sewer along Laurier Avenue East;
- Existing 225/250 mm diameter PVC sanitary sewer along Sweetland Avenue.

Storm

- Existing 1050 mm diameter CONC storm sewer along Laurier Avenue East;
- Existing 375 mm diameter CONC storm sewer along Sweetland Avenue.

Figure 2: Existing Infrastructure

The Sewer CCTV Inspection Report and accompanying CCTV footage completed by Clean Water Works (CWW) on October 13, 2021 indicated that the sanitary and storm service laterals from the existing building discharged into the sewers along Sweetland Avenue.

Based on the CCTV footage, three (3) sanitary service laterals connect to the existing 250 mm diameter sanitary sewer on Sweetland Avenue in the vicinity of the existing building. Upon review, it has been assumed that the two (2) sanitary laterals between MHSA38944 and MHSA39430 are inactive. Meanwhile, there is a 200 mm diameter service lateral located ±1.8 m south of MH38944 which appears to be the active sanitary service lateral for the existing building. The length of this lateral is ±11 m. A camera view from the mainline sewer into the assumed sanitary service lateral for the existing building was provided in the CCTV footage. There is very little debris shown in the lateral and clear water is flowing out of it. Hence, the lateral appears to be in acceptable condition. The wastewater plumbing for the building addition will be serviced from the existing building.

Water supply to the existing building is assumed to be provided by a 76 mm (3 in.) diameter water service lateral that connects to the 203 mm diameter watermain on Sweetland Avenue. The size and location of this lateral will be confirmed by the contractor prior to construction. The water supply for the building addition will be serviced from the existing building. An additional water supply line will be constructed though the existing building to the new building to supply the sprinkler system in the four-storey addition.

Also based on the CCTV footage, there appears to be one (1) 200 mm diameter storm service lateral extending from the existing 375 mm diameter storm sewer on Sweetland Avenue toward the existing building. This storm lateral is ±1.7 m south of MHST39435 and is ±13 m in length. The assumed locations of the existing services are shown on the Site Servicing, Grading, Erosion & Sediment Control Plan (Drawing C1).

As shown on the Site Plan (Appendix ‘A’), the new residential building addition would replace the current asphalt parking area, with rooftop stormwater storage being provided for the building addition. The new roof drains and foundation drains (weeping tile) for the building addition will connect to the on-site storm pipe (catch basin lead) and convey stormwater into the existing storm sewer on Sweetland Avenue. As noted on the Site Servicing, Grading, Erosion & Sediment Control Drawing (Drawing C1), the existing catch basin lead that discharges into the storm sewer on Sweetland Avenue will be removed and reinstated with a 200 mm diameter sewer pipe.

1.5 Pre-Consultation, Permits and Approvals

A pre-consultation meeting was held between the Owner’s representatives and staff from the City on April 30, 2021. A copy of the pre-consultation meeting notes has been provided in Appendix ‘B’. As per the consultation notes, the Rideau Valley Conservation Authority (RVCA) was consulted to determine the stormwater quality criterion. The City also provided subsequent comments regarding stormwater management. The updated relevant comments are listed below:

- Coefficient (C) of runoff determined as per existing conditions but in no case more than 0.5.
- Time of Concentration (Tc) = To be calculated, minimum 10 minutes.
- Foundation drains are to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.
- Roof shall be controlled to the 2-year storm event with a C-value of 0.5.

- Roof drains are to be connected downstream of any incorporated ICD within the SWM system.
- Remainder of the site can be left uncontrolled as confirmed by the City.
- Noise study required – property fronts on Major Collector Road (Laurier Avenue).
- If the property is not to be severed only one set of municipal services are permitted.
- No stormwater quality measures are required.

1.6 Engineering Drawings

Engineering drawings have been prepared in support of a Site Plan Application to the City of Ottawa. The following drawing is included in this application:

- Site Servicing, Grading, Erosion & Sediment Control Plan (Drawing C1); and
- Storm Drainage and Ponding Plan (Drawing SWM)

2.0 WATER SERVICING

2.1 Water Supply and Design Criteria

A Hydraulic Network Analysis (HNA) was carried out for the proposed site to confirm that the existing watermain and upgraded water service can provide adequate supply while complying with both the Ottawa Design Guidelines for Water Distribution (July 2010) and Technical Bulletins ISDTB-2014-02, ISTB-2018-02 and ISTB-2021-03.

Section 4.2.2 of the Water Design Guidelines requires that all new development additions to the public water distribution system be designed such that the minimum and maximum water pressure, as well as the fire flow rates, conform to the following:

- Under maximum hourly demand conditions (peak hour), the pressures shall not be less than 276 kPa;
- During periods of maximum day and fire flow demand, the residual pressure at any point in the distribution system shall not be less than 140 kPa (20 psi);
- In accordance with the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi);
- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi); and
- Feedermains, which have been provided primarily for the purpose of redundancy, shall meet, at a minimum, the basic day plus fire flow demand.

Table 2-1 summarizes the design criteria for water servicing, which will serve as the basis of the detailed design for the site.

Table 2-1: Water Design Criteria

Design Criteria	Design Value
Density (apt) 1-bedroom	1.4
Density (apt) 2-bedroom	2.1
Density (apt) 3-bedroom	3.1
Population < 500	
Residential average day demand	280 L/cap/day
Peaking Factors	MECP Table 3-3
Fire Flow Requirements	
Municipal ROW	FUS
Within Private Property	OBC
Scenario	
Peak hour	>275 kPa (40 psi)
Maximum day plus fire flow	>140 kPa (20 psi)
Minimum hour (maximum HGL)	<552 kPa (80 psi)

2.2 Domestic Water Demands

The water demands presented in this section reflect the unit count proposed on the Site Plan. Domestic water demands were calculated for both the existing building and proposed four-storey addition, which includes 41 bachelor units, 11 1-bedroom units, 2 2-bedroom units, 3 3-bedroom units, and 1 4-bedroom unit for a total of 58 units. A corresponding total population of 89 people was calculated based on population densities from Section 4.2.8 of the Water Design Guidelines. The water demand calculation sheet can be found in Appendix ‘D1’.

The residential consumption rate for average day demand was set to 280 L/c/d as per the Water Design Guidelines. Since the proposed population for the entire site is less than 500 people, peaking factors interpolated from Table 3-3 of the Ministry of the Environment, Conservation and Parks (MECP) Design Guidelines were used to generate the maximum day and peak hour demands. Since receiving the boundary conditions from the City (Appendix ‘D2’), the following revisions were made to the water demand calculations:

- three (3) bachelors, one (1) 1-bedroom unit, and one (1) 2-bedroom unit were removed and three (3) 3-bedroom units and one (1) 4-bedroom unit were added thus reducing the overall number of units by 1; and
- the peaking factors were recalculated and interpolated based on equivalent populations from Table 3-3 of the MECP Design Guidelines.

As a result of these revisions, both the maximum day demand and peak hour demand increased by less than 2 L/s. Considering that the changes in these demands are minor, the boundary conditions provided by the City (Appendix ‘D2’) are still expected to remain applicable. Table 2-2 summarizes the water consumption rates and peaking factors used in the HNA.

Table 2-2: Water Consumption Rates and Peaking Factors

Demand Scenario	Residential
Average Day	280 L/c/d
Maximum Day	7.22 x Avg Day
Peak Hour	10.88 x Avg Day

Table 2-3 summarizes the water demands based on the proposed site details and the peaking factors from Table 2-2 (refer to Appendix D1 for detailed calculations).

Table 2-3: Water Consumption Rates and Peaking Factors

Demand Scenario	Water Demand (L/s)
Average Day	0.30
Maximum Day	2.17
Peak Hour	3.27

2.3 Existing Water Service

As discussed in Section 1.4, water supply to the existing building is currently provided by a 76 mm diameter water service lateral. It is proposed to upgrade the service lateral to a 108mm diameter service to ensure adequate pressure for the sprinkler system in the four-storey addition. The assumed location of the existing water service from Sweetland Avenue is shown on the Site Servicing, Grading, Erosion & Sediment Control Plan (Drawing C1).

The watermain roughness coefficient for the proposed 108 mm diameter water service was taken to be 100 and the internal pipe diameter was analyzed as 108 mm.

2.4 Required Fire Flow

The required fire flow (RFF) was calculated using the FUS method assuming the existing building is classified as non-combustible construction (concrete) and the four-storey addition will be considered wood frame with a sprinkler system (refer to Appendix ‘D3’ for correspondence from Architect and Mechanical Engineer). Therefore, per the FUS (2020), the RFF was calculated as 9,000 L/min (150 L/s) for the proposed four-storey addition (refer to Appendix ‘D3’ for detailed FUS calculations). The boundary conditions were provided by the City on Sweetland Avenue which is the assumed location of the existing service connection. The boundary conditions are summarized in Table 2-4 (refer to Appendix ‘D2’ for email correspondence).

Table 2-4: Hydraulic Boundary Conditions

Water Demand Scenario	HGL Laurier Avenue East (m)
Peak Hour	106.1
Maximum HGL	115.4
Max. Day + Fire Flow	105.8

2.5 Headloss Calculations

The proposed functional servicing as presented on Drawing C1 was evaluated under the demand scenarios listed in Section 2.2. The existing water service is assumed to connect from the existing watermain on Sweetland Avenue. The length of the service lateral is ±9 m. This length has been used to evaluate the expected headloss along the service lateral.

Headlosses were calculated using the Hazen-Williams headloss equation. The operating pressures at the building (finished floor elevation) were calculated under the water demand scenarios listed in Table 2-4. The Headloss Calculation Spreadsheet (Appendix 'D4') summarizes the operating pressures estimated at the building under peak hour, maximum pressure, and maximum daily demand plus sprinkler flow scenarios. Detailed calculations for all three water demand scenarios are shown in Appendix 'D4'.

2.5.1 Peak Hour

The peak hour demand shown in Table 2-3 was applied at the boiler room where the existing service lateral is assumed to be located. Using the boundary conditions shown in Table 2-4, the anticipated pressure at the building was found to be 337 kPa (48.9 psi). Based on the calculated results, the minimum pressure criterion of 276 kPa (40 psi) is exceeded.

2.5.2 Maximum Day Plus Fire Flow

A total fire flow of 9,000 L/min (150 L/s) per the FUS is required for the site. There are three (3) existing hydrants (refer to Appendix 'D3' for aerial image of hydrant location) located within 75 m of the proposed building addition (on Laurier Avenue East (±52 m), Friel Street (±33 m), and Sweetland Avenue (±38 m)). Based on Google streetview mapping, the three hydrants have blue caps which would indicate they are Class AA hydrants. Based on ISTB-2018-02, each of these hydrants can supply 5,700 L/min (95 L/s) and the aggregate sum of the hydrant flow from these three (3) hydrants is 17,100 L/min (285 L/s), which exceeds the fire flow requirement of 9,000 L/min (150 L/s) as per the FUS.

The four-storey addition will have a sprinkler system and a maximum daily demand plus sprinkler flow was modelled. Using the boundary conditions shown in Table 2-4 and a sprinkler demand of 250 gpm (15.77 L/s) as provided by the Owner's mechanical engineer,

the anticipated pressure at the building was found to be 329 kPa (47.7 psi), which exceeds the minimum pressure criterion of 140 kPa (20 psi).

2.5.3 Maximum HGL

The Water Design Guidelines require that a high pressure check (maximum hydraulic grade elevation) be performed to ensure that the maximum pressure constraint of 552 kPa (80 psi) is not exceeded. Based on a zero (0 L/s) demand condition and a maximum HGL boundary condition (refer to Table 2-4), a maximum pressure of 429 kPa (62.1 psi) is expected at the building. This result is below the maximum pressure constraint of 552 kPa (80 psi) and no pressure reducing valve (PRV) is required.

2.6 Summary and Conclusions

Based on the HNA presented above, it is expected that the proposed 108 mm diameter watermain service lateral can provide adequate domestic water supply and the existing municipal hydrants can satisfy the fire flow requirement for the subject site.

3.0 WASTEWATER SERVICING

3.1 Existing Conditions

Wastewater flows generated by the site are assumed to be conveyed to the existing 250 mm diameter sanitary sewer on Sweetland Avenue via an existing 200 mm diameter sanitary service lateral as discussed in Section 1.4 and depicted on the Site Servicing, Grading, Erosion & Sediment Control Plan (Drawing C1). The corresponding sanitary drainage area for the subject property is shown on Figure 3.

3.2 Design Criteria

The sanitary service lateral was assessed based on the City of Ottawa Sewer Design Guidelines (OSDG - October 2012) and associated Technical Bulletins. Key design parameters have been summarized in Table 3-1.

Table 3-1: Wastewater Servicing Design Criteria

Design Criteria	Design Value	Reference
Residential average flow	280 L/cap/day	ISTB-2018-01
Residential peaking factor	Harmon Formula x 0.8	City Section 4.4.1
Infiltration Allowance 0.05 L/s/ha (dry I/I) 0.28 L/s/ha (wet I/I)	0.33 L/s/ha	ISTB-2018-01
Minimum velocity	0.6 m/s	OSDG Section 6.1.2.2
Maximum velocity	3.0 m/s	OSDG Section 6.1.2.2

Design Criteria	Design Value	Reference
Manning Roughness Coefficient (for smooth wall pipes)	0.013	OSDG Section 6.1.8.2
Minimum allowable slopes	Varies	OSDG Table 6.2, Section 6.1.2.2

3.3 Theoretical Sanitary Peak Flow and Proposed Sanitary Servicing

Wastewater flows from the existing six-storey building and the proposed four-storey addition is assumed to be collected by a series of internal drains that will converge into the boiler room. The captured wastewater flows are assumed to discharge into the existing 250 mm diameter sanitary sewer on Sweetland Avenue through the same service lateral as assumed for existing conditions.

Based on the proposed densities for apartment buildings (as recommended by the OSDG), the peak wastewater flow was calculated based on the design value of 280 L/c/d and an overall population of 89 as per the design parameters listed in Table 3-1. The sanitary service lateral has a length of ±11 m and was assessed based on the City of Ottawa Sewer Design Guidelines (OSDG – October 2012) and associated Technical Bulletins. Key design parameters have been summarized in Table 3-1. The peak wastewater flow of 1.06 L/s was calculated based on a peaking factor of 3.61. A total infiltration allowance of 0.02 L/s was calculated based on 0.33 L/s/ha (dry and wet I/I), in accordance with the OSDG and ISTB-2018-01.

It is proposed that the existing 200 mm diameter sanitary lateral continue to be used to convey the captured flows. Assuming the existing lateral has a slope of 1.0%, the free-flowing capacity of the pipe is 34.2 L/s, which exceeds the design flow of 1.06 L/s. A copy of the sanitary design sheet for 282 Laurier Avenue East can be found in Appendix ‘E’.

PROPOSED 3 STOREY BUILDING
FF=71.72
TOF=71.26
USF=68.17

0.0494 | 200mmØ
TO SWEETLAND

TRANSFORMER PAD

LEGEND

0.0494 | 200mmØ
TO SWEETLAND

AREA IN HECTARES
PIPE DIAMETER
SURFACE DESC.
DRAINAGE BOUNDARY

PROJECT:

280 LAURIER AVENUE EAST

DRAWING:

SANITARY DRAINAGE PLAN

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FIGURE 3

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3.4 Summary and Conclusions

Based on the above wastewater servicing details, it is anticipated that the existing 200 mm diameter sanitary service shown on the Site Servicing, Grading, Erosion & Sediment Control Plan (Drawing C1) can adequately provide sanitary servicing for the existing six-storey building and the proposed four-storey addition.

4.0 STORM SERVICING AND STORMWATER MANAGEMENT

4.1 Strategy

The existing six-storey building on the site is proposed to remain undisturbed. The existing rooftop is assumed to outlet through a storm service to Sweetland Avenue. The existing building frontage sheet drains to Laurier Avenue East and the grading in this area is proposed to be maintained. Since this portion of the site shall remain undisturbed, only the proposed disturbed area is considered for the stormwater management analysis.

Storm runoff generated by the disturbed portion of the site will be conveyed either to Laurier Avenue East or to Sweetland Avenue. The storm sewers on these two streets are not connected at the ROW intersection and are therefore considered as two separate systems. The existing topography (Appendix ‘A’) indicates that the disturbed portion of this site currently drains toward both systems.

At the direction of the City (refer to Appendix ‘B’ for email correspondence), only the proposed building’s rooftop will need to be controlled to the 1:2 year pre-development allowable release rate based on a C-factor of 0.5. As such, under post-development conditions, there will be no requirement for storage outside of the rooftop and the rest of the site will sheet flow to either Laurier Avenue East or Sweetland Avenue.

The building addition will outlet stormwater via roof drains into the storm lead at the back of the site (south portion). Runoff from the south portion of the site will be collected by one (1) on-site catch basin (CB1) which will discharge into the Sweetland Avenue storm sewer system via the reinstated 200 mm diameter storm lead. Furthermore, stormwater from the small corridor area between the existing building and the proposed addition will be collected by a trench drain and conveyed to the Sweetland Avenue storm system via the reinstated 200 mm diameter storm lead. The foundation drainage will also be directed to the Sweetland Avenue storm system via the uncontrolled storm lead. The City has confirmed that only a tee connection is required at the connection between the reinstated catch basin lead and the existing storm sewer on Sweetland Avenue. A copy of the Storm Sewer Design Sheet can be found in Appendix ‘F1’.

Storm flows generated from the disturbed surfaces are to be controlled to the criterion described in the pre-consultation meeting notes and subsequent correspondence with the City (refer to Appendix ‘B’ for email correspondence).

4.2 Storm Criteria

During the pre-consultation meeting held on April 30, 2021 (refer to Appendix ‘B’), the following storm servicing criteria for the proposed redevelopment was provided by the City, which consists of the following:

- The Coefficient (C) of runoff determined as per existing conditions but in no case more than 0.5.
- Time of Concentration (TC) to be calculated, with a minimum of TC = 10 minutes.
- Any storm events greater than 5 year, up to 100 year, and including 100-year storm event must be detained on site.
- Foundation drains are to be independently connected to sewer main unless being pumped with appropriate back up power, a sufficiently sized pump and back flow prevention.
- Roof drains are to be connected downstream of any incorporated ICD within the SWM system.
- Stormwater quality control measures not required per the RVCA.

Since this meeting, the City has provided additional direction on the storm servicing requirements for this project (refer to Appendix 'B'). It should be noted that these comments have amended some of the criteria presented during the pre-consultation meeting. In summary, the additional comments are as follows:

- The proposed roof will need to be controlled to the 1:2 year storm event, using a C-factor of 0.5, while the remainder of the site can be left uncontrolled;
- An inlet control device (ICD) in the rear yard CB is not required to control flows since the flow rate of 3.55 L/s is too small and will likely clog up with debris and sediments over time.
- The proposed 200mm catch basin lead connecting to the storm sewer on Sweetland Ave would require a manhole connection. This is required because the lead is greater than 50% of the diameter of the mainline sewer.

The storm servicing identified on Drawings C1 and SWM have been developed to meet the above criteria.

4.3 Allowable Release Rate

Storm servicing and stormwater management for the subject site is to be controlled to the criteria listed in Section 4.2. The proposed roof will need to be controlled to the 1:2 year pre-development release rate of the proposed building footprint while the rest of the site will sheet flow uncontrolled to the existing trunk sewers on Laurier Avenue East and Sweetland Avenue. A Pre-Development Drainage Plan for the disturbed surfaces is shown on Figure 4. It should be noted that the proposed building footprint is currently all pavement (i.e., having a runoff coefficient of 0.9). However, as requested by the City, a maximum runoff coefficient of 0.5 was used to calculated the allowable release rate of this catchment area. The calculations for the pre-development release rate at 282 Laurier are provided in Appendix 'F2'.

Since the site area is small, the allowable peak flow was calculated based on the minimum time of concentration of 10.00 minutes. The pre-development release rate of the proposed building area under a 1:2 year design event was estimated at 2.14 L/s. Hence, as per the City's instructions, the proposed roof top storage must be controlled to this rate, and the rest of the site will flow uncontrolled to the mainline sewers.

4.4 Storm Servicing

The general storm and stormwater servicing constraints used to develop the detailed design for the site are listed in Table 4-1.

Table 4-1: Storm Servicing Design Criteria

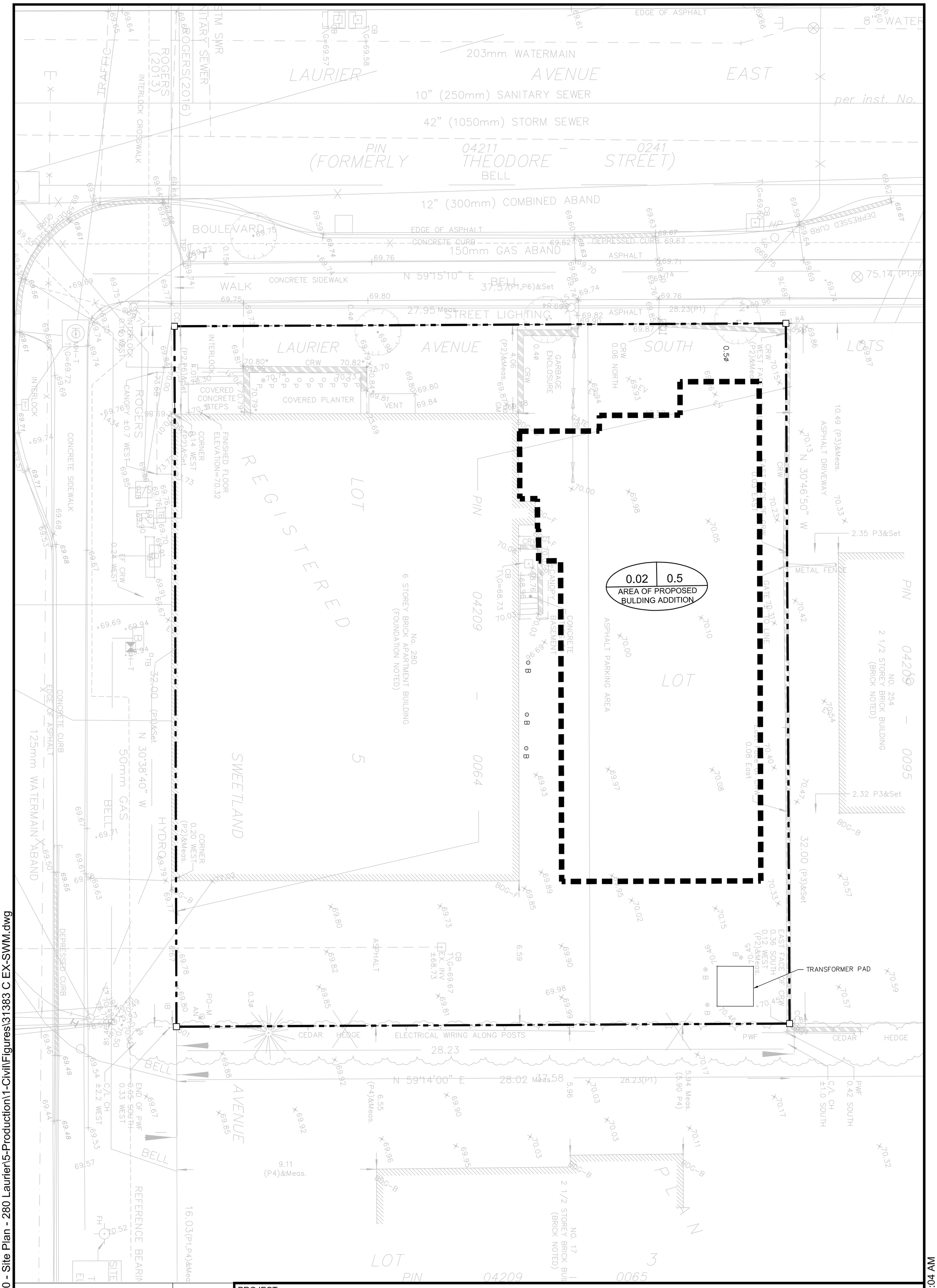
General Design Criteria
Storm drains are to be designed by the mechanical engineer to convey the calculated flows presented herein in accordance with the Ontario Building Code. The calculated peak flows were estimated with the Rational Method and the City of Ottawa Intensity-Duration-Frequency (IDF) curves.
Peak flows estimated based on an inlet time of ten (10) minutes, as per the Technical Bulletin ISDTB-2012-4.
Calculated peak flows to be estimated based on weighted average C-Factors. The weighted C-Factors have been calculated based on 0.90 for all hard surfaces and 0.20 for all landscaped areas.
The 1:100-year peak flows to be detained by means of on-site retention measures of rooftop storage.
Provide measures to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

4.5 Proposed Stormwater Management Solution and Calculations

4.5.1 Water Quantity

Storm servicing and stormwater management was developed to limit the proposed rooftop to the allowable peak flow of 2.14 L/s while allowing the rest of the site to sheet flow uncontrolled. In order to achieve this criterion, rooftop restrictors were deemed necessary to allow for rooftop storage.

The disturbed surfaces under post-development conditions are shown on the Storm Drainage and Ponding Plan (Drawing SWM). This drawing illustrates the various drainage areas along with their C-Factor and outlet. Drawing SWM also shows the ponding limits at the rooftop as described in the detailed stormwater management calculations (Appendix ‘F3’) using the Modified Rational Method (MRM). In accordance with the OSDG, the runoff coefficients under the 1:100-year MRM calculation were increased by 25% up to the maximum of 0.90. The grass areas were therefore, accounted for at a C-Factor of 0.25 (125% x 0.20). Table 4-2 and Table 4-3 summarize the runoff volume requirements as estimated by the MRM and detailed in Appendix ‘F3’.



LEGEND

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AREA 3

AREA IN HECTARES
RUNOFF COEFFICIENT (1:2YR)
SURFACE DESC.
DRAINAGE BOUNDARY

N

PROJECT:

280 LAURIER

DRAWING:

PRE-DEVELOPMENT DRAINAGE CONDITION OF PROPOSED BUILDING AREA

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FIGURE 4

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Table 4-2: Flow to Laurier Avenue East (1:100 year)

Area Type	Area (m^2)	Controlled Peak Flow (L/s)	Uncontrolled Peak Flow (L/s)	Storage Required (m^3)	Storage Provided (m^3)
Uncontrolled Sheet Flow	62.5	N/A	1.71	N/A	N/A

Table 4-3: Flow to Sweetland Avenue (1:100 year)

Area Type	Area (m^2)	Controlled Peak Flow (L/s)	Uncontrolled Peak Flow (L/s)	Storage Required (m^3)	Storage Provided (m^3)
Uncontrolled Sheet Flow	231.8	N/A	7.25	N/A	N/A
Roof Top	200.0	2.14	N/A	4.64	4.64

Based on the SWM calculations, and by designing the roof scupper elevations to provide enough rooftop storage for the 1:100 year storm event, sufficient roof storage will be provided. Furthermore, under the 1:100 year condition, 1.71 L/s will sheet flow uncontrolled to Laurier Avenue East and 7.25 L/s will sheet flow uncontrolled to Sweetland Avenue.

4.5.2 Climate Change Event (CCE)

Under a climate change event (CCE - +20% above the 1:100 year), the stormwater management calculations (Appendix ‘F3’) show the available storage difference between the CCE and 1:100-year storm. Table 4-4 and Table 4-5 summarize the runoff volume requirements as estimated by the MRM and detailed in Appendix ‘F3’.

Table 4-4: Flow to Laurier Avenue East (CCE)

Area Type	Area (m^2)	Controlled Peak Flow (L/s)	Uncontrolled Peak Flow (L/s)	Storage Required (m^3)	Storage Provided (m^3)
Uncontrolled Sheet Flow	62.5	N/A	2.05	N/A	N/A

Table 4-5: Flow to Sweetland Avenue (CCE)

Area Type	Area (m^2)	Controlled Peak Flow (L/s)	Uncontrolled Peak Flow (L/s)	Storage Required (m^3)	Storage Provided (m^3)
Uncontrolled Sheet Flow	231.8	N/A	8.70	N/A	N/A
Roof Top	200.00	2.14	N/A	6.15	4.64

Based on the SWM calculations and rooftop scupper design, sufficient roof storage will be provided to detain the 1:100 year storm event on the roof and the additional volume of 1.51 cubic meters will outlet via the scuppers. Meanwhile, under the CCE condition 2.05

L/s will sheet flow uncontrolled to Laurier Avenue East and 8.70 L/s will sheet flow uncontrolled to Sweetland Avenue.

4.5.3 Water Quality

The RVCA was consulted to determine whether quality measures were necessary for this redevelopment. Based on an email correspondence from the RVCA (Appendix 'B'), the stormwater servicing does not require any quality measures.

4.6 Summary and Conclusions

The detailed storm and stormwater servicing as well as the proposed grading will meet the design criteria highlighted in Section 4.2. As per the City comments (Appendix 'B'), the proposed rooftop will be controlled to an allowable release rate of 2.14 L/s using roof drains. The remaining post development flows will discharge uncontrolled to the Laurier Avenue East and Sweetland Avenue outlets. Rooftop ponding limits are shown in Drawing SWM, however the exact scupper elevations and ponding surface elevations on the roof of the new building addition shall be set by the architect in consultation with the mechanical engineer and structural engineer. The maximum scupper elevations shall be set at the 100-year ponding elevation.

5.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment control measures, as outlined in the Ontario Ministry of Natural Resources (MNR) Guidelines on Erosion and Sediment Control for Urban Construction Sites, will be implemented to trap sediment on site. The following erosion and sediment control measures could be implemented during construction (refer to Drawing C1):

- Supply and installation of a silt fence barrier, as per OPSD 219.110, if required;
- Supply and installation of filter fabric between the frame and cover of catch basins and maintenance holes adjacent to the project area during construction, to prevent sediment from entering the sewer system. The filter fabric is to be inspected regularly and corrected as required;
- Sandbags are to be placed blocking part of the sewer pipe in the existing catch basin to eliminate construction debris from entering the existing storm sewer system. The sandbags are to be removed after the proposed storm sewers have been fully cleaned.

The proposed removal and reinstatement measures as well as the erosion control measures shall conform to the following documents:

- "Guidelines on Erosion and Sediment Control for Urban Construction Sites" published by Ontario Ministries of Natural Resources, Environment, Municipal Affairs, and Transportation & Communication, Association of Construction Authorities of Ontario and Urban Development Institute, Ontario, May 1987.
- "MTO Drainage Manual", Chapter F: "Erosion of Materials and Sediment Control", Ministry of Transportation & Communications, 1985.
- "Erosion and Sediment Control" Training Manual by Ministry of Environment, Spring 1998.
- Applicable Regulations and Guidelines of the Ministry of Natural Resources.

This report has been prepared by J.L. Richards & Associates Limited for Smart Living Properties' exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

This report was prepared for the sole benefit and use of the named client and may not be used or relied on by any other party without the express written consent of J.L. Richards & Associates Limited, and anyone intending to rely upon this report is advised to contact J.L. Richards & Associates Limited in order to obtain permission and to ensure that the report is suitable for their purpose.

J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by:

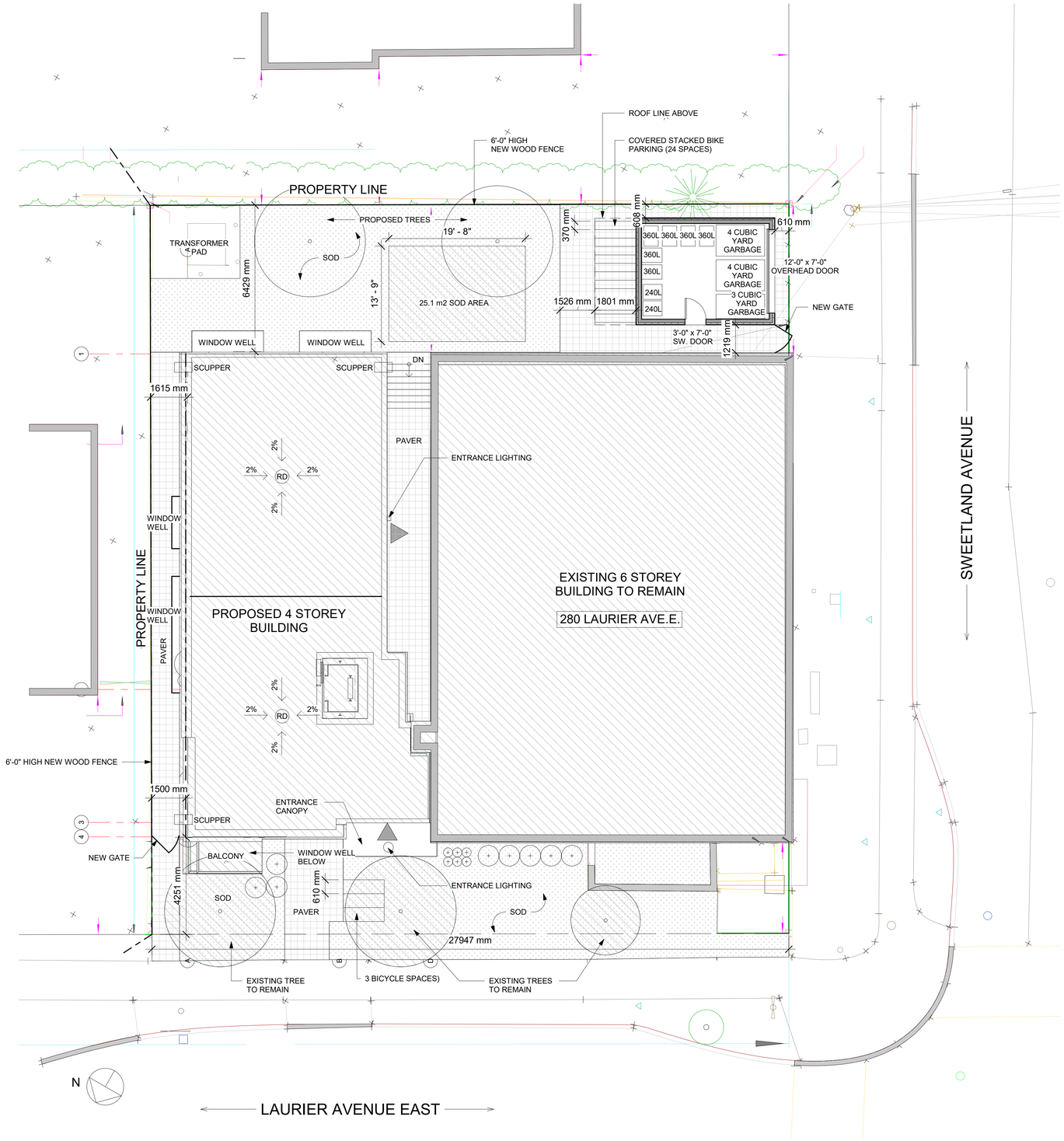
Mahad Musse, EIT
Civil Engineering Intern

Reviewed by:

Annie Williams, P.Eng.
Civil Engineer

Appendix 'A'

Site Plan, Site Topography and Site Servicing Checklist



SITE PLAN

SCALE: 1:100

280 LAURIER AVE. E.

SITE PLAN OF SURVEY LOT 5 AND PART OF LOT 6 (SOUTH LAURIER AVENUE) REGISTERED PLAN 14349, CITY OF OTTAWA	SURVEY INFO TAKEN FROM LOT 5 AND PART OF LOT 6 (SOUTH LAURIER AVENUE) REGISTERED PLAN 14349, CITY OF OTTAWA PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. COMPLETED FEBRUARY 5, 2021

R4UD [480]- RESIDENTIAL FOURTH DENSITY ZONE (SEC. 161-162) CITY OF OTTAWA;
DWELLING TYPE: NEW ADDITION TO EXISTING 6 STOREY MID RISE APARTMENT BUILDING (RENTALS)

ZONING MECHANISMS	REQUIREMENT	PROVIDED	NOTES
A) MINIMUM LOT AREA	450 m²	895.5 m²	
B) MINIMUM LOT WIDTH	15 m	27.95 m	
C) MINIMUM LOT DEPTH	N/A	32 m	
D) MINIMUM FRONT YARD SET BACK	AVERAGE (4.5m+4.01m) /2 =4.255m	4.25 m	
E) MINIMUM CORNER YARD SET BACK	AVERAGE (3m+0m) /2 =1.5m	0 m (EXISTING)	
F) MINIMUM INTERIOR SIDE YARD SETBACK	1.5 m	1.5 m	
G) MINIMUM REAR YARD SET BACK	8 m	6.43 m	BY-LAW 2022-291
H) MINIMUM REAR YARD AREA	25% of 895.5 m² = 223.875 m²	180.16 m²	BY-LAW 2022-291
I) MAXIMUM BUILDING HEIGHT	14.5 m	14.46 m	
J) VEHICULE PARKING (RESIDENTS)	44x0.5=22	0	BY-LAW 2022-291
VEHICULE PARKING (VISITOR)	44x0.1=4.4	0	BY-LAW 2022-291
VEHICULE PARKING (TOTAL)	26.4	0	BY-LAW 2022-291
K) BIKE SPACES	56x0.5=28	30 (STACKED) INDOOR +24 (STACKED) OUTDOOR +3 STANDARD OUTDOOR	

	REQUIREMENT	PROVIDED	EXISTING
L) AMENITY AREA	0	104.2 m² @ BACK & 20.8 m² BALCONIES TOTAL = 125 m²	
M) FRONT YARD, SOFTSCAPING PERCENTAGE	40%	60.8%	
N) REAR YARD, SOFTSCAPING PERCENTAGE	50%	53.6%	

BUILDING AREA

FLOOR NAME	EXISTING	PROPOSED ADDITION	TOTAL
BASEMENT	341 m²	193.6 m²	534.6 m²
GROUND FLOOR	341 m²	193.6 m²	534.6 m²
SECOND FLOOR	341 m²	193.6 m²	534.6 m²
THIRD FLOOR	341 m²	193.6 m²	534.6 m²
FOURTH FLOOR	341 m²	193.6 m²	534.6 m²
FIFTH FLOOR	341 m²	0 m²	341 m²
SIXTH FLOOR	341 m²	0 m²	341 m²
TOTAL	2387 m²	968 m²	3355 m²

	BACHELOR	1 BED	2 BED	3 BED	4 BED	TOTAL
EXISTING BUILDING	29	11	0	0	0	40
PROPOSED NEW UNIT @EXISTING BUILDING	0	0	0	0	0	0
PROPOSED ADDITION	12	0	2	3	1	18
TOTAL	41	11	2	3	1	58
REQUIRED 2+ BEDROOM			4			
PROPOSED 2+ BEDROOM			6			

AVERAGE GRADE:

CALCULATED FROM EXISTING ELEVATION POINTS AT A DISTANCE EQUAL TO THE MINIMUM FRONT YARD & REAR YARD SETBACKS, AT THE INTERIOR SIDE PROPERTY LINES

AVERAGE GRADE : 70.045m (69.87m + 70.13m + 69.85m + 70.33m) /4

RA | REDLINE ARCHITECTURE

REDLINE ARCHITECTURE INC.

Tel: 613-612-2232
info@redlinearchitecture.ca
www.redlinearchitecture.ca

RESPONSIBILITIES:

DO NOT SCALE DRAWINGS

ALL DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE 2012

ALL CONTRACTORS MUST WORK IN ACCORDANCE WITH ALL LAWS, REGULATIONS AND BYLAWS HAVING JURISDICTION.

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT/DESIGNER

GENERAL NOTES:

280 LAURIER AVE. E.

NEW ADDITION TO
EXISTING 6 STOREY BUILDING

CONSULTANTS

STRUCTURAL -
MECHANICAL -
ELECTRICAL -

M/D/Y

NO.	REVISION/ISSUE	DATE
9		
8		
7		
6		
5		
4		
3		
2		
1	ISSUED FOR SPA	08/11/23

PROJECT:
280 LAURIER AVE. E.
NEW ADDITION TO
EXISTING 6 STOREY BUILDING
280 LAURIER AVE. E.
OTTAWA, ON K1N 6P7

SITE PLAN

DRAWN BY:

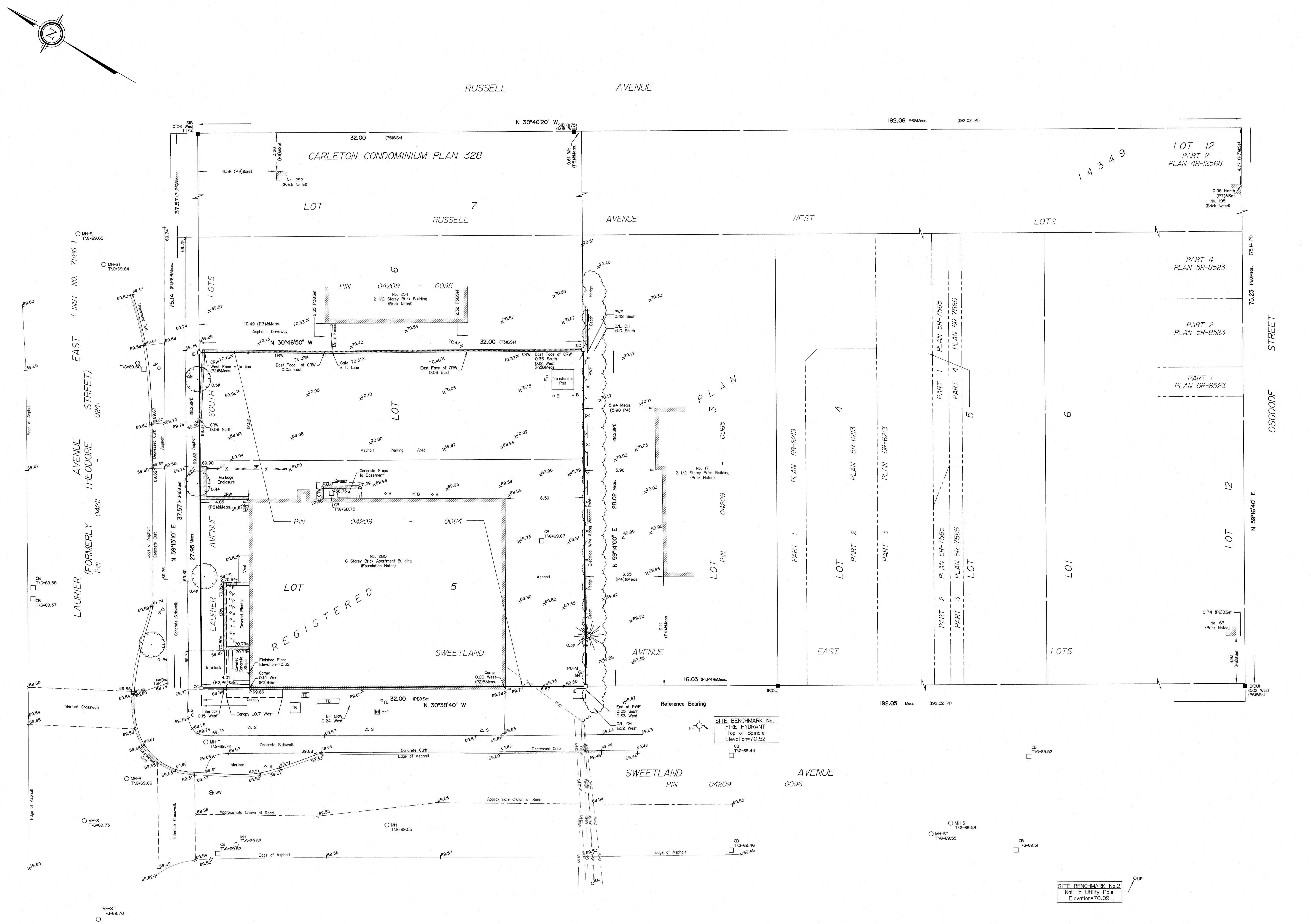
DATE:MARCH 29, 2021

SCALE: AS NOTED

SHEET: A0

D07-12-21-0133

18571



TOPOGRAPHICAL PLAN OF SURVEY OF

LOT 5 AND PART OF LOT 6 (SOUTH LAURIER AVENUE) REGISTERED PLAN 14349 CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 150

6 4.5 3.0 1.5 0 3 6 Metres

Metric

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

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 5th day of February, 2021.

Feb 12/21
Date

T. Hartwick
Ontario Land Surveyor

SITE AREA = 895.8 m²

Bearings are astronomic, derived from the easterly limit of Sweetland Avenue, shown as N30°38'40"W on Plan 5R-6213.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Notes & Legend

	Denotes	
—□—	"	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CC	"	Cut Cross
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(PI)	"	Registered Plan 14349
(P2)	"	(647) Plan dated March 20,1969 (Ref. Lot 5 & W1/2 Lot 6)
(P3)	"	(647) Plan dated January 7,1970 (Ref. E1/2 Lot 6)
(P4)	"	(647) Plan dated August 12,1982 (Ref. Lot 3)
(P5)	"	Carleton Condominium Plan 328
(P6)	"	(AOG) Plan dated January 14, 2015
(P7)	"	(647) Notes dated August 1980
(P8)	"	(1319) Plan dated June 1981
(P9)	"	(647) Notes dated November 10, 1978
	"	Deciduous Tree
	"	Coniferous Tree
FH	"	Fire Hydrant
WV	"	Water Valve
MH-ST	"	Maintenance Hole (Storm Sewer)
MH-S	"	Maintenance Hole (Sanitary)
MH-B	"	Maintenance Hole (Bell Telephone)
MH-T	"	Maintenance Hole (Traffic)
MH	"	Maintenance Hole (Unidentified)
VC	"	Valve Chamber (Watermain)
—— OHW ——	"	Overhead Wires
CB	"	Catch Basin
TB	"	Unidentified Terminal Box
TSP	"	Traffic Signal Post
GM	"	Gas Meter
B	"	Bollard
P	"	Pillar
+ 65.00	"	Location of Elevations
+ 65.00*	"	Location of Wall Elevations
+ 65.00	"	Top of Concrete Curb Elevation
C/L	"	Centreline
——	"	Property Line
	"	Gate
CRW	"	Concrete Retaining Wall
△ S	"	Sign
CH	"	Cedar Hedge
BF	"	Board Fence
	"	Gate
PO-M	"	Metal Pole
UP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
Ø	"	Diameter

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2150228

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

Ontario Land Surveyors
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com

Job No. 21105-20 SmtLvg PrtLts5,6RPl4349 280LaurierAveE T DI DG

SMART LIVING PROPERTIES – 282 LAURIER AVENUE EAST

DEVELOPMENT SERVICING STUDY CHECKLIST

REFERENCED STUDIES AND REPORTS	REFERENCE
Site Servicing Report for Smart Living Properties, 282 Laurier Avenue East (J.L. Richards & Associates Limited, March 8, 2024)	SSR

4.1	GENERAL CONTENT	REFERENCE
☐	Executive Summary (for larger reports only).	N/A
☒	Date and revision number of the report.	SSR (Title Page)
☒	Location map and plan showing municipal address, boundary, and layout of proposed development.	SSR (Figure 1) Site Servicing, Grading, ESC Plan (C1)
☒	Plan showing the site and location of all existing services.	Site Servicing, Grading, ESC Plan (C1)
☒	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	SSR (Section 1.3)
☒	Summary of Pre-consultation Meetings with City and other approval agencies.	SSR (Appendix 'B')
☐	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	N/A
☒	Statement of objectives and servicing criteria.	SSR (Section 1.5, 2.1, 3.2, 4.2, 4.4)
☒	Identification of existing and proposed infrastructure available in the immediate area.	SSR (Section 1.4, 2.3, 3.3, 4.5) Site Servicing, Grading, ESC Plan (C1)
☒	Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	SSR (Section 1.5, 4.2) Site Servicing, Grading, ESC Plan (C1)
☒	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Site Servicing, Grading, ESC Plan (C1)

☐	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
☐	Proposed phasing of the development, if applicable.	N/A
☐	Reference to geotechnical studies and recommendations concerning servicing.	To be confirmed
☒	All preliminary and formal site plan submissions should have the following information: ▪ Metric scale ▪ North arrow (including construction North) ▪ Key plan ▪ Name and contact information of applicant and property owner ▪ Property limits, including bearings and dimensions ▪ Existing and proposed structures and parking areas ▪ Easements, road widening and rights-of-way ▪ Adjacent street names	All Drawings

4.2	**DEVELOPMENT SERVICING REPORT: WATER**	**REFERENCE**
☐	Confirm consistency with Master Servicing Study, if available.	N/A
☒	Availability of public infrastructure to service proposed development.	SSR (Section 1.4, 2.3) Site Servicing, Grading, ESC Plan (C1)
☒	Identification of system constraints.	SSR (Section 2.4)
☒	Identify boundary conditions.	SSR (Section 2.4, Appendix 'D')
☒	Confirmation of adequate domestic supply and pressure.	SSR (Section 2.5)
☒	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	SSR (Section 2.5, Appendix 'D')
☒	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	SSR (Section 2.5)
☐	Definition of phasing constraints. Hydraulic modelling is required to confirm servicing for all defined phases of the project, including the ultimate design.	N/A
☒	Address reliability requirements, such as appropriate location of shutoff valves.	SSR (Section 2.3)
☐	Check on the necessity of a pressure zone boundary modification.	N/A

☒	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	SSR (Section 2, Appendix 'D')
☒	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants), including special metering provisions.	SSR (Section 2.3) Site Servicing, Grading, ESC Plan (C1)
☐	Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
☒	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	SSR (Section 2.1, 2.2)
☒	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	SSR (Appendix 'D')

4.3	**DEVELOPMENT SERVICING REPORT: WASTEWATER**	**REFERENCE**
☒	Summary of proposed design criteria (Note: Wet weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	SSR (Section 3.2)
☐	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
☒	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the Guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	SSR (Section 3.2)
☒	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	SSR (Section 1.4, 3.1, 3.3)
☒	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable.)	SSR (Section 3.3)
☒	Calculations related to dry weather and wet weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	SSR (Appendix 'E')

☒	Description of proposed sewer network, including sewers, pumping stations and forcemains.	SSR (Section 3.3) Site Servicing, Grading, ESC Plan (C1)
☒	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	SSR (Appendix 'B')
☐	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
☐	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
☐	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
☐	Special considerations, such as contamination, corrosive environment, etc.	N/A

4.4	**DEVELOPMENT SERVICING REPORT: STORMWATER**	**REFERENCE**
☒	Description of drainage outlets and downstream constraints, including legality of outlets (i.e., municipal drain, right-of-way, watercourse, or private property).	SSR (Section 1.4, 4.1)
☒	Analysis of available capacity in existing public infrastructure.	SSR (Section 4.2, 4.3)
☒	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Storm Drainage and Ponding Plan (SWM)
☒	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	SSR (Section 4.3)
☒	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	SSR (Section 4.5.3)
☒	Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	SSR (Section 4) Storm Drainage and Ponding Plan (SWM)
☐	Setback from private sewage disposal systems.	N/A

☐	Watercourse and hazard lands setbacks.	N/A
☒	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	SSR (Appendix 'B')
☐	Confirm consistency with subwatershed and Master Servicing Study, if applicable study exists.	N/A
☒	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:2 year return period) and major events (1:100 year return period).	SSR (Section 4, Appendix 'F')
☐	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
☒	Calculate pre- and post-development peak flow rates, including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	SSR (Section 4, Appendix 'F')
☒	Any proposed diversion of drainage catchment areas from one outlet to another.	SSR (Section 4, Appendix 'F')
☒	Proposed minor and major systems, including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Site Servicing, Grading, ESC Plan (C1) Storm Drainage and Ponding Plan (SWM)
☐	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	Quantity control proposed per SSR (Section 4)
☐	Identification of potential impacts to receiving watercourses.	N/A
☐	Identification of municipal drains and related approval requirements.	N/A
☒	Description of how the conveyance and storage capacity will be achieved for the development.	SSR (Section 4)
☒	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	SSR (Section 4) Site Servicing, Grading, ESC Plan (C1) Storm Drainage and Ponding Plan (SWM)
☒	Inclusion of hydraulic analysis, including hydraulic grade line elevations.	SSR (Section 4, Appendix 'F')
☒	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	SSR (Section 5) Site Servicing, Grading, ESC Plan (C1)

☐	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
☐	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5	**APPROVAL AND PERMIT REQUIREMENTS**	**REFERENCE**
The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development, as well as the relevant issues affecting such approval. The approval and permitting shall include but not be limited to the following:		
☒	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams, as defined in the Act.	SSR (Section 1.5, Appendix 'B')
☐	Application for Environmental Compliance Approval (ECA) under the Ontario Water Resources Act.	N/A
☐	Changes to Municipal Drains.	N/A
☐	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation, etc.).	N/A

4.6	**CONCLUSION CHECKLIST**	**REFERENCE**
☒	Clearly stated conclusions and recommendations.	SSR (Section 2.6, 3.4, 4.6)
☒	Comments received from review agencies, including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	Comment Response Letter to City of Ottawa
☒	All draft and final reports shall be signed and stamped by a Professional Engineer registered in Ontario.	SSR Site Servicing, Grading, ESC Plan (C1) Storm Drainage and Ponding Plan (SWM)

File No.: PC2023-0324

Lisa Dalla Rosa
Fotenn Planning + Design
Via email: dallarosa@fotenn.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 280 Laurier Ave E

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on November 23, 2023.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☐	**4** ☐	**5** ☒

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 3 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.

2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline

the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

Updated SPIL:

1. The accompanying Studies Plans Identification List outlines the required submission materials for the updated Site Plan Control application. Any previously prepared plans, reports and studies must be updated to the City's new Terms of Reference and must still be within their validity period.

2. As part of the City's updated processes, a zoning confirmation report will need to be submitted to identify all zoning compliance issues, if any, at the outset of a planning application.

Zoning:

3. Please ensure bike spaces meet all applicable provisions under Section 4.0 of the ZBL.

Please contact Jack Smith, Planner I, or Eric Forhan, Planner II, for follow-up questions.

Urban Design

Comments:

4. This proposal does not run along or does not meet the threshold in one of the City's Design Priority Areas and need not attend the City's UDRP. Staff will be responsible for evaluating the Urban Design Brief and providing design direction.

5. As this proposal has already received Site Plan approval and is only changing the height to add one floor, we have no additional design comments.

6. Please include updated drawings into the Urban Design Brief.

7. An Urban Design Brief is a required submittal. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference. Please see the Urban Design Brief Terms of Reference provided.

a. ***Note. The Urban Design Brief submittal should have a section which addresses these pre-consultation comments.***

Please contact Christopher Moise, Urban Designer, for follow-up questions.

Engineering

Comments:

8. All applicable civil plans and reports to be updated accordingly to reflect the proposed changes. This includes, but not limited to:

    a. Geotechnical Report: Can be updated in a memo format to indicate that the previously approved report's investigation and results are still applicable to the revised proposal. Memo should speak to foundation design as well.

    b. Site Servicing and Stormwater Management Report: Shall be updated to reflect the changes with respect to number of units, height of building, etc.

    c. Noise Study Report can be updated in a memo format to indicate that previously approved Noise Report still applies.

    d. Grading and Servicing plan to be updated accordingly.

Feel free to contact Mohammad Fawzi, Infrastructure Project Manager, for follow-up questions.

Transportation

Comments:

General Comments

9. *The Laurier Avenue East and Sweetland Avenue intersection site triangle (5 m x 5 m) may not be applicable as the existing building is proposed to be retained.*
10. Sewer renewal along Sweetland Avenue to start 1-2 years.

LN57146

Forecast ID	LN57146
Type of Work	Sewer Renewal
Project Type	Renewal
STATUS	Planned

Project Manager	Pearce (Brown), Kim
CLIENT	Asset Management Service - Water Resources Planning & Engineering Branch (IWSD)
Construction Year	1-2 Years
Project Status Number	
Construction Contract	CP000784

11. The Screening Form has indicated that the Trip Generation Triggers have been met. Please proceed with the TIA Step 2 – Scoping report.
12. Laurier Avenue East Avenue is classified as a Major Collector Road. There are no additional protected ROW limits identified in the OP.
13. Sweetland Avenue is classified as a Local Road. There are no additional protected ROW limits identified in the OP.
14. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.
15. The purchaser, tenant or sub-lessee acknowledges the unit being rented/sold is not provided with any on-site parking and should a tenant/purchaser have a vehicle for which they wish to have parking that alternative and lawful arrangements will need to be made to accommodate their parking need at an alternative location. The Purchaser/Tenant also acknowledges that the availability and regulations governing on-street parking vary; that access to on-street parking, including through residential on-street parking permits issued by the City cannot be guaranteed now or in the future; and that a purchaser, tenant, or sub-lessee intending to rely on on-street parking for their vehicle or vehicles does so at their own risk.
16. Ensure that potential tenants who are not assigned a parking space are aware that on street parking is not a viable option for tenants.
17. All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend

either above or below into the sight triangles and/or future road widening protection limits.

18. Permanent structures such as curbing, stairs, retaining walls, and underground parking foundation also bicycle parking racks are not to extend into the City's right-of-way limits.
19. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.
20. The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.
21. Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be in safe, secure places near main entrances and preferably protected from the weather.
22. Should the property Owner wish to use a portion of the City's Road allowance for construction staging, prior to obtaining a building permit, the property Owner must obtain an approved Traffic Management Plan from the Manager, Traffic Management, Transportation Services Department. The city has the right for any reason to deny use of the Road Allowance and to amend the approved Traffic Management Plan as required.

Feel free to contact Wally Dubyk, Transportation Project Manager, for follow-up questions.

Environment and Trees

Forestry Comments:

23. Tree Conservation Report comments

    a. Contact the planning forester (mark.richardson@ottawa.ca) for information.

    b. The TCR may be combined with the Landscape Plan.

    c. The previously approved TCR may be used although it needs to be updated to reflect new Terms of Reference or changes to the proposal.

    d. The dying/dead Norway maple on the corner of Sweetland and Laurier may be removed without a permit if it is still present at the time of construction.

    e. Please employ a competent ISA certified arborist to prune the retained trees prior to start up to avoid any conflicts with construction equipment and the future building.

f. Please include soil volume information on the landscape plan for all proposed tree plantings.

Environmental Comments:

24. There are no triggers for an EIS and the addition of another storey does not change its status from an environmental perspective. We have no comments on the application.

Feel free to contact Matthew Hayley, Environmental Planner, or Mark Richardson, Forester, for follow-up questions.

Parkland

Comments:

25. Cash-in-lieu of parkland will be collected for this application. An updated calculation will be provided as part of the formal Site Plan Control application processes.

Feel free to contact Steve Gauthier, Parks Planner, for follow-up questions.

Heritage

Comments:

26. The property is not designated under Part IV or V of the Ontario Heritage Act, and not listed on the City's Heritage Register. We provide the following general comments for the applicant:

    a. Heritage Staff are supportive of infill on this property and encourage the removal of the portion of the parking lot that fronts onto Laurier Avenue.

    b. 280 Laurier Avenue is located within the Sandy Hill Cultural Heritage Character Area. Please refer to sections 5.3 (alterations and additions), 5.4 (infill), and 5.5 (streetscape) of the Character Area guidelines (attached) to help inform the detailed design.

    c. Ensure that the existing street trees are maintained to preserve the continuity of streetscape that exists within the Character Area.

    d. The proposed addition is located immediately adjacent to the Sweetland Avenue Heritage Conservation District (to the south) and to 284 Laurier Street (to the east), a property listed on the City's Heritage Register. Ensure that the addition is sympathetic to the character of these heritage resources and the overall neighbourhood.

Feel free to contact Taylor Quibell, Heritage Planner, for follow-up questions.

Other

27. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.

    a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.

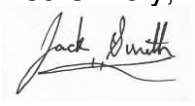
    b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.

Submission Requirements and Fees

1. A Phase 3 Pre-consultation application will be required.
    a. Additional information regarding fees related to planning applications can be found here.
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,



Jack Smith, Planner I

cc.
Eric Forhan, Planner II
Mohammad Fawzi, Infrastructure Project Manager
Wally Dubyk, Transportation Project Manager
Christopher Moise, Urban Designer

Mark Richardson, Planning Forester
Matthew Hayley, Environmental Planner
Steve Gauthier, Parks Planner
Taylor Quibell, Heritage Planner

Tyler Yakichuk, Planner (Fotenn)

Corey Kou
Associate, Development

613-244-1551 ext. 628
226 Argyle Avenue, Ottawa, ON
corey@smartlivingproperties.ca
http://smartlivingproperties.ca

From: Gorni, Colette <colette.gorni@ottawa.ca>
Sent: Monday, June 5, 2023 10:14 AM
To: Lisa Dalla Rosa <dallarosa@fotenn.com>
Cc: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: FW: Notice of Decision - 280 Laurier Avenue East - Site Plan Control - D07-12-21-0133

Hi Lisa,

The PM noted that the following changes are required to the Servicing Plan – please make the below changes so staff can update the approval.

Site Servicing, Grading, Erosion & Sediment Control Plan, C1, prepared by J.L. Richards & Associates Ltd., Revision 5, dated April 13, 2023

- No exterior surface drains can connect to the foundation drainage pipe (CB2). Please revise accordingly.
- Please provide a note indicating that where USF is less than 1.5m below grade, insulation is required. This is required for the area between the existing and proposed buildings.

Thanks,

Colette Gorni, MCIP RPP
Planner II | Urbaniste II
Development Review Central | Services d'examen demandes d'aménagements secteur centre
Planning, Real Estate and Economic Development Department
City of Ottawa | Ville d'Ottawa
613-580-2424, ext./poste 21239
Colette.Gorni@ottawa.ca

From: Planning Circulations / Diffusions Planification <planningcirculations@ottawa.ca>
Sent: June 05, 2023 8:39 AM
To: jeremy@smartlivingproperties.ca
Cc: Plante, Stéphanie <Stephanie.Plante@ottawa.ca>; Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>; Dubyk, Wally <Wally.Dubyk@ottawa.ca>; Wilson, Matthew <Matthew.Wilson@ottawa.ca>; Hayley, Matthew <Matthew.Hayley@ottawa.ca>; Richardson, Mark <Mark.Richardson@ottawa.ca>; Antonypillai, Neill <Neill.Antonypillai@ottawa.ca>; Allen, Norman <Norman.Allen@ottawa.ca>; Carrier, Tina <Tina.Carrier@ottawa.ca>; Thomas, Cairine <Cairine.Thomas@ottawa.ca>; Addressing And Signs <addressingandsigns@ottawa.ca>; Langiano, Joseph <Joseph.Langiano@ottawa.ca>; Therkelsen, Jennifer <Jennifer.Therkelsen@ottawa.ca>; Brauneisen, Amy <amy.brauneisen@ottawa.ca>; Securities Administration/Administration des Valeurs Mobilières <securitiesadministration@ottawa.ca>; Harreman-Fernandes, Maddie <Maddie.Harreman-Fernandes@ottawa.ca>;

City@ottawascene.com; tamer@smartlivingproperties.ca; corey@smartlivingproperties.ca; jules@smartlivingproperties.ca; dallarosa@fotenn.com; Enbridge <MunicipalPlanning@enbridge.com>; Rogers <ott.utility.circul@rci.rogers.com>; circulations@wsp.com; Gorni, Colette <colette.gorni@ottawa.ca>; MPAC <MR03Enquiry@mpac.ca>
Subject: Notice of Decision - 280 Laurier Avenue East - Site Plan Control - D07-12-21-0133

Good morning, / Good afternoon,

Please be advised that the attached letter is the notice of approval for the noted site plan control application subject to the Owner of the lands fulfilling the requirements detailed in the letter.

Also provided below is a link to the application on DevApps, the City's app for viewing development applications. Here you can view all related plans including the final approved plans which are noted as Approved.

https://devapps.ottawa.ca/en/applications/D07-12-21-0133/details

Please do not respond directly to this e-mail address as it is not monitored. The name of your contact for this file and their contact information is in the letter.

Thank you,

Circulation Team
Planning Services
Planning, Real Estate and Economic Development Department
City of Ottawa
'

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This e-mail originates from the City of Ottawa e-mail system. Any distribution, use or copying of this e-mail or the information it contains by other than the intended recipient(s) is unauthorized. Thank you.

Le présent courriel a été expédié par le système de courriels de la Ville d'Ottawa. Toute distribution, utilisation ou reproduction du courriel ou des renseignements qui s'y trouvent par une personne autre que son destinataire prévu est interdite. Je vous remercie de votre collaboration.

'

Mahad Musse

From: Annie Williams
Sent: July 14, 2021 2:19 PM
To: Eric Lalande
Cc: Jeremy Silburt; Mahad Musse
Subject: RE: 280 Laurier Avenue East - Stormwater Quality

Hi Eric,

Thank you for confirming.

Take care,
Annie

From: Eric Lalande <eric.lalande@rvca.ca>
Sent: Wednesday, July 14, 2021 1:55 PM
To: Annie Williams <awilliams@jlrichards.ca>
Subject: RE: 280 Laurier Avenue East - Stormwater Quality

Hi Annie,

The RVCA has reviewed the site plan provided. Based on this plan the RVCA would have no water quality control requirements. Best management practices are encouraged to be implemented where possible to encourage on-site protection and low impact design.

Thanks,

Eric Lalande, MCIP, RPP
Planner, RVCA
613-692-3571 x1137

From: Matt Jokiel <matt.jokiel@rvca.ca>
Sent: Friday, June 25, 2021 3:48 PM
To: Eric Lalande <eric.lalande@rvca.ca>; Hal Stimson <hal.stimson@rvca.ca>
Subject: FW: 280 Laurier Avenue East - Stormwater Quality

Hi all,

Please see below and attached.

Given the proposal, do either of you have any concerns to note? Please let me know if you would like me to respond direct to JL Richards, as I'd be happy to do so.

Take care, and enjoy the weekend.

Matt

From: LRC Info <info@lrconline.com>
Sent: Friday, June 25, 2021 3:43 PM
To: Matt Jokiel <matt.jokiel@rvca.ca>
Subject: FW: 280 Laurier Avenue East - Stormwater Quality

From: RVCA Info <info@rvca.ca>
Sent: Friday, June 25, 2021 3:27 PM
To: LRC Info <info@lrconline.com>
Subject: Fw: 280 Laurier Avenue East - Stormwater Quality

From: Annie Williams <awilliams@jlrichards.ca>
Sent: June 25, 2021 1:52 PM
To: RVCA Info <info@rvca.ca>
Cc: Jeremy@smartlivingproperties.ca <Jeremy@smartlivingproperties.ca>; Mahad Musse <mmusse@jlrichards.ca>
Subject: 280 Laurier Avenue East - Stormwater Quality

Good afternoon,

We are completing the detailed design for a proposed site plan located at 280 Laurier Avenue East in downtown Ottawa (see attached Site Plan). The redevelopment consists of constructing a 3-storey building addition to the east side of an existing 6-storey building. The new residential building addition would replace the current asphalt parking area, with rooftop stormwater storage being provided for the new building addition.

The existing building contains 40 residential units, while the proposed 3-storey addition will add 19 units, resulting in a total of 59 residential units. Currently, it appears that some stormwater runoff drains overland towards Laurier Avenue East (there is also an existing catch basin that picks up a low area at the basement stairs), while another portion of the runoff drains to an existing on-site catch basin which presumably outlets to Sweetland Avenue.

Based on the above description of the site and the accompanying site plan and considering that we are replacing an asphalt parking area with a building rooftop, we would like to confirm that the proposed project will not require any stormwater quality control measures.

Please let me know if you have any questions.

Thank you,
Annie

Annie Williams, P.Eng.
Civil Engineer

J.L. Richards & Associates Limited
700 - 1565 Carling Avenue, Ottawa, ON K1Z 8R1
Direct: 343-803-4523

J.L. Richards & Associates Limited
ENGINEERS • ARCHITECTS • PLANNERS

BEST MANAGED COMPANIES
Platinum member

J.L. Richards & Associates Limited is proactively doing our part to protect the wellbeing of our staff and communities while improving our communication technology. ***We are pleased to announce that we have implemented direct phone lines for all of our staff, allowing you to connect with us regardless of whether we are working remotely or in the office.*** *We are dedicated to delivering quality services to you through value and commitment, as always. Please reach out to us if you have any questions about your project.*

Annie Williams

From: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Sent: March 4, 2024 7:59 AM
To: Annie Williams
Cc: Mahad Musse; Kendra Tyhurst
Subject: RE: 282 Laurier

Hi Annie,

Thanks for confirming.

Best Regards,

Mohammed Fawzi, P.Eng.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 20120, Mohammed.Fawzi@ottawa.ca

Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me

---

From: Annie Williams <awilliams@jlrichards.ca>
Sent: March 1, 2024 2:39 PM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Cc: Mahad Musse <mmusse@jlrichards.ca>; Kendra Tyhurst <ktyhurst@jlrichards.ca>
Subject: RE: 282 Laurier

Hi Mohammed,

Thank you again for confirming the water service connection so quickly. We have specified the below on our drawing.

With regards to the proposed storm pipe in between the building footings, we do not expect this to be an issue because the pipe is only about 0.3m below the underside of footing and it is outside the zone of influence. We will add notes to our drawing to indicate that the Contractor shall take measures not to undermine the footing during the pipe trenching and install. They may elect to use a trench box or a steel plate, etc. We will also indicate that the pipe should be placed before the new building addition foundation is constructed.

Thank you,
Annie

Annie Williams, P.Eng.
Senior Civil Engineer

J.L. Richards & Associates Limited
1000-343 Preston Street, Ottawa, ON K1S 1N4
Direct: 343-803-4523

From: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Sent: Thursday, February 29, 2024 11:42 AM
To: Annie Williams <awilliams@jlrichards.ca>
Subject: RE: 282 Laurier

Hi Annie,

As discussed, the City prefers the watermain connection to be made using a tee fitting, therefore an isolated connection. The City will carry out the connection, and the existing watermain is to blanked and removed from the ROW.

That being said, can you also please let me know if there any concerns with respect to the storm lateral and its offset from the foundation. I am mainly concerned with undermining the existing or proposed foundation.

Thanks Annie.

Best Regards,

Mohammed Fawzi, P.Eng.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - Central Branch

City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 20120, Mohammed.Fawzi@ottawa.ca

Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me

---

From: Annie Williams <awilliams@jlrichards.ca>
Sent: February 29, 2024 9:32 AM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: 282 Laurier

Hi Mohammed,

Would you mind giving me a quick call this morning?

I am looking to confirm with you how exactly the water service is to be replaced (will it be a live or isolated connection? Will the City make the connection to existing? Will the existing service be blanked with the new installed beside?)

We were hoping to wrap up our resubmission documents today.

Thank you,
Annie

Annie Williams, P.Eng.
Senior Civil Engineer

J.L. Richards & Associates Limited
1000-343 Preston Street, Ottawa, ON K1S 1N4
Direct: 343-803-4523

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Appendix ‘C’

Background Drawings

BOREHOLE LEGEND

▨	ASPHALT	▨	SAND
▨	FILL	▨	ORGANICS
▨	CLAY	▨	WOOD
▨	CONCRETE	▨	CONC. & WOOD
▨	GRAVEL	▨	CLAY & SILT
▨	SILT	▨	SAND & SILT

LEGEND

▭	PROPOSED STORM SEWER
▨	PROPOSED SANITARY SEWER
▨	PROPOSED WATERMAIN
292 68.22	CIVIC ADDRESS/BASEMENT ELEV.
⊕ 94-1	BOREHOLE FROM SOILS REPORT BY JACQUES WHITFORD LTD. 1994
⊕ 88-19	BOREHOLE BY R.M.O.C. 1988
←	EX. SERVICE CONNECTION AS PER CCTV INSPECTION
○—	EX. SERVICE CONNECTION @ PIPE OBVERT AS PER CCTV INSPECTION
▥	CLAY SEEPAGE BARRIER

ELECTRICAL LEGEND

⊢(L1)	LIGHT FIXTURE C/W 2.4M ARM SUPPLIED, INSTALLED AND WIRED BY OTTAWA HYDRO
●(L2)	LIGHT FIXTURE C/W 2.4M ARM SUPPLIED, INSTALLED AND WIRED BY OTTAWA HYDRO. CONCRETE BASE BY GENERAL TRADES TO OTTAWA HYDRO DRAWING 5146-48 C/W GROUNDING
– – –	1-75mm CONCRETE ENCASED RIGID PVC DUCT BANK TO OTTAWA HYDRO DRAWING UG-3-16A
— – —	1-75mm RIGID PVC DUCT DIRECT BURIED UNDER SIDEWALK TO OTTAWA HYDRO DRAWING UG-3-16A
PP	RMOC TRAFFIC HANDHOLE DRAWING J-6-1
△G	GROUND ROD 19mm x 3.0M C/W EXOTHERMIC BOND AND BARE 2/0 CU CONNECTION TO POLE

NOTE: 1. ALL STREET LIGHT POLE BASES ARE TO BE INSTALLED AT THE BACK OF PROPOSED SIDEWALK.

2. STREET LIGHT BASES ARE TO BE INSTALLED AT THE FOLLOWING STATIONS (LAURIER AVE. EAST):

STATION	STATION
1+632.64 RT	1+710.28 RT
1+673.33 RT	1+737.12 RT
1+689.23 RT	

LICENSED PROFESSIONAL ENGINEER
S.D. BABB
Sept. 4/97
PROVINCE OF ONTARIO

DS-Lea Associates Ltd.
Consulting Engineers • Planners

NO.	REVISIONS	BY	DATE
1	Revised sewer profiles SA18 to SA20 and storm lateral in ST15	SB	7/30/97
2	Revised frame and cover type for CBMH68	SB	7/30/97
3	Added metal halide street light design prepared by Goodkey, Weedmark & Assoc.	SB	8/27/97
	ASBUILT	MT	01/00

Ottawa-Carleton

LAURIER AVENUE EAST
REHABILITATION
NELSON ST. TO CHARLOTTE ST.

GRADING AND DRAINAGE PLAN
STATION 1+600 TO STATION 1+750

J.M. MILLER, P.ENG.
Director Engineering Division

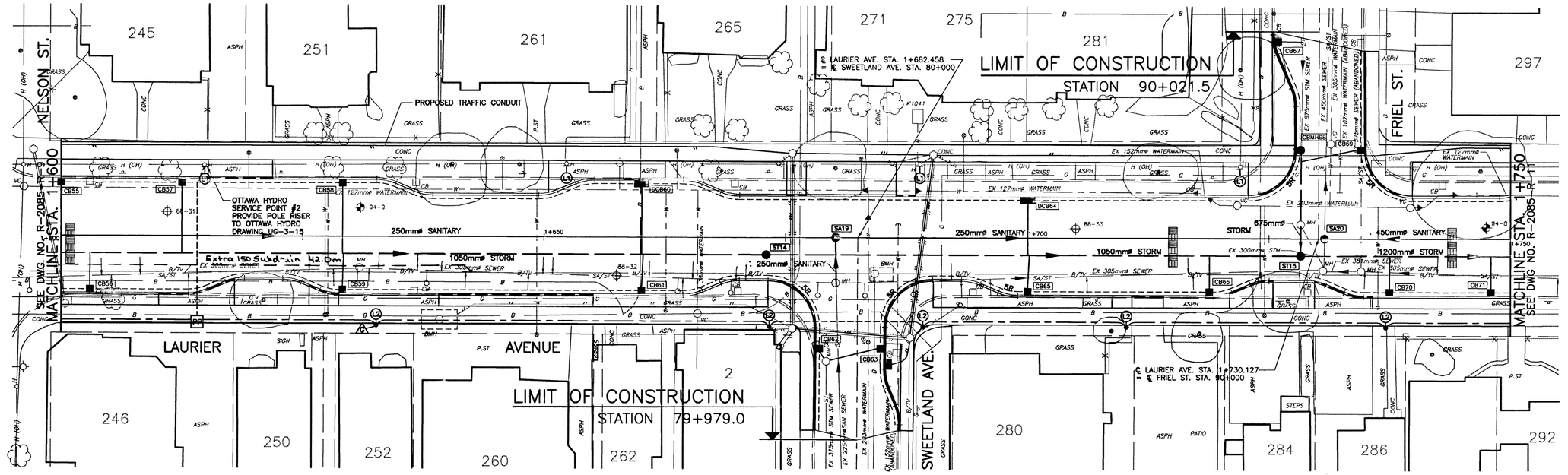
D. MARETT, P.ENG.
Mgr., Capital Core Area Projects Br.

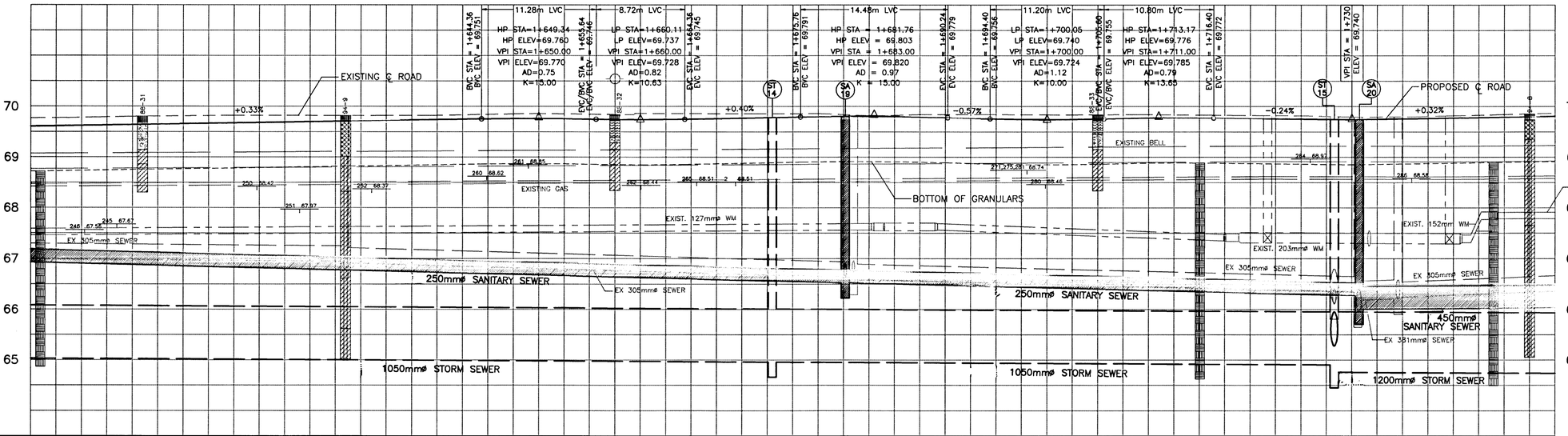
DWG. NO.
R-2085-R-10

SHEET 10 OF 51

CONTRACT NO.
97-507

Des: PK Chkd: SB
Dwn: GS Chkd: PK
Date: APRIL 1997
Scale: Hor 1:250
Vert 1:50





WATERMAIN													
SANITARY INVERT	83.5m-250mmø SAN. SEWER PVC-SDR 35 @0.50%					66.526 66.526	48.9 m-250mmø SAN. SEWER PVC-SDR 35 @0.50%				66.273 66.007	41.7m-450mmø SAN. SEWER PVC-SDR 35 @0.15%	
STORM INVERT	77.5m-1050mmø STM. SEWER CONC. CLASS 140 D @0.10%				64.959 64.959	54.5m-1050mmø STM. SEWER CONC. CLASS 140 D @0.10%				64.904 64.754	57.8m-1200mmø STM. SEWER CONC. CLASS 140 D @0.10%		
℄ PROFILE	69.637	69.670	69.704	69.737	69.759	69.737	69.768	69.802	69.781	69.740	69.772	69.764	69.740	69.772	69.803
TOP OF WATERMAIN													
STATION	1+600	1+625	1+650	1+675	1+682.46	1+700	1+725	1+730.13	1+750				

DWG. FRAME 790mm x 534mm RMOC-06/93-WG

CATCH BASIN DATA

NO.	STATION	OFFSET	TYPE	ELEVATION	
				T/GRATE	LOW/INV.
CB56	1+603.00	5.90 RT	OPSD 705.02	69.496	68.096
CB57	1+612.50	5.90 LT	OPSD 705.02	69.527	68.127
CB58	1+629.15	5.90 LT	OPSD 705.02	69.583	68.183
CB59	1+629.15	5.90 RT	OPSD 705.02	69.583	68.183
DCB60	1+660.11	5.90 LT	OPSD 705.01	69.619	68.219
CB61	1+660.11	5.90 RT	OPSD 705.02	69.619	68.219
DCB64	1+700.05	4.30 LT	OPSD 705.01	69.654	68.254
CB65	1+700.05	5.90 RT	OPSD 705.02	69.622	68.222
CB66	1+718.85	5.90 RT	OPSD 705.02	69.646	68.246
CB70	1+737.50	5.90 RT	OPSD 705.02	69.638	68.238
CB71	1+748.00	5.90 RT	OPSD 705.02	69.679	68.279

OFFSETS ARE FROM CENTRE LINE TO FACE OF CURB FOR CATCH BASINS

STORM MANHOLE DATA

NO.	STATION	OFFSET	TYPE	ELEVATION	
				T/GRATE	LOW/INV.
ST14	1+673.00	1.80 RT	1800øOPSD-701.02	69.745	64.959
ST15	1+728.28	1.80 RT	M-CON M5 *	69.708	64.754

* OR APPROVED EQUAL
OFFSETS ARE FROM CENTRE LINE TO CENTRE OF STRUCTURE

STORM SEWER DATA

SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION	
				UP STR.	DOWN STR.
ST14 TO ST15	1050	CL. 140 D	55.3m	64.959	64.904
CBMH68 TO ST15	675	CL. 140 D	11.0m	65.389	65.279
ST15 TO ST17	1200	CL. 140 D	58.5m	64.754	64.696

SANITARY MANHOLE DATA

NO.	STATION	OFFSET	TYPE	ELEVATION	
				T/GRATE	LOW/INV.
SA19	1+680.17	0.00	1200øOPSD-1001.01	69.802	66.526
SA20	1+730.75	0.00	1200øOPSD-1001.01	69.742	65.947

OFFSETS ARE FROM CENTRE LINE TO CENTRE OF STRUCTURE

SANITARY SEWER DATA

SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION	
				UP STR.	DOWN STR.
STUB TO SA19	250	PVC-SDR35	4.7m	66.700	66.653
SA19 TO SA20	250	PVC-SDR35	50.6m	66.526	66.273
SA21 TO SA20	450	PVC-SDR35	41.3m	66.069	66.007

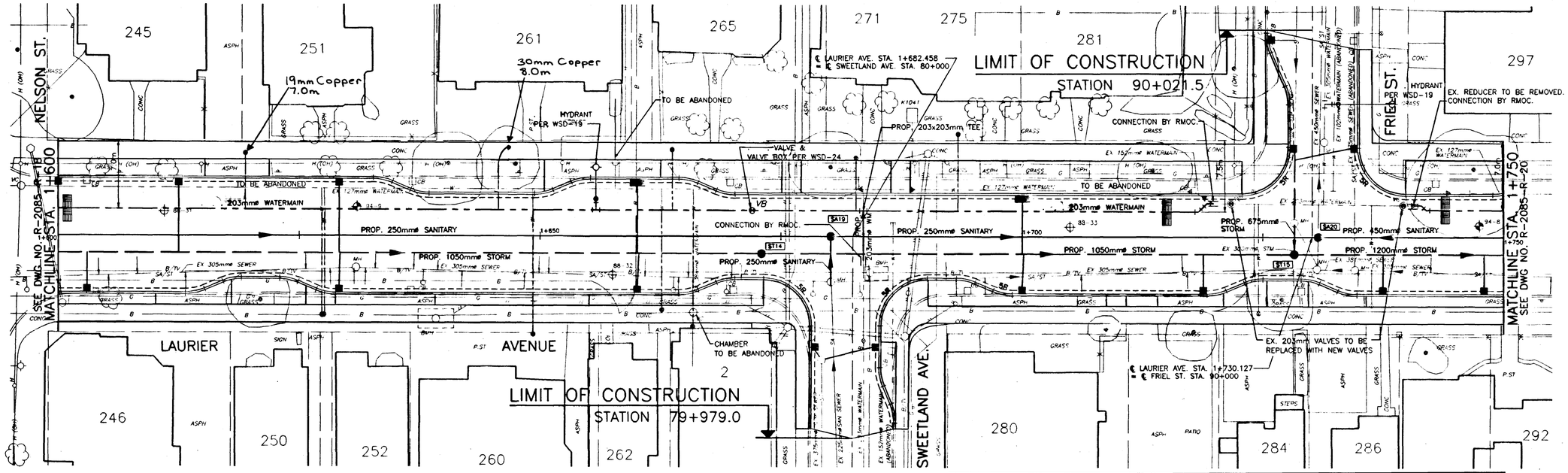
NOTES AND SPECIFICATIONS

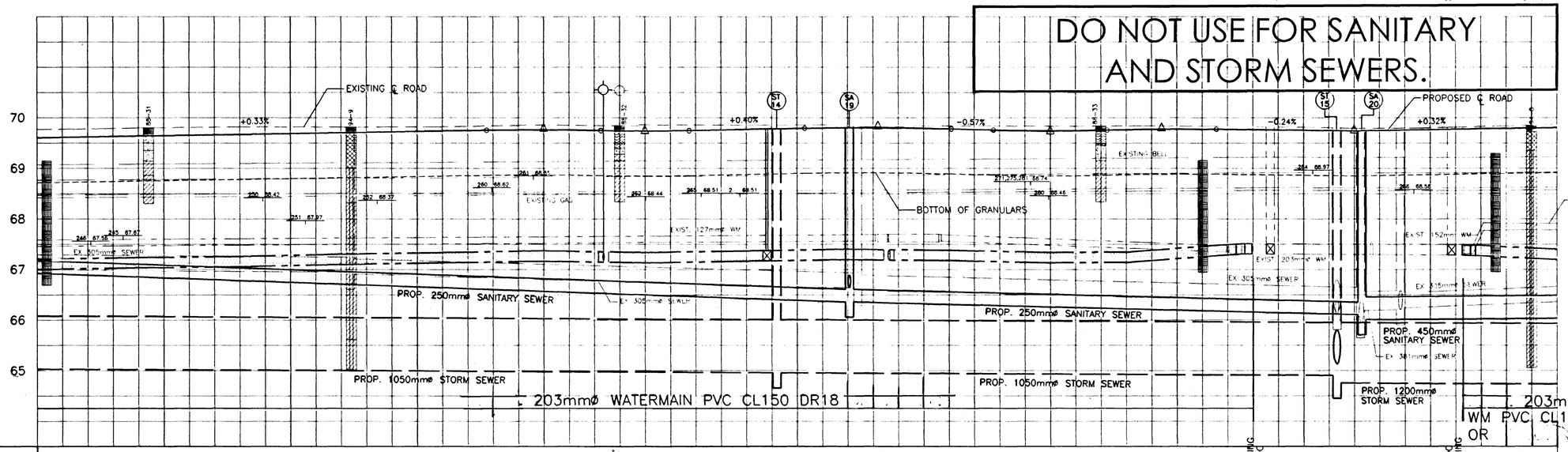
GENERAL

1. THE LOCATION OF UTILITIES IS APPROXIMATE ONLY, AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR IS RESPONSIBLE TO PROVE THE LOCATION AND STATUS OF UNDERGROUND UTILITY PLANT AND EQUIPMENT AND ENCASEMENT MATERIAL. THE CONTRACTOR IS TO TAKE NECESSARY PRECAUTIONS AND SHALL BE RESPONSIBLE TO PROVIDE ADEQUATE PROTECTION FOR PLANT AND EQUIPMENT FROM DAMAGE.
2. BOREHOLE LOCATIONS ARE APPROXIMATE ONLY. FOR FURTHER INFORMATION REFER TO GEOTECHNICAL INFORMATION IN JACQUES, WHITFORD LIMITED REPORT NO. 10551, DATED DECEMBER 6, 1994.
3. SOIL INFORMATION IS NOT GUARANTEED. CONTRACTORS ARE ADVISED TO COLLECT ADDITIONAL SOIL INFORMATION AS DEEMED NECESSARY.
4. MANHOLES AND VALVE CHAMBERS ON ABANDONED SEWERS AND WATERMAINS TO BE REMOVED TO BOTTOM OF SUBGRADE AND REMAINDER BACKFILLED WITH GRANULAR MATERIAL, AS SPECIFIED.
5. THE CONTRACTOR IS TO MAINTAIN TWO WAY TRAFFIC, AS SPECIFIED.
6. EXISTING TREES DESIGNATED TO BE RETAINED ARE TO BE PRESERVED AND PROTECTED DURING THE CONSTRUCTION PERIOD.
7. LIMITS OF GRADING MAY VARY FROM THAT INDICATED, DEPENDING ON FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.
8. WHERE AVAILABLE, EXISTING SERVICING INFORMATION TO PRIVATE PROPERTY HAS BEEN SHOWN.
9. PARKING METERS AND SIGNS TO BE REMOVED AND INSTALLED BY OTHERS.

STORM AND SANITARY SEWERS

1. EXISTING COMBINED SEWER IS TO BE ABANDONED AND REPLACED BY SEPARATE STORM AND SANITARY SEWERS AS SPECIFIED, WITHOUT SERVICE INTERRUPTION.
2. THE CONTRACTOR WILL BE REQUIRED TO LOCATE AND VERIFY THE STATUS OF EXISTING SERVICE PIPES. DYE TESTING OR OTHER METHODS (TO THE SATISFACTION OF THE ENGINEER) SHALL BE USED TO DETERMINE THE STATUS (ABANDONED, IN USE, SANITARY, STORM) AND/OR THAT THE EXISTING SERVICES ARE CONNECTED TO EXISTING BUILDINGS.
3. ALL STORM AND SANITARY SERVICES SHALL BE REPLACED TO PROPERTY LINE, OR FURTHER AS REQUIRED. TIE-IN LOCATION BEYOND PROPERTY LINE TO BE APPROVED BY THE ENGINEER. WHERE NEW STORM LATERALS ARE TO BE TERMINATED AT THE PROPERTY LINE, THEY SHALL BE CAPPED WITH A WATER TIGHT SEAL.
4. ALL CATCH BASINS TO HAVE A SUMP OF 0.6m (MINIMUM) (C/W 200mm LEAD) STORM MANHOLES TO HAVE 0.3m SUMP.
5. SUBDRAIN OUTLETS INTO CATCH BASINS OR MANHOLES SHALL BE LOCATED TO SUIT FIELD CONDITIONS.
6. ALL SEWERS TO HAVE CLASS "B" BEDDING, AND BACKFILL AS SPECIFIED. SEE COMMON TRENCH DETAIL.





BOREHOLE LEGEND

▨	ASPHALT	▨	SAND
▨	FILL	▨	ORGANICS
▨	CLAY	▨	WOOD
▨	CONCRETE	▨	CONC. & WOOD
▨	GRAVEL	▨	CLAY & SILT
▨	SILT	▨	SAND & SILT

LEGEND

PROPOSED STORM SEWER
PROPOSED SANITARY SEWER
PROPOSED WATERMAIN
292 68.22 CIVIC ADDRESS/BASEMENT ELEV.
94-1 BOREHOLE FROM SOILS REPORT BY JACQUES WHITFORD LTD. 1994
88-19 BOREHOLE BY R.M.O.C. 1988
EX. SERVICE CONNECTION AS PER CCTV INSPECTION
EX. SERVICE CONNECTION ● PIPE OBVERT AS PER CCTV INSPECTION
CLAY SEEPAGE BARRIER

Approved by:
J. VINCELLI
Manager of Engineering Services
Date:

LICENSED PROFESSIONAL ENGINEER
M.A. ROSS
22May'97
PROVINCE OF ONTARIO

DWN.: P.G. DES.: P.G.
CHKD.: M. ROSS P.ENG.
Date: OCTOBER/96

Ottawa-Carleton
Environmental and Transportation Department
WATER SYSTEM ONLY

DS-Lea Associates Ltd.
Consulting Engineers • Planners

NO.	REVISIONS	BY	DATE
	AS BUILT	MT	02/00

Ottawa-Carleton

LAURIER AVENUE EAST
REHABILITATION
NELSON ST. TO CHARLOTTE ST.
305&203mm WATERMAIN
STATION 1+600 TO STATION 1+750

J.M. MILLER P.Eng.
Director Engineering Division

DWG. NO.
R-2085-R-19
SHEET 19 OF 51
CONTRACT NO.
97-507
Des: PK Chkd: SB
Dwn: GS Chkd: PK
Date: APRIL 1997
Scale: Hor 1:250
Vert 1:50

DO NOT USE FOR SANITARY AND STORM SEWERS.

CATCH BASIN DATA					
NO.	STATION	OFFSET	TYPE	ELEVATION T/GRATE	LOW/INV.
CB56	1+603.00	5.90 RT	OPSD 705.02	69.496	68.096
CB57	1+612.50	5.90 LT	OPSD 705.02	69.527	68.127
CB58	1+629.15	5.90 LT	OPSD 705.02	69.583	68.183
CB59	1+629.15	5.90 RT	OPSD 705.02	69.583	68.183
DCB60	1+660.11	5.90 LT	OPSD 705.01	69.619	68.219
CB61	1+660.11	5.90 RT	OPSD 705.02	69.619	68.219
DCB64	1+700.05	4.30 LT	OPSD 705.01	69.654	68.254
CB65	1+700.05	5.90 RT	OPSD 705.02	69.622	68.222
CB66	1+718.85	5.90 RT	OPSD 705.02	69.646	68.246
CB70	1+737.50	5.90 RT	OPSD 705.02	69.638	68.238
CB71	1+748.00	5.90 RT	OPSD 705.02	69.679	68.279

OFFSETS ARE FROM CENTRE LINE TO FACE OF CURB FOR CATCH BASINS

STORM MANHOLE DATA					
NO.	STATION	OFFSET	TYPE	ELEVATION T/GRATE	LOW/INV.
ST14	1+673.00	1.80 RT	1800øOPSD-701.02	69.745	64.959
ST15	1+728.28	1.80 RT	M-CON M5 •	69.708	64.754

• OR APPROVED EQUAL
OFFSETS ARE FROM CENTRE LINE TO CENTRE OF STRUCTURE

STORM SEWER DATA					
SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION UP STR.	DOWN STR.
ST14 TO ST15	1050	CL. 140 D	55.3m	64.959	64.904
CBMH68 TO ST15	675	CL. 140 D	11.0m	65.349	65.129
ST15 TO ST17	1200	CL. 140 D	58.5m	64.754	64.696

SANITARY MANHOLE DATA					
NO.	STATION	OFFSET	TYPE	ELEVATION T/GRATE	LOW/INV.
SA19	1+680.17	0.00	1200øOPSD-1001.01	69.802	66.360
SA20	1+730.75	0.00	1200øOPSD-1001.01	69.742	65.947

OFFSETS ARE FROM CENTRE LINE TO CENTRE OF STRUCTURE

SANITARY SEWER DATA					
SEWER	DIA.	TYPE	LENGTH	INVERT ELEVATION UP STR.	DOWN STR.
STUB TO SA19	250	PVC-SDR35	4.7m	66.700	66.653
SA19 TO SA20	250	PVC-SDR35	50.6m	66.360	66.107
SA21 TO SA20	450	PVC-SDR35	41.3m	66.069	66.007

NOTES AND SPECIFICATIONS

WATERMAIN ONLY

1-ALL WATERMAIN MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE R.M.O.C. STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.

2-ALL CONNECTIONS OF NEW WM TO EXIST. WM AND ALL BLANKINGS OF EXIST. MAINS AND SERVICES SHALL BE PERFORMED BY R.M.O.C. FORCES. THE CONTRACTOR SHALL PROVIDE EXCAVATION, BACKFILL AND REINSTATEMENT.

3-RESTRAINING RINGS AND THRUST BLOCKING SHALL BE UTILIZED ON ALL BENDS, TEES AND PLUGS IN ACCORDANCE WITH THE LATEST EDITION OF THE R.M.O.C. STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.

4-ALL COPPER SERVICES (19mm TO 51mm) SHALL BE INSTALLED BY R.M.O.C. STAFF AFTER THE WM HAS BEEN SUCCESSFULLY DISINFECTED.

5-ALL NEW WATER SERVICES SHALL BE INSTALLED AT 2.4m COVER.

6-ALL WATER SERVICES THAT CONFLICT WITH SANITARY AND STORM SEWERS AT CROSSINGS SHALL BE INSTALLED UNDER THE SEWERS UNLESS OTHERWISE DIRECTED BY THE R.M.O.C. PROJECT MANAGER.

7-THE PROPOSED WM SHALL BE INSULATED AT SPECIFIED LOCATIONS AS PER R.M.O.C. SPECIFICATION WSD-22.

8-A MINIMUM 2m SEPARATION IS REQUIRED BETWEEN ALL NEW WATER SERVICES AND CATCHBASINS OR OPEN STRUCTURES AND SHALL BE INSULATED PER R.M.O.C. SPECIFICATION WSD-23 AS APPLICABLE.

9-A MINIMUM 2m SEPARATION IS REQUIRED BETWEEN ALL NEW HYDRANTS AND CATCHBASINS OR OPEN STRUCTURES AND SHALL BE INSULATED PER R.M.O.C. SPECIFICATION WSD-23 AS APPLICABLE.

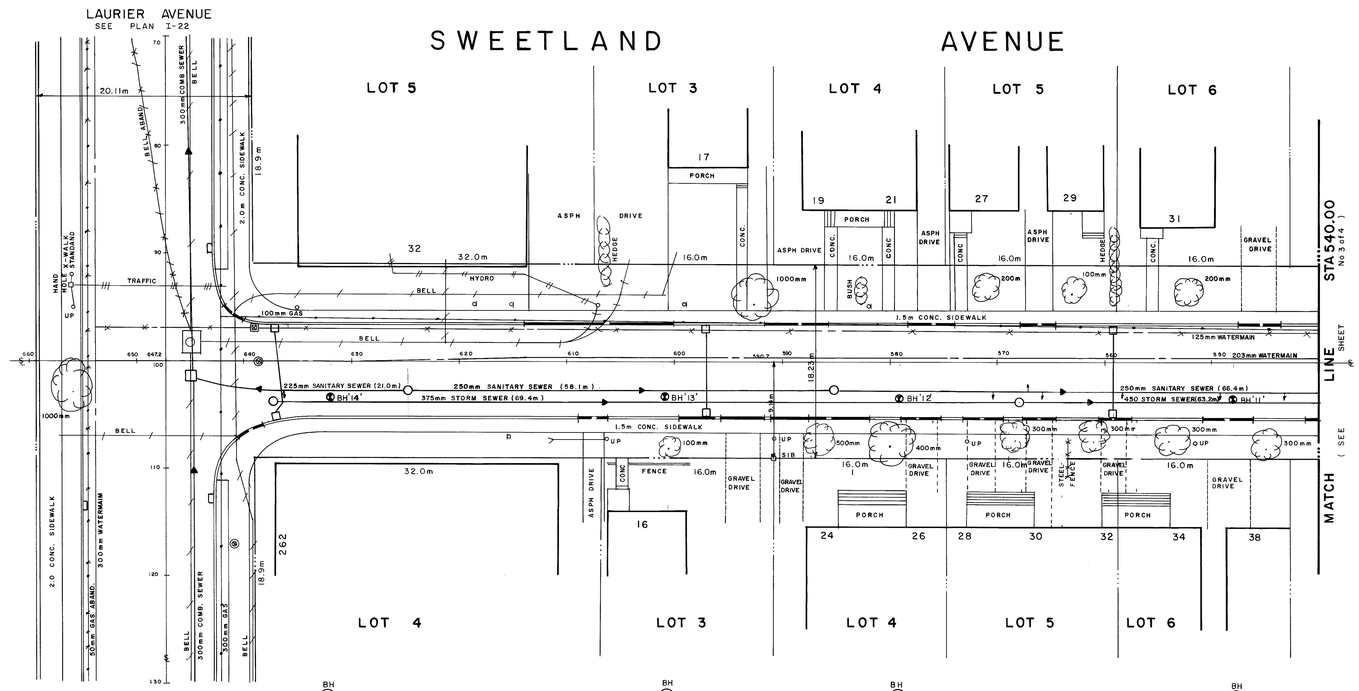
10-THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE VIA EXCAVATION THE EXACT LOCATION AND ELEVATION OF THE EXISTING WATERMAINS AS REQUIRED FOR ALL CONNECTIONS, RELOCATIONS AND BLANKING.

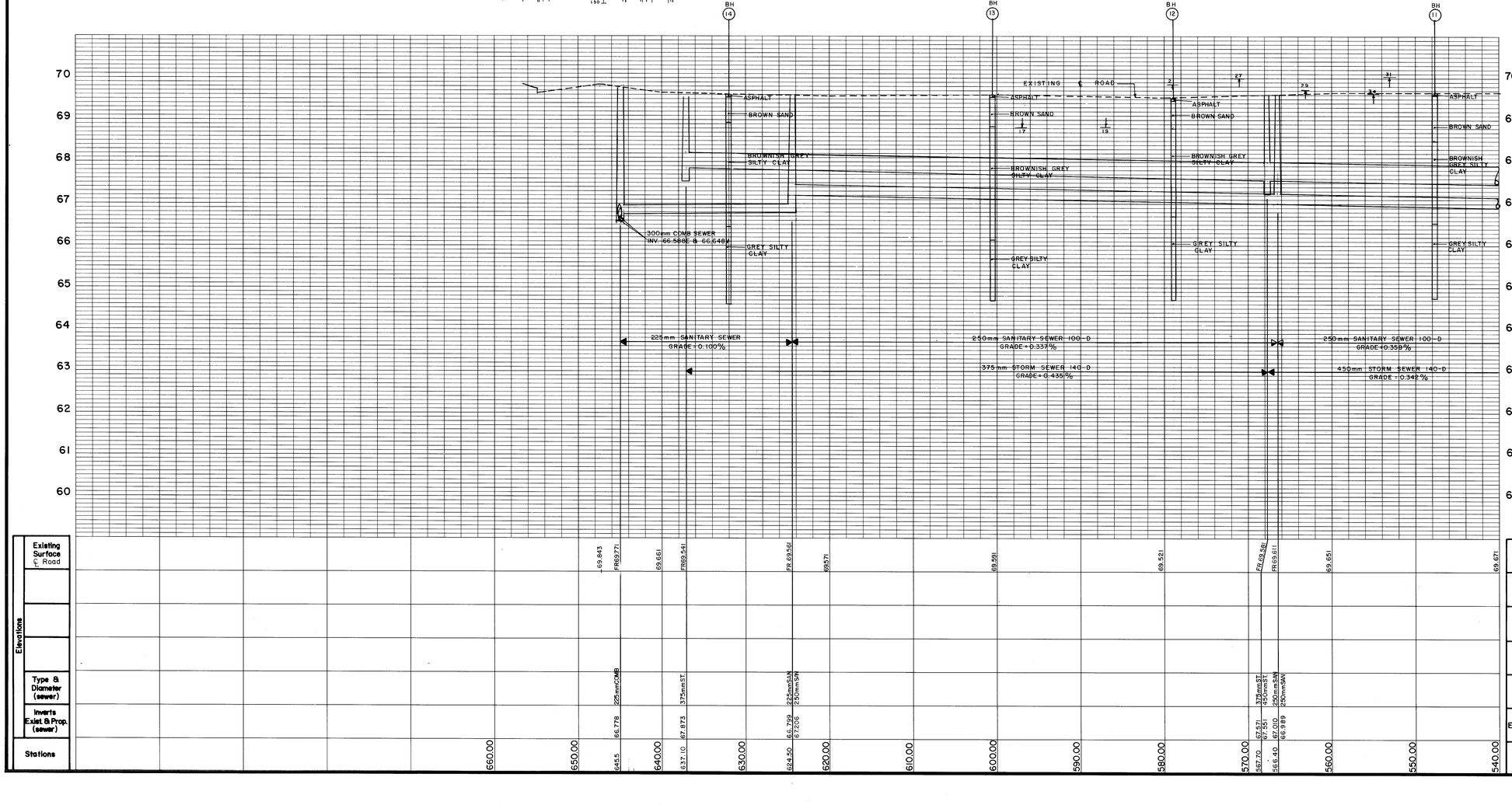
11-SOIL INFORMATION, IF SHOWN, IS NOT GUARANTEED. CONTRACTORS ARE ADVISED TO COLLECT ADDITIONAL SOIL INFORMATION AS DEEMED NECESSARY.

12-REINSTATEMENT SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF THE LOCAL MUNICIPAL AUTHORITY, OR AS SPECIFIED.

5027

2350 SWEETLAND AVENUE 4of4





Elevations	Existing Surface ℄ Road	Type & Diameter (sewer)	Inverts Exist & Prop. (sewer)	Stations
	69.843 FR69.771	225mmCOMB	66.778	645.5
	69.661 FR69.541	375mmST	67.873 637.10	640.00
				630.00
	FR69.536	225mmSAN 250mmSAN	66.799 67.206	624.50 620.00
	69.571			610.00
	69.591			600.00
	69.521			590.00
				580.00
	FR69.592	375mmST 450mmST	67.571 67.551	570.00 567.70
	FR69.611	250mmSAN	67.010 66.989	566.40 560.00
	69.651			550.00
	69.671			540.00

Revisions:

No.	Date	Description	Drawn By	Appr'd By

Final Measurements:

Construction Type: STORM, SANITARY SEWERS & ROAD	Inspector: K. ROGERS
Work Commenced: JULY 1990	Instrumentman: B. MONGEON
Work Completed: NOV. 1990	Field Book #: 5175, 5176
Contractor: GREENBELT	Date: NOV. 1990
Drafting Revisions: J.H. GIRARD	Checked By

Designed By: P. HOWE	Date: APRIL 1990	Structural Check By	Date
Survey Detail By: R. MONGEON	Date: OCT. 1989	Checked By	Date
Drafting By: J.H. GIRARD	Date: MARCH 1990	Checked By	Date

Chief Design & Const. Eng. W.D. TAYLOR — Senior Const. Coord.

Notes:

- Utilities shown are taken from best available records. Contractor is requested to check with all utility companies before digging.
- Soil information shown is not guaranteed and contractors are advised to collect additional soils information as deemed necessary.
- Reference bench mark:
- Proposed storm and sanitary sewers may be constructed in a common trench provided that a minimum horizontal distance of 460mm is maintained between outside barrels of pipe.
- All pipes shall conform to the Canadian Standards Association A257.2 (CSA) reinforced concrete sewer pipe with approved rubber gaskets.
- A minimum of 460 mm vertical clearance to be maintained between sewers and watermains where practical.
- Borehole soil descriptions are not based on sieve analysis but on visual inspection only, except where otherwise noted.
- Soil information taken from:
- Date of television inspection:
- This plan supercedes (in whole or in part) plan no:
- Actual rock line recorded during construction of existing sewer.
- Registered plan no.:
- Caution, while illustrations and utilities shown are taken from best available information, they cannot be guaranteed.
- See additional notes on sheet # 1

City of Ville d' Ottawa

Department Of Engineering And Works
Engineering Branch
Design And Construction Division
1600 SCOTT STREET · OTTAWA ONTARIO · K1Y 4N7

Commissioner	Branch Director
C. Sim P. Eng.	W.R. Cole P. Eng.

SWEETLAND AVENUE
FROM SOMERSET STREET TO LAURIER AVENUE

Contract No.:	Survey Books:	Scales:	Plan No:
90-15	5090, 5091	HOR. 1:250 VERT. 1:50	2350 Sheet 4 of 4

Appendix ‘D1’

Water Demand Calculations

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : 282 LAURIER
LOCATION : CITY OF OTTAWA
DEVELOPER : SMART LIVING PROPERTIES

NODE	RESIDENTIAL UNITS						POP'N	NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			PEAK HOUR DEMAND (l/s)		
	Bachelor	1-Bedroom	2-Bedroom	3-Bedroom	4-Bedroom	Total Units		COMM. (ha.)	INST. (ha.)	Park	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total
280 Laurier																			
Existing Building	29	11	0	0	0	40	56	0.00	0.00	0.00	0.19	0.00	0.19	1.37	0.00	1.37	2.07	0.00	2.07
Proposed Addition	12	0	2	3	1	18	33	0.00	0.00	0.00	0.11	0.00	0.11	0.79	0.00	0.79	1.20	0.00	1.20
TOTALS	**41**	**11**	**2**	**3**	**1**	**58**	**89**	**0.00**	**0.00**	**0.00**	**0.30**	**0.00**	**0.30**	**2.17**	**0.00**	**2.17**	**3.27**	**0.00**	**3.27**

ASSUMPTIONS

RESIDENTIAL DENSITIES

- Bachelor & 1-Bedroom 1.4 p / p / u
- 2-Bedroom 2.1 p / p / u
- 3 & 4*-Bedroom 3.1 p / p / u

*No density provided for 4-Bedroom apartments, assumed to be the same as 3-Bedroom

AVG. DAILY DEMAND

- Residential 280 l / cap / day

PEAKING FACTORS

- Maximum Day Peaking Factor 7.22 x Avg Day (Table 3-3, MOE 2008)
- Peak Hour Peaking Factor 10.88 x Avg Day (Table 3-3, MOE 2008)

TABLE 3-3, MOE 2008

Eq Pop	Mx Day	Pk Hr
30	9.5	14.3
150	4.9	7.4

Appendix ‘D2’

Hydraulic Boundary Conditions
– Email Correspondences

Mahad Musse

From: Annie Williams
Sent: February 26, 2024 9:36 PM
To: Mahad Musse
Subject: Fwd: 280 Laurier - Updated Boundary Conditions
Attachments: 280 Laurier Avenue E February 2024.pdf

From: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Sent: Friday, February 23, 2024 1:52:56 PM
To: Annie Williams <awilliams@jlrichards.ca>
Cc: Kendra Tyhurst <ktyhurst@jlrichards.ca>
Subject: 280 Laurier - Updated Boundary Conditions

Hi Annie,

As promised by the end of the week!

The following are boundary conditions, HGL, for hydraulic analysis at 280 Laurier Avenue East (zone 1W) assumed to be connected to 203mm watermain on Sweetland Avenue (see attached PDF for location).

Minimum HGL: 106.1 m

Maximum HGL: 115.4 m

Max Day + Fire Flow (150 L/s): 105.8 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Have a great weekend.

Best Regards,

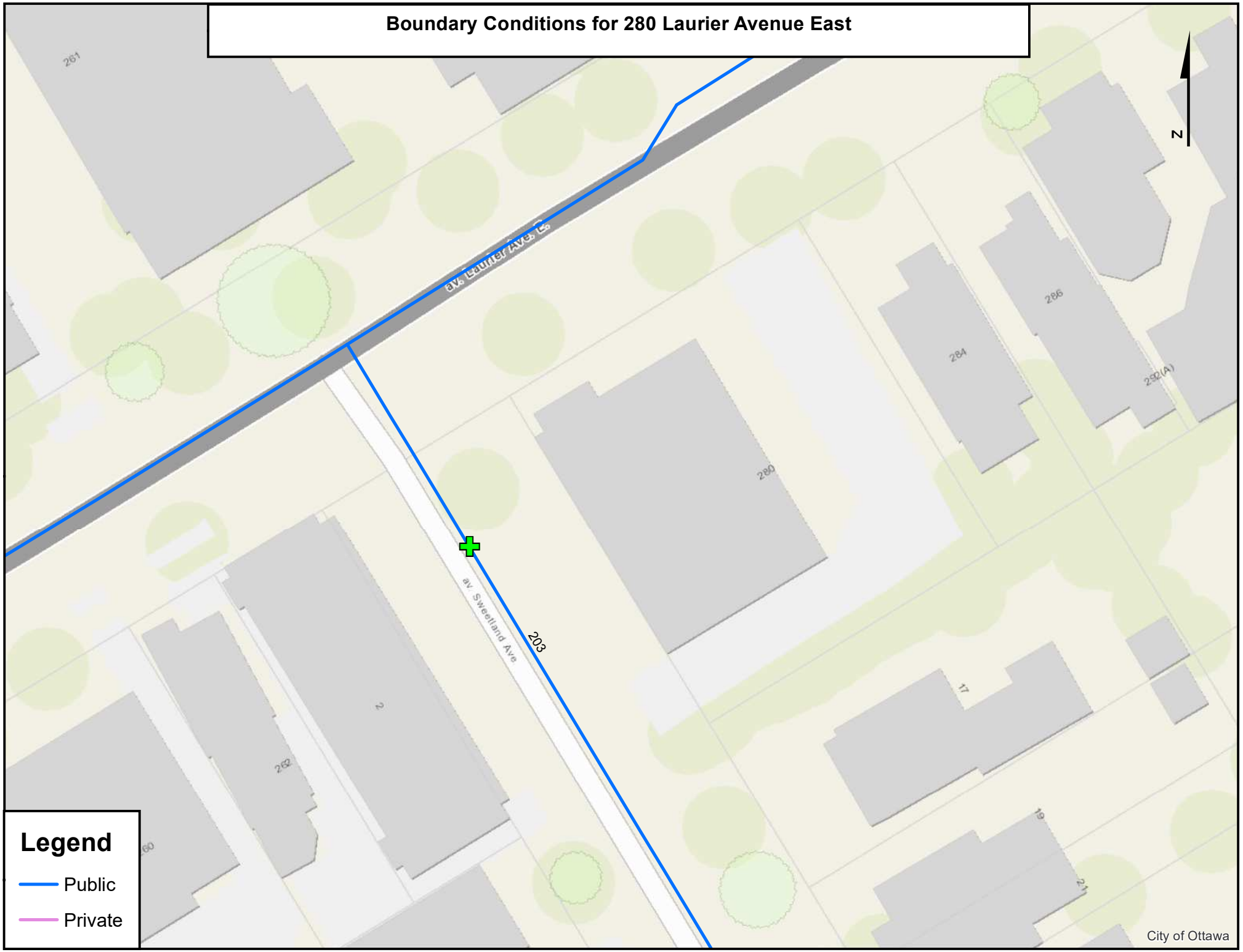
Mohammed Fawzi, P.Eng.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 20120, Mohammed.Fawzi@ottawa.ca

Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me

'

'

Boundary Conditions for 280 Laurier Avenue East



Appendix ‘D3’

Fire Flow Requirements

RA | REDLINE ARCHITECTURE

From: Levent Tatar
VIA EMAIL: info@redlinearchitecture.ca

Annie Williams
J.L. Richards & Associates Limited
700-1565 Carling Avenue, Ottawa, ON K1Z 8R1

February 26, 2024

Re: 280 Laurier Ave.

This letter is to confirm the following performance standards for water supply for public fire protection to the proposed 4 storey addition to existing 6 storey residential project at 280 Laurier Avenue.

1) Type of Construction / Construction Coefficient / Building Frame: Wood Frame Construction

2) Occupancy Coefficient and Combustibility Content: Limited Combustible

If you have any further concerns or questions feel free to contact me.

Thank you,

Levent Tatar
Redline Architecture INC
613-618-9620
www.redlinearchitecture.ca

ONTARIO ASSOCIATION OF ARCHITECTS
LEVENT TATAR
LICENCE
9542

Jain

February 29, 2024

Annie Williams
J.L. Richards & Associates Limited
700-1565 Carling Avenue
Ottawa, ON
K1Z 8R1

Re: **280 Laurier, Ottawa, Ontario**
JSC Project No.: 22-219

This is to confirm that sprinkler system in building will be automatic and fully supervised according with NFPA and OBC, Part 3.

Fire protection will include the standpipe system, designed and installed according to OBC, Part 3.2.9 and NFPA 14.

Yours very truly,

D. Jain, M.Eng., M.B.A., P.Eng., C.E.M., L.A.P.

Jain Sustainability Consultants Inc.
7405 East Danbro Crescent,
Mississauga, Ontario, L5N 6P8 Canada

(905) 285-9900
(905) 567-5246
mail@jainconsultants.com
www. jainconsultants.com

FUS Fire Flow Calculations

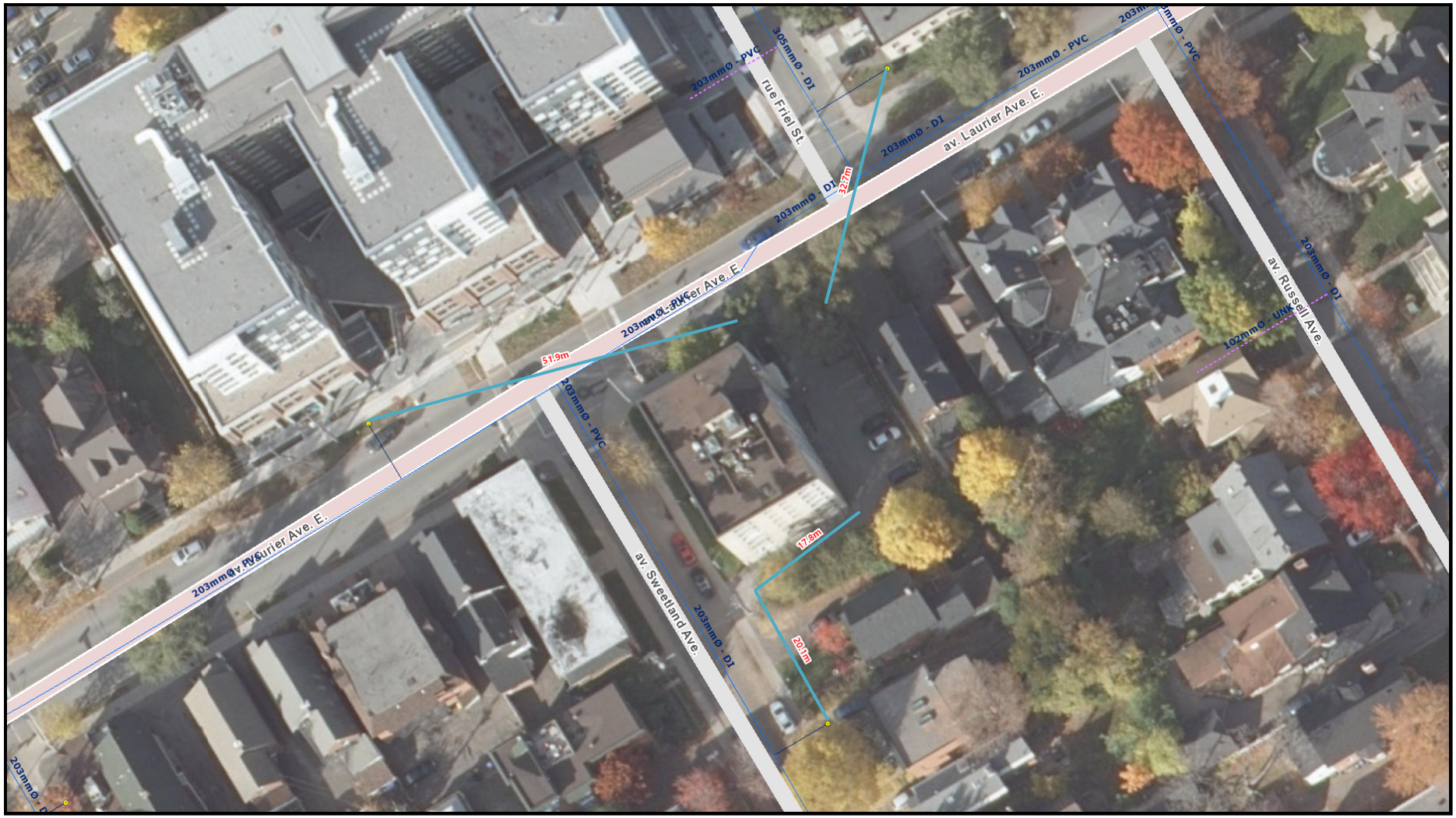
282 Laurier - Apartment

(JLR 31383-000)

Step	Parameter	Value		Note
A	Type of Construction	Wood Frame		
	Coefficient (C)	1.5		
B	Floor Area	193.6	m^2	From Site Plan
C	Height in storeys	4	storeys	100% of Floors 1,2,3. Basement is excluded.
	Total Floor Area	774	m^2	
D	Fire Flow Formula	F=220C√A		
	Fire Flow	9183	L/min	
	Rounded Fire Flow	9000	L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Limited Combustible		Mid-Rise Residential
	Occupancy Charge	-15%		
	Occupancy Increase or Decrease	-1350		
	Fire Flow	7650	L/min	No rounding applied.
F	Sprinkler Protection	Automatic Fully Supervised		
	Sprinkler Credit	-50%		
	Decrease for Sprinkler	-3825	L/min	
G	*South Side Exposure*			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	8.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	24.0	m-storeys	
	Separation Distance	11.92	m	
	South Side Exposure Charge	12%		
	West Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Non-combustible		
	Length of Exposed Wall:	22.5	m	
	Height of Exposed Wall:	6	storeys	
	Length-Height Factor	135.0	m-storeys	
	Separation Distance	0	m	
	West Side Exposure Charge	25%		
	North Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	8.5	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	25.5	m-storeys	
	Separation Distance	20	m	
	North Side Exposure Charge	12%		
	East Side Exposure			
	Exposing Wall:	Wood Frame		
	Exposed Wall:	Wood Frame		
	Length of Exposed Wall:	13.0	m	
	Height of Exposed Wall:	3	storeys	
	Length-Height Factor	39.0	m-storeys	
	Separation Distance	3.72	m	
	East Side Exposure Charge	18%		
	Total Exposure Charge	67%		The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	5126	L/min	
H	Fire Flow	8951	L/min	
	Rounded Fire Flow	9000	L/min	Flow rounded to nearest 1000 L/min.
City Cap	**Required Fire Flow (RFF)**	**9000**	**L/min**	The City of Ottawa's cap does not apply since the building is a mid-rise apartment.
		150	**L/s**	

Fire Underwriters Survey (FUS) Fire Flow Calculations

In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018


av. Laurier Ave. E.
av. Laurier Ave. E.
av. Laurier Ave. E.
rue Friel St.
av. Sweetland Ave.
av. Russell Ave.
203mmØ - PVC
305mmØ - DI
203mmØ - DI
203mmØ - PVC
203mmØ - DI
203mmØ - PVC
203mmØ - DI
203mmØ - PVC
203mmØ - DI
102mmØ - UNK
32.1m
51.9m
17.8m
20.1m

Appendix ‘D4’

Headloss Calculations

J.L. Richards & Associates Limited

HEAD LOSS - HAZEN-WILLIAMS

282 Laurier - Apartment
(JLR 31383-000)

Boundary Conditions (Email from City, Feb 26 2024):

Water Demand Scenario	Demands (L/s)	Head (m) on Sweetland Avenue
Peak Hour	3.27	106.1
Maximum HGL	0.00	115.4
Max Day + FF (FUS)	150.00	105.8

Water Demands

Water Demand Scenario	Demands (L/s)
Average Day	0.30
Maximum Day	2.17
Peak Hour	3.27
Max Day + FF (FUS)	152.17
Addition Sprinkler	15.77

Headloss Calculations (Hazen Williams Equation)

Hazen Williams equation (Mays, 1999; Streeter et al., 1998; Viessman and Hammer, 1993)
where k=0.85 for meter and seconds units or 1.318 for feet and seconds units:

$$H = L\left[\frac{V}{kC}\left(\frac{4}{D}\right)^{0.63}\right]^{1/0.54} \qquad V = \frac{Q}{A} \qquad A = \frac{\pi}{4}D^2$$

Where,

HL = Headloss (m)

Q - Flow (m^3/s)
L - Length (m)
C - Hazen Williams "C"
D - Watermain Diameter (m)
V - Velocity (m/s)
A - Watermain Cross-Sectional Area (m^2)

280 Laurier Avenue E. Headloss Calculations

Water Demand Condition	Flow (Q) (L/s)	Flow (Q) (m^3/s)	Length (m)	C	D (m)	V (m/s)	A (m^2)	Head Loss (m)	HGL (m)	Calculated HGL (m) (after Headlosses)	Elevation (m) at 280 Laurier	Pressure @ Node (m)	(kPa)	(psi)	ODG 4.2.2 Requirement	Criteria Acheived?
Peak Hour (100 mm WM Service to Building)	3.27	0.00327	9	100	0.108	0.357	0.00916	0.02414	106.100	106.076	71.72	34.356	337	48.9	276 kPa	Yes
Max HGL (100 mm WM Service to Building)	0.00	0.00000	9	100	0.108	0.000	0.00916	0.00000	115.400	115.400	71.72	43.680	429	62.1	552 kPa	Yes
MDD+FF (100 mm WM Service to Building)	17.94	0.01794	9	100	0.108	1.959	0.00916	0.56489	105.800	105.235	71.72	33.515	329	47.7	140 kPa	Yes

Appendix ‘E’

Sanitary Design Sheet

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Smart Living Properties
282 LAURIER AVENUE EAST

SANITARY SEWER DESIGN SHEET
JLR NO. 31383-000

DESIGNED BY: MM
CHECKED BY: AW
2023-12-21

Maintenace Hole No.		Residential										Infiltration			Peak Design Flow L/s	Pipe Data								Upstream Geometry				Downstream Geometry			
From	To	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	4 Bedroom	Area (ha)	Pop.	Cum. Pop.	Cum. Area (ha)	Peaking Factor	Residential Flow (L/s)	Area (ha)	Cum. Area (ha)	Peak Extr. Flow L/s		Dia	Type	Slope	Q Full (L/s)	V Full	Length	Residual Capacity	% Full	TG From	Obvert	Invert	Cover	TG To	Obvert	Invert	Cover
OUTLET TO SWEETLAND AVENUE																															
280 Laurier Building	Sweetland Connection	41	11	2	3	1	0.0494	89	89	0.0494	3.61	1.04	0.0494	0.0494	0.02	1.06	200	Circular	1.0%	34.2	1.1	11.3	33.2	3%	69.71	67.56	67.36	2.15	69.56	67.45	67.25	2.11
Sweetland Connection	Sweetland Downstream MH							0	89	0.0494	3.61	1.04	0.00	0.0494	0.02	1.06	250	Circular	0.3%	36.4	0.7	54.5	35.3	3%	69.56	67.45	67.20	2.11	69.58	67.26	67.01	2.32
Outlet to Sweetland Ave:							0.0494						0.0494			1.06															

Design Parameters		
Bachelor Population =	1.4	ppu
1 Bedroom Population =	1.4	ppu
2 Bedroom Population =	2.1	ppu
3 & 4** Bedroom Population =	3.1	ppu
Residential Flows =	280	L/cap/day
Harmon Pk Factor =	0.8	
Infiltration Flows =	0.33	L/s/ha
Manning's Coefficient N =	0.013	

*Assuming 12 hrs/day operation
**No density provided for 4- bedroom apartments, assumed to be same as 3-bedroom

Legend	
	Building Service Lateral

Existing INV at Sanitary Connection to Sweetland	67.20
Existing Sanitary INV at Downstream MH	67.01

Appendix ‘F1’

Storm Design Sheet

J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

Smart Living Properties
282 LAURIER AVENUE EAST

DESIGNED BY: MM
CHECKED BY: AW
2024-03-08

STORM SEWER DESIGN SHEET
JLR NO. 31383-000

Street Name	Maintenace Hole No.		1:5 Year Storm		Total Areas	Total Area (ha)	Cum. Total Area (ha)	Inlet Time (min.)	In Pipe Flow Time (min)	Total Time	1:5 Year Peak Flow				Total Peak Flow	Pipe Data									Upstream Geometry					Downstream Geometry					
	From	To	0.20	0.90	1:5 Yr						2.78AR	Cum. 2.78AR	1:5 Yr Intensity	Peak Flow		REQ'D DIA.	REQ'D ACTUAL DIA.	Type	Actual Diameter	Slope	Q Full (L/s)	V Full	Length		% Full	TG From	Obvert	Invert	Springline Elev	Cover	TG To	Drop	Obvert	Invert	Springline Elev	Cover
OUTLET TO SWEETLAND AVENUE																																	
ON SITE	Roof Outlet	Tee Connection 1		0.0214	0.0214	0.0214	0.0214	10.00	0.03	10.03	0.05	0.05	104.19	5.59	5.59	150	152.4	Circular	152.40	1.0%	15.89	0.90	1.4	10.30	35%	69.92	68.03	67.88	67.95	1.89	68.48		68.02	67.87	67.94	0.46
ON SITE	CB2	Trench Drain		0.0029	0.0029	0.0029	0.0029	10.00	0.14	10.14	0.01	0.01	104.19	0.77	0.77	150	152.4	Circular	152.40	0.5%	11.23	0.64	5.5	10.47	7%	68.53	68.06	67.91	67.98	0.47	68.48		68.03	67.86	67.95	0.45
ON SITE	Trench Drain	Tee Connection 1			0.0000	0.0000	0.0029	10.14	0.07	10.21	0.00	0.01	103.44	0.76	0.76	150	152.4	Circular	152.40	0.5%	11.23	0.64	2.6	10.47	7%	68.48	68.03	67.88	67.95	0.45	69.92		68.02	67.87	67.94	1.90
ON SITE	Tee Connection 1	CB1			0.0000	0.0000	0.0244	10.21	0.08	10.29	0.00	0.06	103.08	6.29	6.29	150	152.4	Circular	152.40	0.5%	11.23	0.64	3.0	4.95	56%	69.92	68.02	67.87	67.94	1.90	69.70		68.00	67.85	67.93	1.70
SWEETLAND AVENUE	CB1	Ex. Tee Connection	0.0117	0.0053	0.0169	0.0169	0.0413	10.29	0.35	10.65	0.02	0.08	102.68	8.28	8.28	200	203.2	Circular	203.20	0.5%	25.14	0.80	17.0	16.86	33%	69.70	68.05	67.85	67.95	1.65	69.52		67.96	67.76	67.86	1.56
SWEETLAND AVENUE	Ex. Tee Connection	Downstream MH			0.0000	0.0000	0.0413	10.65	0.67	11.31	0.00	0.08	100.90	8.14	8.14	375	381	Circular	381.00	0.4%	120.26	1.09	43.6	112.12	7%	69.52	68.14	67.76	67.95	1.38	69.55		67.95	67.57	67.76	1.60

Existing Invert at Sweetland Connection	67.76
Existing Invert at Downstream MH on Sweetland	67.57

Appendix ‘F2’

Existing Peak Flow and
Allowable Peak Flow
Calculations

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280 Laurier
Exisitng Peak Flow Calculations

Guidance on Approach to Estimate Allowable Peak Flow and SWM Calculations:

1 Allowable peak flow shall be estimated based on a 1:2 year intensity and based on a C-Factor of 0.5.
2 The 1:2-year intensity shall be calculated based on IDF statistics (per the OSDG).
3 Time of Concentration (Tc) calculated based on current conditions. Tc shall not be less than 10 mins.
4 Foundation drains are to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.
5 At direction of City (refer to Appendix B), proposed roof is to be controlled to 1:2 year rate at proposed building area and the rest of site to flow uncontrolled to existing sewers.
6 Roof drains are to be connected downstream of any incorporated ICD within the SWM system.

Pre-Development Calculations (Proposed Building Area)

1:2 Year Pre-Development Rate

Type of Area	Area (ha)	C-Factor	C-Factor (Eff)
Pavement	0.02000	0.9	
Grass	0.00000	0.2	
Total	0.02000	0.90	0.50

Time of Concentration (existing):

Flow Path: Given size of site, the time of concentration will be significantly less than 10 mins. Therefore the minimum Tc = 10 min is used in calculations

Total Tc,	<<10 minutes	
Total Tc, (existing)	10.00 minutes	** min Tc = 10 minutes
$Intensity_{(2yr)}$ (I) =	76.81 mm/hr	

Allowable Peak Flow (2 Yr) Calculations (C-Factor = 0.50)

$Q2_{yr} = 2.78CAI$
$Q2_{yr} = (2.78) \times (0.50) \times (0.02\ ha) \times (76.81)$
$Q2_{yr} =$ 2.14 L/s

Appendix ‘F3’

Stormwater Management
Calculations

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280 Laurier
Allowable Peak Flow & SWM Calculations

Post-Development Drainage Areas

To Laurier Ave. E. 1050 mm dia. Storm Sewer			
Description	**Area (ha)**	**C-Factor (5 yr)**	**C-Factor (100 yr)**
Pavers/Hard Surface	0.00290	0.90	0.90
SOD	0.00336	0.20	0.25
--	-	-	-
Total	0.00625	0.52	0.55

To Sweetland Ave. 375 mm dia. Storm Sewer			
Description	**Area (ha)**	**C-Factor (5 yr)**	**C-Factor (100 yr)**
Roof Top of Proposed 3-Storey	0.02000	0.90	0.90
Pavement/Hard Surface	0.01355	0.90	0.90
SOD	0.00963	0.20	0.25
Total	0.04318	0.74	0.76

SWM Calcs for Areas Tributary to Laurier Ave. E. 1050 mm dia. Storm Sewer

Uncontrolled Sheet Flow to Laurier Avenue E.	
Paved Area (m2)	29.0
SOD Area (m2)	33.6
Total Area (m2)	62.5
C Factor (100 Yr)	0.55
Storage Volume (m3)	0.00

Time (min)	Intensity 1:100 Yr (mm/hr)	Qp 1:100 Yr (L/s)	Qp ICD (L/s)	Qp stored (L/s)	Max Volume Requirement (m^3)	Qp CCE (L/s)	Qp stored (L/s)	Volume CCE Requirement (m^3)	Qp CCE - Qp100yr (L/s)
10	178.56	1.71	N/A	N/A	N/A	2.05	N/A	N/A	0.34
15	83.56	0.80	N/A	N/A	N/A	0.96	N/A	N/A	0.16
20	70.25	0.67	N/A	N/A	N/A	0.81	N/A	N/A	0.13
25	60.90	0.58	N/A	N/A	N/A	0.70	N/A	N/A	0.12
30	53.93	0.52	N/A	N/A	N/A	0.62	N/A	N/A	0.10
35	48.52	0.46	N/A	N/A	N/A	0.56	N/A	N/A	0.09
40	44.18	0.42	N/A	N/A	N/A	0.51	N/A	N/A	0.08
45	40.63	0.39	N/A	N/A	N/A	0.47	N/A	N/A	0.08
50	37.65	0.36	N/A	N/A	N/A	0.43	N/A	N/A	0.07
55	35.12	0.34	N/A	N/A	N/A	0.40	N/A	N/A	0.07
60	32.94	0.32	N/A	N/A	N/A	0.38	N/A	N/A	0.06
65	31.04	0.30	N/A	N/A	N/A	0.36	N/A	N/A	0.06
70	29.37	0.28	N/A	N/A	N/A	0.34	N/A	N/A	0.06

The 1:100 year event of 1.71 L/s and CCE of 2.05 L/s will sheet flow uncontrolled to Laurier Ave East Trunk Sewer.

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280 Laurier
Allowable Peak Flow & SWM Calculations

SWM Calcs for Areas Tributary to Sweetland Ave. 375 mm dia. Storm Sewer

Roof Top of Proposed 3-Storey	
Roof Top Area (sq-m)	200.00
C Factor (100 Yr)	0.90
Roof Flow (L/s)	2.14
Available Storage Volume (m3)	17.4

Time (min)	Intensity 1:100 Yr (mm/hr)	Qp 1:100 Yr (L/s)	Qp Rooftop ICD (L/s)	Qp stored (L/s)	Max Volume Requirement (m^3)	Qp CCE (L/s)	Qp stored (L/s)	Volume CCE Requirement (m^3)	Qp CCE - Qp100yr (L/s)
10	178.56	8.94	2.14	6.80	4.08	10.72	8.59	5.15	1.79
15	142.89	7.15	2.14	5.02	4.51	8.58	6.45	5.80	1.43
20	119.95	6.00	2.14	3.87	4.64	7.20	5.07	6.08	1.20
25	103.85	5.20	2.14	3.06	4.59	6.24	4.10	6.15	1.04
30	91.87	4.60	2.14	2.46	4.43	5.52	3.38	6.09	0.92
35	82.58	4.13	2.14	2.00	4.19	4.96	2.82	5.93	0.83
40	75.15	3.76	2.14	1.63	3.90	4.51	2.38	5.71	0.75
45	69.05	3.46	2.14	1.32	3.56	4.15	2.01	5.43	0.69
50	63.95	3.20	2.14	1.07	3.20	3.84	1.71	5.12	0.64
55	59.62	2.98	2.14	0.85	2.80	3.58	1.45	4.77	0.60
60	55.89	2.80	2.14	0.66	2.38	3.36	1.22	4.40	0.56
65	52.65	2.63	2.14	0.50	1.95	3.16	1.03	4.00	0.53
70	49.79	2.49	2.14	0.36	1.50	2.99	0.85	3.59	0.50

The following assumptions were made in regard to rooftop configuration:

Roof Top of Proposed 3-Storey	
Rooftop flow (L/s)	2.14
Area of Roof (m2) (from Architect)	193.6
60% of roof for storage (m2)	116.2
Vol. @ 0.15 m ponding (m3)	17.4

The SWM Calculations show rooftop storage volume requirements of 4.64m3 under the 1:100 year event.

Uncontrolled Flow to Sweetland Avenue	
Paved Area (m2)	135.5
SOD Area (m2)	96.3
Total Area (m2)	231.8
C (weighted 100 Yr)	0.63

Time (min)	Intensity 1:100 Yr (mm/hr)	Qp 1:100 Yr (L/s)	Qp 200 mm (L/s)	Qp stored (L/s)	Max Volume Requirement (m^3)	Qp CCE (L/s)	Qp stored (L/s)	Volume CCE Requirement (m^3)	Qp CCE - Qp100yr (L/s)
10	178.56	7.25	N/A	N/A	N/A	8.70	N/A	N/A	1.45
15	142.89	5.80	N/A	N/A	N/A	6.96	N/A	N/A	1.16
20	119.95	4.87	N/A	N/A	N/A	5.84	N/A	N/A	0.97
25	103.85	4.21	N/A	N/A	N/A	5.06	N/A	N/A	0.84
30	91.87	3.73	N/A	N/A	N/A	4.47	N/A	N/A	0.75
35	82.58	3.35	N/A	N/A	N/A	4.02	N/A	N/A	0.67
40	75.15	3.05	N/A	N/A	N/A	3.66	N/A	N/A	0.61
45	69.05	2.80	N/A	N/A	N/A	3.36	N/A	N/A	0.56
50	63.95	2.60	N/A	N/A	N/A	3.11	N/A	N/A	0.52
55	59.62	2.42	N/A	N/A	N/A	2.90	N/A	N/A	0.48
60	55.89	2.27	N/A	N/A	N/A	2.72	N/A	N/A	0.45
65	52.65	2.14	N/A	N/A	N/A	2.56	N/A	N/A	0.43
70	49.79	2.02	N/A	N/A	N/A	2.42	N/A	N/A	0.40

The 1:100 year event of 7.25 L/s and CCE of 8.70 L/s will sheet flow uncontrolled to Sweetland Avenue Trunk Sewer.

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