Robinson
Land Development

Servicing & Stormwater Management Report

551 Riverdale Avenue
Ottawa, ON

Prepared For:

JSS Riverdale Holdings Inc.

Prepared By:

Robinson Land Development

Project No. 25042
Version 1
July 2026

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LEGAL NOTIFICATION

This report was prepared by Robinson Land Development for the account of **JSS Riverdale Holdings Inc.**

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. **Robinson Land Development** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project

1.0 INTRODUCTION

Robinson Land Development have been retained by JSS Riverdale Holdings Inc. to prepare detailed servicing and stormwater management designs in support of the proposed residential development located at 551 Riverdale Avenue in the City of Ottawa. The subject site is bound by Riverdale Avenue to the west, residential properties to the north and south, and the Rideau River to the east (refer to **Figure 1.0 – Key Plan** following page 1).

This report will detail the proposed means of servicing the site and will provide details on how the stormwater management requirements will be achieved in accordance with current City of Ottawa guidelines.

2.0 GUIDELINES, STUDIES AND REPORTS

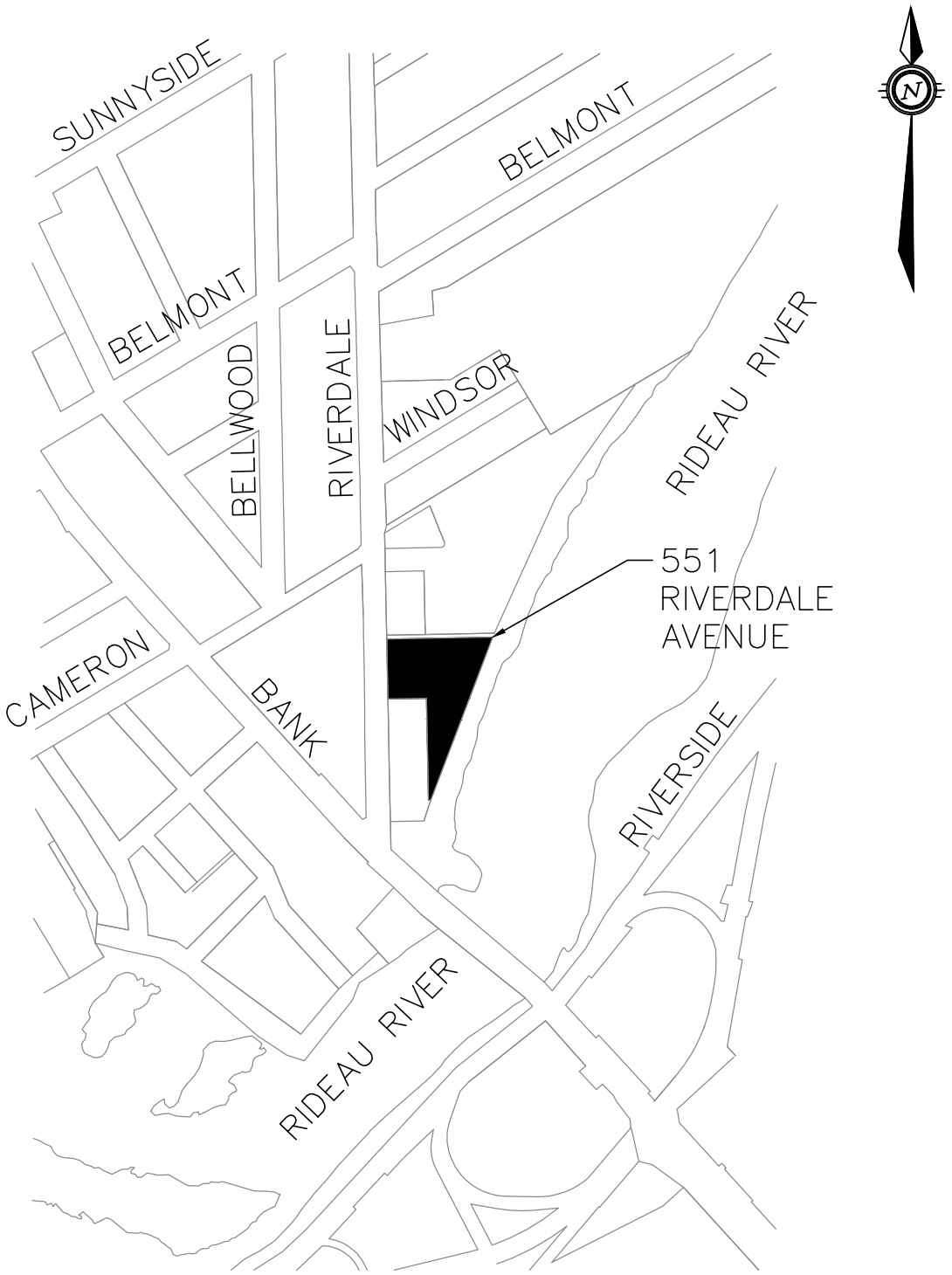
The servicing and stormwater management designs for the subject site have been prepared in keeping with the following documents:

- **Sewer Design Guidelines**, City of Ottawa, December 2025 (herein referred to as OSDG).
- **Water Distribution Design Guidelines**, City of Ottawa, May 2026 (herein referred to as OWDG).
- **Design Guidelines for Sewage Works**, Ministry of the Environment, 2008 (herein referred to as MECP Design Guidelines).
- **Design Guidelines for Drinking-Water Systems**, Ministry of the Environment, 2008 (herein referred to as MECP Water Design Guidelines).
- **Stormwater Planning and Design Manual,** Ministry of the Environment, March 2003 (herein referred to as MECP SWM Design Guidelines).
- **Water Supply for Public Fire Protection**, Fire Underwriters Survey, 2020 (herein referred to as FUS Guidelines).
- **Ontario Building Code Compendium**, Ministry of Municipal Affairs and Housing Building Development Branch, June 27, 2025 (herein referred to as OBC).
- **Geotechnical Investigation**, Paterson Group, March 11, 2025.

A pre-consultation meeting was held with the City of Ottawa on November 20, 2025 to discuss requirements for the proposed development. The pre-consultation meeting feedback has been provided under **Appendix A** for reference.

3.0 EXISTING CONDITIONS

The subject property is 0.47 hectares in area and is currently zoned Neighbourhood Zone 4 (N4B). The property contains three existing multi-unit townhouse buildings located along the western, northern, and eastern perimeters of the site. An internal asphalt surface parking area is accessed via an entrance connection to Riverdale Avenue. An existing multi-use pathway which runs parallel to the river, is located on the City owned lands to the east. The existing pathway is located atop a berm feature which provides floodproofing for the low-lying lands to



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scale N.T.S.	551 RIVERDALE AVENUE, OTTAWA	project no. 25042
date 16/07/26		
drawn by BLM	KEY PLAN	FIG 1.0

the west. Refer to **Figure 2.0** below for an aerial view of the site under its current development state.

Figure 2.0: Existing Conditions

The subject property is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). Much of the developed site is located within the mapped area of reduced flood risk which has a geodetic elevation of 59.22 metres ("orange" contour). The regulatory floodplain is located along the eastern bank of the City owned berm which has a 100-year geodetic elevation of approximately 58.89 metres ("blue" contour). Refer to **Figure 3.0** below for the limits of the RVCA mapping.

Figure 3.0: RVCA Mapping

The City of Ottawa have indicated that the 350-year water elevation for the Rideau River at the upstream reach of the subject site (cross-section 7994) is 59.04 metres. Refer to Rideau River water elevations under **Appendix A**.

The topography of the property generally slopes in an easterly direction towards the Rideau River. Refer to the Topographic Plan of Survey prepared by Farley, Smith & Denis Surveying Ltd. under **Appendix A** for more details.

4.0 DEVELOPMENT PROPOSAL

The Owner is proposing to redevelop the subject site to accommodate a new 4-storey residential apartment building with provision for 92 units ranging from 1-bedroom to 3-bedroom. A new driveway connection to Riverdale Avenue will provide vehicular access to the site. Most of the site's parking will be provided within an underground parking garage accessed via a covered entrance to the building. The proposed redevelopment includes a new asphalt pathway connection to the existing multi-use pathway system running along the Rideau River and has also incorporated outdoor amenity areas. Refer to the Site Plan, prepared by M. David Blakely Architect Inc., under **Appendix B** for more details.

The City of Ottawa is proceeding with an integrated road, sewer and water rehabilitation project along Riverdale Avenue to address the aging underground infrastructure. The reconstruction required for this work provides an opportunity to upgrade the design of surface elements such as sidewalks, cycling facilities and traffic calming measures. As part of the advanced planning for the project, the City is carrying out a functional design exercise to confirm the scope of work for the roadway and transportation elements along Riverdale Avenue [source: Ottawa.ca]. The City of Ottawa have been consulted regarding the proposed redevelopment and staff have provided a plan showing the functional design of Riverdale Avenue between Bank Street and Main Street (refer to **Appendix A**). Across the frontage of the subject site, the functional design has incorporated a 2.2 metre wide layby, an asphalt bike lane and a concrete sidewalk. The redevelopment of the subject site will need to consider both the existing and future conditions of the Riverdale Avenue right-of-way, however, it is anticipated that the redevelopment work will precede the detailed design of Riverdale Avenue.

As noted under **Section 3.0**, much of the site is located within the mapped area of reduced flood risk which has a geodetic elevation of 59.22 metres. The 350-year water elevation of the Rideau River at the upstream reach of the site is 59.04 metres. The finished floor elevation of the proposed building is set at 59.98 metres which provides a freeboard of 0.76 metres above the reduced flood risk elevation and a freeboard of 0.94 metres above the 350-year water elevation. The finished grade around the perimeter of the building varies based on localized grading. The minimum proposed perimeter grade of the building is set at 59.60 metres which provides a freeboard of 0.38 metres above the reduced flood risk elevation and a freeboard of 0.56 meters above the 350-year water elevation. Adequate freeboard has been provided to passively floodproof the development and address climate change concerns. Refer to the Grading Plan (DWG. 25042-GR1) and Floodplain Confirmation Plan (DWG. 25042-FP1) provided under **Appendix B**.

The proposed site has been graded to tie into original ground along the property boundaries, along the critical root zones (CRZs) of trees to be retained, and/or along the limits of hazard lands, whichever governs. Where terracing is required, the maximum surface slope will be 3H:1V in accordance with City of Ottawa standards (with exception of the proposed retaining wall along the western boundary). The grading design has considered the recommendations from the Geotechnical Investigation which indicates that the site will not be subjected to grade raise restrictions due to the absence of sensitive silty clay deposits.

The site will be serviced with new water, sanitary and storm infrastructure via connections to the existing municipal systems as detailed in the sections below.

5.0 WATER SERVICING

5.1 Existing System

The subject site is located within the 1W pressure zone. Existing municipal watermains are available in proximity to the site as follows:

- A 152mm diameter UCI watermain on the west side of the Riverdale Avenue right-of-way.

The existing municipal watermain distribution system increases to a 406mm diameter watermain north of Bank Street. As part of the Riverdale integrated renewal project (refer to **Section 4.0**) the existing 152mm diameter watermain system will be abandoned and the 406mm diameter watermain will be extended north from Bank Street. No further details on the integrated renewal are known at this time.

Based on topographic survey data (refer to **Appendix A**), the existing on-site buildings receive water supply via two existing water service connections (size unknown) to the existing 152mm diameter watermain on Riverdale Avenue. The existing water services will be blanked at the municipal watermain in accordance with current City standards. Refer to the Riverdale Avenue Plan and Profile drawings under **Appendix A** for more details.

5.2 Proposed System

The proposed redevelopment of the site will require a new connection to the municipal watermain distribution system for domestic water supply and fire protection. In accordance with the current OWDG, individual residential facilities with basic day demands greater than 50 m^3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area (VSA). Since the basic day demands will exceed 50 m^3/day, twin 152mm diameter water service connections (separated by an isolation valve) will be provided. The primary water service will also provide water supply to an on-site private hydrant (as discussed under **Section 5.8**). The proposed watermain network is shown on the Servicing Plan (DWG. 25042-S1) provided under **Appendix B**.

The elevation and horizontal separation of the existing infrastructure along Riverdale Avenue will require the proposed water services to cross above the existing municipal sanitary sewer. The City's current standard drawing for a watermain crossing over a sewer (i.e. W25.2; dated January 2026) requires a minimum barrel to barrel separation of 500mm at the crossing location. Given the shallow depth of the municipal sanitary sewer (<1.9m), it is proposed to reduce the separation distance to 250mm to maximize the cover depth over the proposed water services, in keeping with the City's standard separation prior to January 2026. A typical section for the crossing has been provided on the Servicing Plan (DWG. 25042-S1) under **Appendix B**.

5.3 Design Criteria

The following design criteria have been implemented for the subject site in accordance with the current OWDG:

- Basic Day (BSDY) Demand 280 L/person/day (OWDG; Table 4.2)

- Maximum Day (MXDY) Demand — BSDY x 4.6 — (MECP; Table 3-3)
- Peak Hour (PKHR) Demand — BSDY x 7.0 — (MECP; Table 3-3)
- Apartment Population Densities — (OWDG; Table 4.1)
  - 1-Bedroom — 1.4 persons/unit
  - 2-Bedroom — 2.1 persons/unit
  - 3-Bedroom — 3.1 persons/unit
- Roughness Coefficient — (OWDG; Table 4.3)
  - 152mm diameter pipe — 100
- Minimum Pressure — 40 psi — (OWDG; S4.2.2.1)
- Maximum Pressure — 80 psi — (OWDG; S4.2.2.3)

As per Section 4.2.8 of the OWDG, *Table 3-3* of the MOE Design Guidelines for Drinking-Water Systems should be used to determine peaking factors for populations between 0 to 500 persons.

5.4 Water Demands

Domestic water demands have been calculated for the subject site in accordance with the OWDG and have been summarized in the table below:

Table 5.1: Domestic Water Demands

Basic Day Demand (L/s)	Basic Day Demand (m^3/day)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)
0.59	50.7	2.70	4.10

Notes:
1. BSDY = 280 L/person/day
2. MXDY = BSDY x 4.6
3. PKHR = BSDY x 7.0

Refer to the water demand calculations provided under **Appendix C** for more details.

5.5 Fire Flows

The total required fire flow for the subject site has been calculated in accordance with the current OWDG *Appendix J* (formerly IWSTB-2024-05). In accordance with the guidelines, the required fire flow shall first be calculated based on OBC *Appendix A-3.2.5.7* as follows:

- Water Supply Coefficient (K) — 18 — (OBC Table 1)
- Total Building Volume (V) — 25,370 m^3 — (A x H)
- Total of Spatial Coefficient (S_{TOT}) — 2.0 — (OBC Figure 1)
- Minimum Supply of Water (Q) — K x V x S_{TOT}
- Type of Construction — Combustible (with fire resistance ratings)
- Group Classification — Group C

The water supply coefficient (K) is derived from OBC Table 1. Through correspondence with the Architect, is has been confirmed that the proposed building will be classified as Group C, combustible with fire resistance ratings in accordance with *Subsection 3.2.2* of the OBC, which returns a K value of 18.

The total building volume has been calculated to be 25,370 m^3 based on dimensions provided by the Architect. Refer to correspondence with Architect under **Appendix C**.

The total of spatial coefficient (S_{TOT}) is interpolated from OBC *Figure 1* based on exposure distances measured from the proposed building. Where a building has exposures on more than one side, the percentage increase in the fire protection water supply should be totaled to reflect all exposure protection requirements. Note that the total of spatial coefficient need not exceed a value of 2.0. The spatial coefficients for each side of the building are summarized below:

$S_{side\ 1}$ = 0.50 (exposure distance of 3.4m measured to the west property line)
$S_{side\ 2}$ = 0.20 (exposure distance of 9.5m measured to centreline of Riverdale Avenue)
$S_{side\ 3}$ = 0.50 (exposure distance of 3.0m measured to the east property line)
$S_{side\ 4}$ = 0.20 (exposure distance of 8.0m measured to the south property line)
S_{TOT} = 1.0 + (0.50 + 0.20 + 0.50 + 0.20) = 2.4 > 2.0

S_{TOT} = 2.0

Minimum Supply of Water (Q) = K x V x S_{TOT}

Q = (18) x (25,370 m^2) x (2.0) = 913,320 L

The required minimum water supply flow rate can be derived from OBC *Table 2*. For a minimum supply of water of 913,320 L, the required minimum water supply flow rate is 9,000 L/min. Refer to supporting calculations under **Appendix C**. In accordance with the OWDG *Appendix J*, where a pressurized hydrant is available and the required minimum water supply flow rate is 9,000 L/min (or greater), the required fire flow shall also be calculated using FUS guidelines.

The total required fire flow has been calculated in accordance with the FUS guidelines using the following input parameters:

- Type of Construction — Ordinary Construction (Type III)
- Effective Floor Area — 100% of all floor areas
- Occupancy Class — Limited Combustible
- Sprinkler Protection — Automatic sprinkler protection
Full supervision of sprinkler system
Water supply is standard for system and hose lines
- Exposure Distances — Separations as per Site Plan

The exposure charge on the south side of the building is based on a proposed building footprint submitted for the property located at 559 Riverdale Avenue. The status of the building permit is unknown but has been used since it provides a higher exposure charge than the existing building. Using the parameters above, the total required fire flow has been calculated to be **13,000 L/min**. Refer to supporting calculations and **Figure 4.0: Exposures for Fire Flow** under **Appendix C** for more details.

5.6 Boundary Conditions

A boundary condition request was made to the City of Ottawa based on the anticipated domestic water demands and required fire flow calculated above. Due to the limitations of the existing 152mm diameter watermain at the frontage of the property a multi-hydrant analysis was also requested (refer to **Appendix C**). The multi-hydrant analysis assumes that the three nearest hydrants to the site are running simultaneously. The results of the boundary conditions are summarized in the table below.

Table 5.2: Boundary Conditions

Minimum HGL (m)	Maximum HGL (m)	Available Fire Flow*1 (L/s)	Available Fire Flow*1 (L/min)
105.1	114.6	221	13,260

Notes:
1. Available fire flow assuming three hydrants running simultaneously:
   a. Hydrant 368027H022 (152mm watermain on Riverdale Avenue)
   b. Hydrant 368028H080 (152mm watermain on Cameron Avenue)
   c. Hydrant 368027H075 (406mm watermain on Bank Street)

5.7 Hydraulic Analysis

Using the boundary conditions provided by the City, the anticipated pressures at the building have been assessed under minimum and maximum HGL conditions. The anticipated pressures relative to the proposed ground floor elevation are summarized in the table below.

Table 5.3: Anticipated Pressures at Building

Condition	Pressure (psi)
Minimum HGL	64.2
Maximum HGL	77.7

Notes:
1. FF = 59.98 m
2. Pressure = (HGL – FF) x (1.42187)

As shown in the table above, the minimum pressure at the building under the minimum HGL condition is well above the desired minimum operating pressure of 50 psi and therefore is accordance with the current OWDG. The maximum pressure at the building under the maximum HGL condition is below the desired maximum operating pressure of 80 psi and therefore a pressure reducing valve (PRV) is not required. Given that the proposed services are less than 17.0 metres in total length, losses in the system are anticipated to be minimal and further hydraulic analysis is not warranted.

The multi-hydrant analysis provided by the City indicates that the available fire flow in the existing municipal distribution system is 13,260 L/min (refer to **Section 5.6**). Since this value exceeds the total required fire flow of 13,000 L/min (refer to **Section 5.5**) it has been demonstrated that there is adequate fire flow available to provide fire protection for the proposed building.

5.8 Hydrant Coverage

In accordance with current OWDG, the aggregate fire flow capacity of all contributing fire hydrants within 150 m of a building shall not be less than the required fire flow. The contribution to the required fire flow is dependent on the distance from the hydrant to building being considered. A flow of 5,700 L/min should be assigned to all hydrants with a distance of less than or equal to 75 m from the building being considered and 3,800 L/min to all hydrants with a distance between 75 m and 150 m from the building being considered (as per *Table 1* from *Appendix I* for AA rated hydrants). Coverage for the proposed building will be provided by the existing municipal hydrants located within the adjacent right-of-ways and by a proposed private hydrant located adjacent to the private driveway. The aggregate fire flow capacity of the contributing fire hydrants has been summarized in the table below.

Table 5.4: Aggregate Fire Flow Capacity

Hydrant ID	Distance to Building (m)	Fire Flow Capacity*3 (L/min)
Proposed HYD-1	<75	5,700
Existing 368027H022*1	<75	5,700
Existing 368028H080*2	75< X <150	3,800
Total		**15,200**

Notes:
1. Existing hydrant on Riverdale Avenue fed from 152mm watermain.
2. Existing hydrant on Cameron Avenue fed from 152mm watermain.
3. As per *Table 1* from *Appendix I* of the OWDG.

As shown in the table above, the aggregate fire flow capacity from the proposed private hydrant and two existing municipal hydrants exceeds the total required fire flow of 13,000 L/min and therefore adequate hydrant coverage has been demonstrated. Refer to **Figure 5.0: Hydrant Coverage Plan** provided under **Appendix C**.

Since the building will be sprinklered, a hydrant must be located within 45 metres of the building's siamese connection in accordance with the Ontario Building Code (OBC). Since the southern portion of the building will be cut off from the main building (on the ground level), the secondary entrance must also be located within 45 metres of the pumper vehicle per the OBC. Refer to **Figure 6.0: Fire Access Routes** provided under **Appendix C** for more details.

6.0 SANITARY SERVICING

6.1 Existing System

Existing municipal sanitary sewers are available in proximity to the subject site as follows:

- A 300mm diameter concrete sanitary sewer within the Riverdale Avenue right-of-way.

As part of the Riverdale integrated renewal project (refer to **Section 4.0**) the existing sanitary sewer system will be abandoned, and a new system will be designed and constructed. No further details on the integrated renewal are known at this time.

Based on topographic survey data (refer to **Appendix A**), the existing on-site buildings discharge sanitary flows to the existing 300mm diameter sanitary sewer on Riverdale Avenue via two existing sanitary service connections (size unknown). The existing sanitary services will be abandoned in accordance with current City standards. Refer to the Riverdale Avenue Plan and Profile drawings under **Appendix A** for more details.

6.2 Proposed System

Sanitary flows from the proposed building will be conveyed by new 150mm diameter sanitary services to the existing 300mm diameter sanitary sewer on Riverdale Avenue (between MH38061 and MH38289). Since the diameter of the proposed service connection does not exceed 50 percent of the existing (rigid) pipe diameter, a direct connection to the main using approved methods is proposed. In accordance with the City of Ottawa Sewer Use By-Law, a monitoring maintenance hole will be provided on private property near the property line. The

proposed sanitary network is shown on the Servicing Plan (DWG. 25042-S1) provided under **Appendix B**.

6.3 Design Criteria

The following design criteria have been implemented for the subject site in accordance with the current OSDG:

- Residential Flow — 280 L/person/day (OSDG Figure 4.3)
- Residential Peaking Factor — Harmon Formula (OSDG Figure 4.3)
- Harmon Correction Factor — 0.80 (OSDG Figure 4.3)
- Infiltration Allowance — 0.33 L/s/ha (OSDG Figure 4.3)
- Minimum Full Flow Velocity — 0.60 m/s (OSDG S6.1.2.2)
- Maximum Full Flow Velocity — 3.0 m/s (OSDG S6.1.2.2)
- Manning's 'n' Value — 0.013 (OSDG S6.1.8.2)
- Apartment Population Densities (OSDG; Table 4.1)
  - 1-Bedroom — 1.4 persons/unit
  - 2-Bedroom — 2.1 persons/unit
  - 3-Bedroom — 3.1 persons/unit

6.4 Sanitary Design Flows

Using the design criteria established above, the peak sanitary design flow has been calculated for the subject site and summarized in the table below.

Table 6.1: Peak Sanitary Design Flows

Population	Peak Res. Flow (L/s)	Extraneous Flow (L/s)	Total Design Flow (L/s)
180.9	2.07	0.16	2.23

As shown in the table above, the subject site will generate a peak sanitary design flow of 2.23 L/s. The City of Ottawa has not identified any capacity constraints with the existing downstream sanitary sewer system. The peak sanitary design flow from the subject site will account for approximately 4 percent of the total pipe capacity of the existing 300mm diameter sanitary sewer on Riverdale Avenue. The proposed sanitary services have been designed with adequate capacity to convey the peak sanitary design flow and to meet self-cleansing velocities under full flow conditions Refer to the sanitary sewer design sheet provided under **Appendix D** for more details.

7.0 STORM SERVICING

7.1 Existing System

Existing municipal storm sewers are available in proximity to the subject site as follows:

- A 675mm diameter concrete storm sewer within the Riverdale Avenue right-of-way.
- A +/-500mm diameter concrete storm sewer system located on the municipally owned land situated between the eastern property boundary of the subject site and the Rideau River.

Stormwater runoff from the site is captured by the existing municipal storm sewer systems noted above before ultimately discharging into the Rideau River. Refer to the Riverdale

Avenue Plan and Profile drawings and the Rideau River Plan and Profile drawing under **Appendix A** for more details.

As part of the Riverdale integrated renewal project (refer to **Section 4.0**) the existing storm sewer system will be abandoned, and a new system will be designed and constructed. No further details on the integrated renewal are known at this time.

Based on topographic survey data (refer to **Appendix A**), the existing on-site buildings have no known service connections to the existing municipal storm sewer system on Riverdale Avenue. Field inspections have identified an existing +/-150mm storm service connection to the existing catch basin manhole (denoted as EXCBMH 3) located west of the Rideau River. It is assumed that the existing service provides an outlet for foundation drainage. Any existing storm services encountered during construction will be abandoned in accordance with current City standards.

7.2 Design Criteria

The following design criteria have been implemented for the subject site in accordance with the current OSDG:

- Peak Flow (Q) — 2.78CiA — (Rational Method)
- Rainfall Intensity (i) — City of Ottawa IDF Curve Equations
- Inlet Time — 10 minutes — (OSDG S5.1.4)
- Minimum Full Flow Velocity — 0.80 m/s — (OSDG S6.1.2.1)
- Maximum Full Flow Velocity — 3.0 m/s — (OSDG S6.1.2.1)
- Manning's 'n' Value — 0.013 — (OSDG S6.1.8.1)
- Design Level of Service — 2-Year Event — (PIEDTB-2016-01)

In accordance with the OSDG, runoff coefficients will be increased by 25% (up to a maximum of 1.0) during the 100-year event. The runoff coefficients used for the site design are as follows:

- Pervious Areas — 0.20
- Impervious Areas — 0.90
- Gravel Areas — 0.70

Refer to the supporting runoff coefficient calculations provided under **Appendix E** for more details.

7.3 Storm Sewer Design

Stormwater runoff from the building roof and internal driveway will be captured by the proposed storm system and discharge to the existing 675mm diameter municipal storm sewer on Riverdale Avenue (between MH38126 and MH38127) via a new 300mm diameter sewer connection. Since the diameter of the proposed connection does not exceed 50 percent of the existing (rigid) pipe diameter, a direct connection to the main using approved methods is proposed. In accordance with the City of Ottawa Sewer Use By-Law, a monitoring maintenance hole will be provided on private property near the property line. A secondary storm sewer system which discharges to the existing +/-500mm diameter storm sewer system along the Rideau River will be utilized to manage external drainage as discussed in more detail under **Section 7.6**. The proposed storm network is shown on the Servicing Plan (DWG. 25042-S1) provided under **Appendix B**.

The proposed storm sewers have been designed with adequate capacity to convey the unrestricted 2-year peak flow from the subject site. The storm sewers have also been designed to convey the restricted 100-year peak flow without surcharging of the system. The storm sewers have also been designed to meet the allowable full flow velocities for self-cleansing in accordance with the current OSDG. Refer to the Storm Drainage Area Plan (DWG. 25042-STM1) and the storm sewer design sheet provided under **Appendix E** for more details.

7.4 Foundation Drainage System

In accordance with the Geotechnical Investigation, it is recommended that a perimeter foundation drainage system be provided for the proposed building. The system should consist of a 150mm diameter perforated and corrugated pipe, wrapped in geosock, surrounded on all sides by 150mm of 19mm clear crushed stone, placed at the footing level around the exterior perimeter of the structure. The clear crushed stone should be wrapped in a non-woven geotextile. The foundation drainage system will require a positive draining outlet. Since the elevation of the footing will be lower than the proposed storm service, the foundation drainage system will need to outlet to a sump pit within the building before being pumped up to the storm service lateral. The sump pit will need to incorporate a duplexed pump arrangement for 100% pumping redundancy and be equipped with emergency power (all components internal to the building are to be designed by others). The foundation drainage system shall also be protected with an approved backflow prevention device.

7.5 Roof Drainage

The proposed building will incorporate a flat roof design. Stormwater runoff will be captured by roof drains (designed by others) and conveyed to the building storm service. In accordance with City of Ottawa standards, the roof drainage system shall not discharge directly to the foundation drainage system. Refer to **Section 8.5** for additional details on the roof controls.

7.6 Subdrain Drainage System

Under existing conditions, external drainage from the rear yards of the existing residential properties (559-571 Riverdale Avenue) located adjacent to the western property boundary flow uncontrolled through the subject site before being captured by the existing storm sewer system adjacent to the Rideau River. The redevelopment of the site requires the finished grade to be raised above the reduced flood risk elevation and as such will impede the existing drainage patterns. To mitigate any adverse impacts to the adjacent properties, a subdrain drainage system is proposed inside the property line to capture and convey external drainage to its pre-development outlet (i.e. existing 500mm diameter storm sewer system). The subdrain drainage system will discharge directly into the existing catch basin manhole structure (i.e. EXCBMH 1). A connection to the existing manhole allows the outlet to remain free draining and significantly reduces the likelihood of the outlet being submerged since it can remain above the obvert of the existing sewer.

Typically, rear yard subdrain systems are not designed with capacity to convey peak flows for a prescribed level of service. However, since surface ponding into the adjacent properties is undesirable a capacity assessment has been completed to ensure the external drainage can be adequately conveyed to the outlet. The total drainage area tributary to the subdrain drainage system is approximately 0.10 hectares (denoted as areas SUB-1 and SUB-2) which is comprised of primarily external drainage with a small portion of drainage area from the western perimeter of the subject site. It has been determined that the proposed 250mm diameter subdrain will have adequate capacity to convey the unrestricted peak flow from the tributary drainage area for up to and including the 100-year design event. Therefore, the subdrain drainage system has been designed to mitigate any adverse impacts to the adjacent

properties and to help maintain existing drainage patterns. Refer to **Figure 6.0: Subdrain Drainage Area Boundaries** under **Appendix E**.

7.7 Rideau River Storm Sewer System Assessment

As noted under **Section 7.1**, there is an existing +/-500mm diameter concrete storm sewer system located on the municipally owned property situated between the eastern boundary of the subject site and the Rideau River. Under existing conditions, approximately 0.43 hectares of the site's drainage area (denoted as PRE2 + PRE3 + PRE4) is captured by existing catch basin manhole structures and conveyed uncontrolled to the existing storm sewer system located along the Rideau River. The weighted runoff coefficient of the existing drainage area is approximately 0.72. Following the redevelopment of the site, the drainage area tributary to the existing storm sewer system (denoted as FF2 + FF3 + FF4) will be reduced to 0.18 hectares with a weighted runoff coefficient of 0.27. Using the Rational Method, unrestricted peak flows have been calculated for both the existing and proposed conditions. Overall, the peak flows tributary to the existing storm sewer system will be reduced by approximately 84 percent following the redevelopment of the site. Refer to supporting calculations under **Appendix E**.

8.0 STORMWATER MANAGEMENT

8.1 Existing System

Under existing conditions, there are no known stormwater management controls implemented on the subject site. Stormwater runoff is conveyed uncontrolled by surface sheet flow to the Riverdale Avenue right-of-way and to the municipally owned land east of the site. The stormwater is captured by existing surface inlets and discharges to the existing municipal storm sewer systems adjacent to the site before ultimately discharging into the Rideau River.

8.2 Design Criteria

The following stormwater management design criteria have been implemented for the subject site in accordance with the current OSDG:

- Control post-development peak flows discharging to the Riverdale Avenue minor storm sewer system to the 2-year pre-development rate for up to and including the 100-year design event.
- Provide on-site storage (in excess of the allowable release rates) for all storm events up to and including the 100-year event.
- No surface ponding during the 2-year design event.
- Maximum surface ponding depth of 350mm.
- Minimum 300mm of freeboard between 100-year spill elevation and any building openings.
- No spill from stress test (100-year + 20%) onto permanent structures.
- Minimum 150mm of freeboard between spill elevations and ground elevation at building envelope (in proximity to flow route or ponding area).
- Provide a major overland flow route to the adjacent municipal right-of-ways.
- Provide enhanced level (80% TSS removal) quality control from surface parking areas.

8.3 Pre-Development Peak Flows

Under existing (i.e. "pre-development") conditions, stormwater runoff from the frontage of the property (denoted as PRE1) is conveyed uncontrolled to the Riverdale Avenue right-of-way

where is captured by existing surface inlets and discharged to the existing 675mm diameter storm sewer system.

Stormwater runoff from the internal parking area and southern half of the site (denoted as PRE2) is conveyed uncontrolled to the municipally owned land east of the site where it is captured by an existing catch basin manhole (denoted as EXCBMH 1) and discharged to the existing +/-500mm diameter storm sewer system.

Stormwater runoff from the eastern boundary of the site (denoted as PRE3) is conveyed uncontrolled to the municipally owned land east of the site where it is captured by an existing catch basin manhole (denoted as EXCBMH 2) and discharged to the existing +/-500mm diameter storm sewer system.

Stormwater runoff from the northern boundary of the site (denoted as PRE4) is conveyed uncontrolled to the municipally owned land east of the site where it is captured by an existing catch basin manhole (denoted as EXCBMH 3) and discharged to the existing +/-500mm diameter storm sewer system.

Overall, the site has a drainage area of 0.47 hectares and a weighted runoff coefficient of 0.70. Using the Rational Method, pre-development peak flows have been calculated and summarized in the table below.

Table 8.1: Pre-Development Peak Flows

Drainage Area	2-Year Peak Flow (L/s)	5-Year Peak Flow (L/s)	100-Year Peak Flow (L/s)
PRE1	5.2	7.1	15.1
PRE2	41.5	56.3	120.7
PRE3	8.5	11.6	24.8
PRE4	15.7	21.2	45.5
Total	**70.9**	**96.2**	**206.1**

Notes:
1. Peak flows are calculated based on a time of concentration of 10 minutes.

As shown in the table above, the site generates pre-development peak flows of 70.9 L/s up to 206.1 L/s for the 2-year and 100-year design events respectively. Refer to the supporting pre-development peak flow calculations and Pre-Development Drainage Area Plan (DWG. 25042-PRE1) under **Appendix F**.

8.4 Allowable Release Rates

In accordance with Section 8.3.6.1 of the OSDG, in areas draining to a storm sewer system, the 100-year post-development runoff must be controlled to either the 2-year or 5-year pre-development flow depending on the return period used to size the receiving storm sewer system. Given the age of the existing storm sewer system on Riverdale Avenue (installed in 1972) it is likely that the sewer system was designed for a 5-year or greater level of service. However, as part of the Riverdale integrated renewal project the municipal storm sewer system will be replaced and will be redesigned. The level of service for the future storm sewer system is currently unknown, however, a 2-year level of service has been assumed. The level of service for the existing storm sewer system along the Rideau River is also unknown, however, given the age of the system it is likely that it was sized for a 5-year or greater level of service.

In accordance with Section 8.3.7.3 of the OSDG, for site redevelopment the pre-development condition will be determined by using the smaller of a runoff coefficient of 0.50 or the actual existing site runoff coefficient. Given that the site has a weighted runoff coefficient of 0.70 under existing conditions, a maximum runoff coefficient of 0.50 must be used in calculating the allowable release rates for the site. Using the Rational Method, the allowable release rates have been calculated and summarized in the table below.

Table 8.2: Allowable Release Rates

Drainage Area (ha)	Runoff Coefficient	2-Year Peak Flow (L/s)	5-Year Peak Flow (L/s)	100-Year Peak Flow (L/s)
0.47	0.50	50.6	68.7	147.1

Notes:
1. Peak flows are calculated based on a time of concentration of 10 minutes.
2. Maximum runoff coefficient of 0.50 as per OSDG Section 8.3.7.3.

As shown in the table above, the allowable release rate for the site is 50.6 L/s for a 2-year level of service.

8.5 Quantity Control

In order to restrict stormwater peak flows to the allowable release rates calculated above, quantity controls will be required.

Stormwater runoff from the internal driveway and courtyard area (denoted as STM1) will be captured by a catch basin structure (denoted as CB 1) and conveyed to the proposed storm sewer system. Due to limited available surface storage, the drainage area is assumed to be uncontrolled.

Stormwater runoff from the building roof (denoted as R1) will be restricted by roof drain controls. At the time of writing this report, the total number of roof drains is unknown. The roof drains have been assumed to have a cumulative maximum release rate of 40 L/s/ha taken over the total roof area which equates to a peak flow rate of 8.1 L/s. A Watts roof drain specification sheet has been provided under **Appendix F** for reference.

Stormwater runoff from the frontage of the site (denoted as FF1) will be conveyed uncontrolled to the Riverdale Avenue right-of-way where it will be captured by the existing municipal minor storm sewer system.

Stormwater runoff from the western boundary and southern corner of the site (denoted as FF2) will be conveyed uncontrolled to the existing catch basin manhole (denoted as EXCBMH 1) and discharge into the +/-500mm storm sewer system west of the Rideau River.

Stormwater runoff from the eastern boundary of the site (denoted as FF3) will be conveyed uncontrolled to the existing catch basin manhole (denoted as EXCBMH 2) and discharge into the +/-500mm storm sewer system west of the Rideau River.

Stormwater runoff from the northern perimeter of the site (denoted as FF4) will be conveyed uncontrolled to the existing catch basin manhole (denoted as EXCBMH 3) and discharge into the +/-500mm storm sewer system west of the Rideau River. Refer to supporting free flow calculations under **Appendix F**. Given that the proposed building and perimeter grades must be raised to meet floodproofing requirements, it is not practical to overcontrol the free flow areas located along the perimeter of the site. The release rates for the on-site drainage areas have been summarized in the table below.

Table 8.3: Post-Development Release Rates

Drainage Area	2-Year Peak Flow (L/s)	5-Year Peak Flow (L/s)	100-Year Peak Flow (L/s)	Flow Control	Outlet Storm Sewer System
STM1	11.8	16.0	33.9	Uncontrolled	Riverdale Ave.
R1	8.1	8.1	8.1	Roof Drains	Riverdale Ave.
FF1	2.9	4.0	8.5	Uncontrolled	Riverdale Ave.
Sub-Total*1	**22.9**	**28.1**	**50.2**		
FF2	3.9	5.3	11.3	Uncontrolled	Rideau River
FF3	2.4	3.2	7.0	Uncontrolled	Rideau River
FF4	4.0	5.4	11.6	Uncontrolled	Rideau River
Sub-Total*2	**10.3**	**14.0**	**29.9**		
Total	**33.1**	**42.1**	**80.4**		

Notes:
1. Tributary to existing 675mm diameter storm sewer system on Riverdale Avenue.
2. Tributary to existing +/-500mm diameter storm sewer system adjacent to the Rideau River.

As shown in the table above, the total peak flow tributary to the existing storm sewer system on Riverdale Avenue is less than the 2-year pre-development peak flow rate of 50.6 L/s for all storm events up to and including the 100-year event. During the 100-year event, the total peak flow discharging from the total site will exceed the 2-year pre-development peak flow rate, however, approximately 37% of the flow rate is from the uncontrolled perimeter of the site which is tributary to the existing storm sewer system located adjacent to the Rideau River. As discussed under **Section 7.7**, the post-development peak flow to Rideau River storm sewer system will be reduced by approximately 84% compared to existing conditions. Therefore, the quantity controls proposed will restrict flows to the Riverdale Avenue storm sewer system and significantly reduce peak flows tributary to the Rideau River storm sewer system. Overall, there will be a significant reduction in peak flows discharging from the site during the 2-year through 100-year design events.

8.6 Quantity Storage

In order to restrict stormwater peak flows to the rates provided above, on-site storage will be required. On-site storage (in excess of the allowable release rates) will be required for all storm events up to and including the 100-year event. In accordance with the current OSDG, there shall be no surface ponding during the 2-year event, and the maximum ponding depth shall not exceed 350mm. Required storage volumes have been calculated for each drainage area using the Modified Rational Method and the release rates provided in **Table 8.3**.

Since drainage area STM1 will be uncontrolled, stormwater runoff for up to and including the 100-year design event will be fully captured by the minor system and no surface storage will be required.

The required storage volumes for drainage area R1 will be provided as rooftop storage. At the time of writing this report, ponding details for the building roof are unknown. Available storage volumes for the roof have been estimated by assuming a conical shaped ponding area with a maximum ponding depth of 150mm.

Storage volumes and ponding depths for the on-site catchment areas during the 100-year design event have been summarized in the table below.

Table 8.4: 100-Year Storage Volumes & Ponding Depths

Drainage Area	100-Year Event		
	Required Storage Volume (m^3)	Available Storage Volume (m^3)	Surface Ponding Depth[*1] (m)
STM1	0.0[*4]	1.7[*2]	0.00
R1	84.1	101.3[*3]	0.15
SUB-1	0.0[*4]	5.8[*2]	0.00

Notes:
1. Ponding depths are measured from the ponding elevation to the top of grate elevation.
2. Available surface storage volumes are calculated using AutoCAD Civil3D by Autodesk.
3. Available roof storage estimated based on conical shaped ponding area at 150mm ponding depth.
4. Capacity of minor system exceeds peak flow therefore no surface storage is required.

As shown in the table above, adequate on-site storage has been provided to detain the 100-year event to the established release rates. Refer to the ponding area details on the Grading Plan (DWG. 25042-GR1) under **Appendix B** and the storage volume tables provided under **Appendix F** for more details.

8.7 Stress Test (100-YR + 20%) and Freeboard

The stress test (100-year + 20%) event must be assessed to ensure that ponding limits do not encroach onto adjacent permanent structures. Flows and required storage volumes for the stress test event are shown on the storage volume tables provided under **Appendix F**. Since the runoff tributary to the on-site catchment areas will be fully captured during the stress test event, freeboard has been assessed relative to the top of grate elevation. For building floodproofing, a minimum freeboard of 0.30m must also be provided between the maximum static ponding elevation and any building openings adjacent to the ponding area. The table below demonstrates the provided freeboard for each ponding area.

Table 8.5: Provided Freeboard

Structure	Max. Static Ponding Elev.[*1] (m)	Building Opening Elevation (m)	Freeboard (m)	Top of Grate (m)	Ground Surface Elev.[*2] (m)	Freeboard (m)
CB 1	59.38	59.98	0.60	59.27	59.65	0.38
LCB 2	58.95	59.98	1.03	58.70	59.40[*3]	0.70
EXCBMH 1	59.39	59.98	0.59	58.18	59.83	1.65
EXCBMH 2	59.52	59.83	0.31	58.59	59.78	1.19
EXCBMH 3	59.53	59.98	0.45	58.18	59.60	1.42

Notes:
1. Maximum static ponding elevation before spilling occurs.
2. Ground surface elevation at perimeter of closest permanent structure adjacent to ponding area.
3. Finished grade at rear of existing dwelling located at 559 Riverdale Avenue.

As shown in the table above, adequate freeboard has been provided to protect the on-site and neighbouring buildings from flooding for up to and including the stress test event.

8.8 Major System

The major system for the subject site has been designed to cascade overland flow from the individual catchment areas to the adjacent municipal right-of-ways. Overland flow from CB 1 will cascade west to the Riverdale Avenue right-of-way. Overland flow from LCB 2 will cascade south to the municipally owned land east of the site. The existing catch basin manholes will overtop the existing multi-use pathway and discharge directly to the Rideau River. However, overtopping is highly unlikely given the available ponding depth before overtopping occurs. As discussed further under **Section 8.7**, adequate freeboard has been provided for the major system in accordance with the current OSDG.

8.9 Quality Control

Given the limited number of surface parking spaces proposed (5 total) extensive quality control of stormwater runoff from the driveway area is not warranted. To mitigate the risks of trash/debris and/or hydrocarbons entering the storm sewer system, a Tempest HF (high flow) ICD is proposed to be installed within the outlet pipe of the driveway catch basin (i.e. CB 1). The Tempest HF ICD design eliminates the passage of odours and floatables (i.e. trash and hydrocarbons) and allows for debris and sediment to collect in the structure. Since the catchment area is assumed to be uncontrolled, no flow restrictions are required. Refer to the Tempest correspondence provided under **Appendix F** for more details.

The remainder of the site is comprised of roof and landscape areas which are considered to generate “clean” runoff and therefore do not require quality control. However, the use of grassed swales and surface vegetation will provide a degree of quality control via infiltration, filtration, and evapotranspiration. Further, the proposed subdrain drainage system along the western boundary will provide a degree of quality control via infiltration when suitable conditions exist.

The Geotechnical Investigation indicates that the subsurface profile of the site consists of dense layers of silty sand or silty clay with variable amounts of gravel, cobbles, and boulders, therefore, infiltration potential may be limited. The redevelopment of the site will provide a 15% reduction in impervious surface cover which should provide an overall benefit from a water quality/balance perspective by providing more area with potential for infiltration at source.

9.0 CULVERT ANALYSIS

The construction of the proposed pathway connection to the existing multi-use pathway will impede existing surface drainage towards the existing catch basin manhole (i.e. EXCBMH 2). In order to maintain existing drainage patterns and to not impede surface runoff, a new culvert crossing is proposed beneath the pathway connection. The culvert is proposed to be 500mm in diameter in accordance with current City of Ottawa minimum standards. The capacity of the culvert under full flow conditions has been assessed to ensure it can adequately convey flows from the upstream tributary drainage area. Using design charts from the MTO Drainage Management Manual, the capacity of a 500mm diameter CSP culvert has been determined to be 200 L/s when flowing full (i.e. H = D). Using the Rational Method, the 100-year peak flow tributary to the proposed culvert is only 6.6 L/s and therefore the culvert has been designed with adequate capacity. Refer to the culvert design charts, peak flow calculations, and **Figure 7.0: Culvert Drainage Area** Plan under **Appendix F** for more details.

10.0 EROSION AND SEDIMENT CONTROL

Prior to construction and until vegetation has been re-established in disturbed areas, temporary erosion and sediment control measures must be implemented to mitigate the impact of construction on receiving watercourses and existing infrastructure. The following erosion and sediment control (ESC) measures have been proposed for the subject site:

- Limiting the extent of exposed soils at any given time.
- Erosion and sediment control measures shall be maintained until vegetation has been re-established in all disturbed areas. Re-vegetate disturbed areas in accordance with approved Landscape Plan as soon as possible.
- Stockpile soil away (30 metres or greater) from watercourses, drainage features and top of steep slopes.
- Installation of silt sacks between frame and cover on all proposed and existing catch basins and open cover storm manholes until construction is completed.
- Silt fence barriers to be installed and maintained along property boundaries and where indicated on the erosion and sediment control plans.
- Installation of mud mats at all construction entrances.
- For dry weather periods (active and/or inactive construction phases) inspections of ESC measures shall be undertaken on a weekly basis.
- Inspection of ESC measures shall be undertaken immediately after major storm events (>25mm of rain in 24 hour period), significant snowmelt events (melting of snow at a rate which adversely affects the performance and function of the system), and extreme weather events.
- Visual inspections shall also be undertaken in anticipation of large storm events (or a series of rainfall and/or snowmelt days) that could potentially yield significant runoff volumes.
- Identify and rectify any deficiencies and undertake necessary maintenance measures as soon as possible.
- Inspections and maintenance of temporary ESC measures shall continue until they are no longer required.
- The Contractor shall ensure that records of inspection are taken, including at a minimum:
  - the inspector's name;
  - date of inspection;
  - visual observations;
  - any necessary remedial measures taken to maintain the interim ESC measures.
- Care shall be taken to prevent damage to ESC during construction operations.
- In some cases, barriers may be removed temporarily to accommodate construction operations. The affected barriers shall be reinstated immediately after construction operations are completed.
- ESC should be adjusted during construction to adapt to site features as the site becomes developed.
- ESC shall be cleaned of accumulated sedimentation as required and replaced as necessary.
- During the course of construction, if the Engineer believes that additional prevention methods are required to control erosion and sedimentation, the Contractor shall implement additional measures, as required, to the satisfaction of the Engineer.
- Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification (OPSS) 805.

Refer to the Erosion and Sediment Control Plan (DWG. 25042-ESC1) under **Appendix B** for more details.

11.0 CONCLUSIONS

It has been demonstrated that the proposed redevelopment of 551 Riverdale Avenue can be adequately serviced and stormwater management requirements can be achieved in keeping with current City of Ottawa guidelines. Specifically, the development of the site will include the following key servicing and stormwater management design features:

- Water supply for domestic use will be provided via twin 152mm diameter water service connections to the existing municipal watermain on Riverdale Avenue.
- Water supply for fire protection will be provided by a proposed private hydrant and additional coverage from the existing municipal hydrants.
- Sanitary flows will be conveyed via 150mm diameter sanitary services to the existing municipal sanitary sewer system on Riverdale Avenue.
- Stormwater runoff (minor system) will be captured and conveyed by the on-site storm sewer system and discharge to the existing municipal storm sewer system on Riverdale Avenue.
- A subdrain drainage system will provide an outlet for external drainage and be conveyed to the existing municipal storm sewer system adjacent to the Rideau River.
- Stormwater peak flows will be controlled to less than pre-development rates by the implementation of quantity controls.
- Adequate on-site storage will be provided for all events up to and including the 100-year design event.
- The major system design will convey overland flow to the adjacent municipal right-of-ways.
- Best management practices will be implemented to provide quality control for the site's stormwater runoff.
- Erosion and sediment control measures will be implemented prior to construction and maintained until vegetation has been re-established in disturbed areas.

Report Prepared By:

Brandon MacKechnie, P.Eng.
Project Engineer

Appendix A

Pre-Consultation Meeting Feedback

Topographic Plan of Survey (prepared by Farley, Smith & Denis Surveying Ltd.)

Riverdale Avenue Functional Design

Riverdale Avenue Plan & Profiles

Rideau River Plan & Profile

Rideau River Water Elevations

File No.: PC2025-0292

December 9, 2025

Tim Eisner
JFSA Canada
Via email: teisner@jfsa.ca

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control and Lifting Holding Zone Applications – 551 Riverdale Avenue

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on November 20, 2025.

Pre-Consultation Preliminary Assessment

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. For your next submission, please submit the required Application Form, together with the necessary studies and/or plans to planningcirculations@ottawa.ca, copy (cc:) to the file lead and planning support.

2. In your subsequent pre-consultation or application submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed is requested 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 it is recommended that a subsequent pre-consultation application be submitted.

4. If the Urban Design Review Panel (UDRP) Report is listed as a required submission material in the Study and Plan Identification List, the applicant must visit the UDRP prior to formally submitting the planning application. The UDRP report is required for the application to be considered complete.

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

Policy Framework:

Official Plan

1. Schedule A – Inner Urban Transect
2. Schedule B2 – Neighbourhood Designation
3. Schedule B2 – Evolving Neighbourhood Overlay
4. Schedule C15 – Two Zone Floodplain (Area of Reduced Flood Risk)
5. Section 4: Restrict or limit development and site alteration near surface water features
    a. 4.9.3 2) Where a Council-approved watershed, subwatershed or environmental management plan does not exist, or provides incomplete recommendations, **the minimum setback from surface water features shall be the greater of the following:**
        i. a) Development limits as established by the conservation authority's hazard limit, which includes the regulatory flood line, geotechnical hazard limit and meander belt;
        ii. b) Development limits as established by the geotechnical hazard limit in keeping with Council approved Slope Stability Guidelines for Development Applications;
        iii. c) 30 metres from the top of bank, or the maximum point to which water can rise within the channel before spilling across the adjacent land; and
        iv. d) 15 metres from the existing stable top of slope, where there is a defined valley slope or ravine.

b. 4.9.3 4) The setback provided for in Policies 1) and 2) shall be implemented through the Zoning By-law, and **any change in the setback shall require a Zoning By-law amendment or variance that conforms with the policies in this section of this Plan.**

c. 4.9.3 7) Exceptions to the setbacks in Policy 2) shall be considered by the City in consultation with the conservation authority in situations where development is proposed on existing lots where, **due to the historical development in the area, it is impossible to achieve the minimum setback because of the size or location of the lot, approved or existing use on the lot or other physical constraint, providing the following conditions are met to the City's satisfaction**:

   i. a) The ecological function of the site is restored and enhanced, to the greatest extent possible, through naturalization with native, non-invasive vegetation and bioengineering techniques to mitigate erosion and stabilize soils; and

   ii. b) Buildings and structures are located, or relocated, to an area within the existing lot that improves the existing setback, to the greatest extent possible, and does not encroach closer to the surface water feature

6. Section 10: Protection of Health and Safety

   a. 10.1.1 1) Development and site alteration shall not be permitted in the 1 in 100-year flood plain or in an erosion hazard area

   b. 10.1.1 2) Development and site alteration shall not be permitted within areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of development and the natural hazard

   c. 10.1.1 4) Revisions to the Flood Plain Overlay in the Zoning By-law, or regulation limits in secondary plans or area-specific policies, **may be implemented without the need for an Official Plan amendment, when site-specific geodetic elevation information prepared by an Ontario Land Surveyor has been accepted by the appropriate conservation authority, or when the City is undertaking updates to the Flood Plain Overlay in the Zoning By-law and concurrence from the appropriate conservation authority has been received**

   d. 10.1.2. 4) Development and site alteration may be permitted in the flood fringe and an area of reduced flood risk, where the risk to public safety is minor, could be mitigated in accordance with provincial standards, and where all of the following are demonstrated and achieved:

i. a) Development and site alteration are carried out in accordance with applicable floodproofing standards, protection works standards and access standards;

ii. b) Safe access is available during a regulatory flood event in the flood fringe;

iii. c) New hazards are not created, and existing hazards are not aggravated;

iv. d) No adverse environmental impacts will result;

v. e) The proposed development is consistent with the policies of this Plan and all other applicable municipal by-laws; and

vi. f) Where site alterations are supported by the appropriate conservation authority.

e. 10.1.2 5) To avoid an increased risk to life and property, the following shall not be permitted in the flood fringe or in an area of reduced flood risk:

i. a) Creation of a new lot, except to allow for separate ownership of a semi-detached, or townhouse dwelling, or a plan of condominium or strata title for an apartment dwelling, where these uses are permitted in the Zoning By-law;

ii. b) An additional dwelling unit or dwelling unit that is either partially or completely below grade, or a coach house; [Amendment 34, By-law 2024-506, Omnibus 2 item 29, November 13, 2024]

iii. c) An amendment to, or relief granted from, the zoning by-law that increases the number of dwelling units on a lot;

iv. d) An institutional use including hospitals, long-term care homes, retirement homes, preschools, school nurseries, day cares and schools;

v. e) An essential emergency service such as that provided by fire, police and ambulance stations and electrical substations; or

vi. f) Uses associated with the disposal, manufacture, treatment or storage of hazardous substances.

<u>Zoning</u>

Dual zoned:

7. R4UD / R4UD [2657] -h

a. Holding is there to ensure RVCA confirms local flood measures are adequate.

8. Floodplain Overlay – Area Specific Provisions (Section 58 (4))

9. Setbacks from Water Courses (Section 69)

Comments:

10. The proposal will need to meet the City's Official Plan policies applying to development near water features and protection of health and safety. For example:

    a. Section 4.9.3.2 of the Official Plan includes policy direction for establishing an appropriate setback from water features. Additionally, Section 4.9.3.7 outlines exemptions where deviations to these required setbacks can occur, one qualifier being that it would be impossible to meet the required setbacks, which has not been demonstrated in this case.

        i. Please depict the various setbacks as required by Section 4.9.3.2 of the Official Plan as well as the setbacks required within the Zoning By-law. Further rationale would be required in order to garner support for the deviation from the watercourse setbacks. As of right now, Staff are not supportive of the proposed relief from these setbacks given the lack of information on whether or not these setbacks can be accommodated on the site.

    b. Please also note that Section 10 of the Official Plan includes requirements and prohibitions of development within the areas of reduced flood risk. One prohibition includes amendments to the zoning standard which permits additional dwelling units on a lot. As such, conformity to the R4UD provisions will be required to satisfy the policy framework. Any relief from the applicable standards will also trigger an Official Plan Amendment in addition to the zoning by-law amendment. These include relief for standards such as the permitted minimum setbacks and maximum height (i.e any standard that would increase density on-site).

11. With respect to the boundaries of the floodplain policies and regulations applying to the subject lands, Section 10.1.1 4) of the Official Plan notes that the Floodplain Overlay within the Zoning By-law may be amended where accepted by the Conservation Authority without the need of an Official Plan Amendment. However, a Zoning By-law Amendment would generally be required to facilitate this process, and the Two Zone Floodplain/Area of Reduced Flood Risk policies as identified in Schedule C15 of the Official Plan will remain to apply to the site.

12. The proposed development will need to be supported by the appropriate environmental and engineering studies.

13. Explore opportunities to provide the entrance to the underground parking garage within the building massing fronting onto Riverdale and extending the building façade along the property frontage. This would allow for:

    a. more programmable amenity space and reduce the amount of hardscaping on the subject lands,

    b. mitigate the developments impacts on overland flow and stormwater management, and

    c. allow the building to meet the required setbacks from the watercourse.

14. Dwelling units partially of fully below grade will not be permitted. The development will also need to demonstrate that the applicable flood proofing requirements have been met.

15. Given the low-rise nature of the existing streetscape, a high level of attention to detail on the design of the front façade is encouraged to provide for a pedestrian scale massing that replicates the surrounding context through materials, step-backs and/or datum lines.

16. Tree planting is a priority along both frontages of the site as well as interior to the site.

17. Please ensure the proposed parking spaces at-grade are hidden from the public realm. You can refer to the transect policies for direction on the location of parking.

18. Units at-grade are encouraged to have their own independent entrances to improve the streetscape, particularly on Riverdale.

19. Large-household dwelling units, being 3-bedroom or equivalent floorspace (such as 2-bedroom + den), are highly encouraged in order to meet the target thresholds within the City's Growth Management Framework policies and provide for a diverse range of housing options within the City (50% for low-rise buildings).

20. A 1:1 bicycle parking space ratio per dwelling unit is highly encouraged.

<u>Urban Design</u>

Submission Requirements:

21. Conceptual Floor Plans

Comments:

22. The Low Rise Infill Housing Guidelines apply and should be addressed in the design of the site. The City of Ottawa is in the process of updating these

guidelines, please keep informed of this process NEW Urban Design Guidelines for Low-Rise Infill Housing | Engage Ottawa

23. As per the low rise guidelines, the front setback should align with properties on either side. Inset balconies should be provided to ensure that landscaping and tree plantings can be provided/retained along this frontage.

24. Please provide a pleasant and logical connection for residents to access the MUP.

25. The relationship of the building and projecting balconies to the interior lot line is quite tight (6m portion). Please discuss this relationship to ensure that overlook and shadow are minimized on surrounding properties.

    a. The projecting balconies on this building face are of concern along this façade and should be inset.

    b. Please ensure that soil depths are sufficient to provide tree plantings and screening landscaping.

26. Ensure that the proposed building recognizes the existing context of the area.

    a. It its recommended to create a 2-storey datum line in recognition of the surrounding low-rise context, please consider a building stepback along Riverdale.

    b. Please also consider the use of similar materials found in the area such as red brick.

Feel free to contact Lisa Stern, Urban Design, for follow-up questions.

Engineering

Comments:

27. General

    a. Any utilities installed within the existing Right of Way or road modifications within the existing Right of Way, or shoring system with tie backs encroaching on existing ROW shall require Municipal Consent. The installation of any structure, footing, geo-membrane or perforated pipe encroaching into the existing ROW shall not be permitted in the absence of Municipal Consent Approval.

    b. It is the sole responsibility of the applicant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an Existing Conditions Plan.

c. Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A legal survey plan shall be provided and all easements shall be clearly detailed on appropriate engineering plans.

d. Deep excavation and dewatering operations have the potential to cause damages to the neighboring adjacent buildings/ City infrastructure. Construction activities (excavation, dewatering, vibrations associated with construction, etc.) shall not impact on any adjacent buildings and infrastructure.

e. All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not extend either above or below into the existing property lines and sight triangles.

f. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

28. Stormwater Management Criteria:

a. Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.

b. In separated areas, the pre-development runoff shall be the lower of the existing coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).

c. A calculated time of concentration (cannot be less than 10 minutes).

d. Quantity Control: Flows to the storm sewer in excess of the 2-year pre-development release rate, up to and including the 100-year post development release rate, shall be stored on site.

e. Storm sewer outlets should not be submerged

f. Quality Control: Quality control is required if surface parking is proposed - 80% TSS removal as per City of Ottawa, MOE and Rideau Valley Conservation Authority. Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.

29. Service Connections (Storm, Sanitary and/or Water Supply)

a. 675mm dia. Concrete Storm Sewer (c. 1972) is available within the Riverdale Avenue ROW

b. 300mm dia. Concrete Sanitary Sewer (c. 1972) is available within the Riverdale Avenue ROW

c. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

d. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

e. Connections to trunk sewers and easement sewers are typically not permitted.

f. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).

g. Review provision of a high-level sewer.

h. Sewer connections to be made above the springline of the sewermain as per:

    i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.

    ii. Std Dwg S11 (For rigid main sewers) – lateral must be less that 50% the diameter of the sewermain,

    iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,

    iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

30. An MECP Environmental Compliance Approval **[Industrial Sewage Works or Municipal/Private Sewage Works]** may be required for the proposed development. A Ministry contact has been provided below but please work with City staff on the need (or not) of an application.

    a. Patrick Lalonde at (613) 521-3450 or Patrick.Lalonde@ontario.ca

b. Shannon Hamilton-Browne at (613) 521-3450 or Shannon.Hamilton-Browne@ontario.ca

31. Water

a. 152mm dia UCI Watermain (c. 1908) is available within the Riverdale Avenue ROW

b. Water Data Card (future requirement)

c. ISTB-2021-03: Industrial, commercial, institutional service areas with a basic day demand greater than 50 m^3/day (0.57 L/s) and residential areas serving 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area.

d. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

i. Location of service

ii. Type of development

iii. The amount of fire flow required (per OBC or FUS).

iv. Average daily demand: ___ l/s.

v. Maximum daily demand: ___l/s.

vi. Maximum hourly daily demand: ___ l/s.

32. Serviceability and Stormwater Management Reports are required

33. Grading Plan is required

34. Fire-fighting flow rate(s)

a. Please review Technical Bulletin ISTB-2024-05, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal.
b. Fire flow demand requirements shall be based on IWSTB-2024-05. Please note that the FUS method should only be used if the OBC method indicates more than 9,000 L/min.
c. Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF) (*only if applicable as per 17.b.

d. Hydrant capacity shall be assessed to demonstrate the RFF can be achieved. Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

35. Geotechnical

a. A Geotechnical Study/Investigation shall be prepared in support of this development proposal and should speak to appropriate flood mitigation measures.

Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area.

Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. See the Studies Plans and Identification List for more information.

If Sensitive marine clay soils are present in this area that are susceptible to soil shrinkage that can lead to foundation and building damages. All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils-2017 Guidelines are required to be satisfied. Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5m will need to be achieved. A memorandum addressing the Tree in Clay Soil Guidelines prepared by a geotechnical engineer is required to be provided to the City.

b. https://ottawa.ca/en/city-hall/planning-and-development/community-plans-and-design-guidelines/design-and-planning/completed-guidelines/tree-planting-sensitive-marine-clay-soils-2017-guidelines

36. CCTV:

CCTV sewer inspections documenting the pre and post construction conditions of City owned Infrastructure will be required.

37. Capital Works Projects scheduled

There is a capital works project (LN04036) scheduled near the subject site which indicates Road, Sewer and Water renewals planned for implementation in the next 2-3 years. Appropriate coordination is recommended.

38. Exterior Site Lighting

Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES) and must result in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a Certification (Statement) Letter from an acceptable professional engineer stating that the design is compliant.

39. Environmental Site Assessment

    A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.

    The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.

    Official Plan Section 4.8.4:

    https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-4-review-development-applications#4-8-protection-health-and-safety

Feel free to contact Brett Hughes, Infrastructure Project Manager, for follow-up questions.

Noise

40. A Noise Study is required for the proposed development.

Feel free to contact Brett Hughes, Infrastructure Project Manager, for follow-up questions.

Transportation

Comments:

41. Right-of-way protection.

    a. See Schedule C16 of the Official Plan.

b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

42. Riverdale Avenue is classified as a Collector Road. There is no additional protected ROW limits identified in the OP.

43. The Screening Form has been revised, and the new traffic analysis concluded that the TIA Triggers have not been met. A TIA report will not be required. The consultant is to address how they plan to enable and encourage travel by sustainable modes (i.e. to make walking, cycling, transit, carpooling and telework more convenient, accessible, safe and comfortable). Please complete the City of Ottawa's TDM Measures Checklist.

44. The consultant should review the sight distance to the access and any obstructions that may hinder the view of the driver.

45. The proponent is to provide an access grade that does not exceed 2% within the private property for a minimum distance of 6.0 metres from the ROW limits. This is a critical safe distance to allow a driver to stop at the top of the ramp and have a good sight angle of pedestrians.

46. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.

47. 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.

48. The Owner acknowledges and agrees that all private accesses to Roads shall comply with the City's Private Approach By-Law being By-Law No. 2003-447 as amended https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/law-z/private-approach-law-no-2003-447 or as approved through the Site Plan control process.

49. The consultant should review the sight distance to the access and any obstructions that may hinder the view of the driver.

50. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.

51. No person shall construct a private approach serving any parking area with a grade exceeding 2% and the grade on the private approach shall descend in the direction of the roadway.

52. Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather.

53. 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

Comments:

54. An Environmental Impact Statement (EIS) is triggered since the proposal for work within the 30 m set back of the Rideau River and are within an area identified in the zoning by-law as being at risk of flooding.

55. Given the history of the area, the EIS can be accepted without a growing season survey provided there are no species at risk concerns. This is because the majority of the concerns to be addressed are about mitigating the environmental impact of the proposal which can be addressed through design of the site.

56. The EIS will need to assess the existing conditions and proposed redevelopment with the aim of addressing the policy pertaining to the environmental issues associated with the riparian area and the floodplain, including

    a. OP Section 4.9.3 policy 7 – enhancing ecological function of the setback

    b. OP Section 10.1.2 policy 4 and in particular 4d) No adverse enviromental impact as a result of the redevelopment.

57. The Tree Conservation Report can address some of these environmental issues as well considering butternut and black ash trees which may be located along the Rideau River.

58. Bird-Safe Design Guidelines – The Rideau River attracts a lot of birds and wildlife, please consider ways to limit the impact of the new building on wildlife including how lighting on your site can be design so that it doesn't attract wildlife from the riparian area. Please review and incorporate bird safe design elements, where feasible. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here:

https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

59. The site is located within the 1:350 (1 in 350 year) floodplain (mapped on GeoOttawa layer - Surface Water - Flood Extents). This is a related but separated consideration to the 1:100 floodplain/area of reduced flood risk. The applicant team will need to address the Official Plan 10.3.1 policy 3 "*Where lands located in a climate change flood vulnerable area are subject to site plan control or plan of subdivision applications, flood risk will be evaluated, and mitigation measures will be applied as part of the planning and design of the site. These measures will be determined through the servicing studies required as part of the development approvals process."* geoOttawa or Interactive Flood Plain Map

Feel free to contact Matthew Hayley, Environmental Planner, for follow-up questions.

Forestry

Comments:

1. A Tree Conservation Report (TCR) and Landscape Plan (LP) will be required, showing existing, protected trees within and bordering the site, and detailing tree removals, impacts, & protection measures. The Landscape Plan must provide details on proposed plantings, including the soil volumes created to support new trees. Detailed guidelines are provided below.

2. In keeping with the Official Plan's section 4.8.2, existing trees bordering the site and outside of the building envelope should be prioritized for retention. Existing soil volumes must be protected and expanded where possible, to ensure that there is sufficient space for existing and new trees. Particular attention should be paid to the following:

    a. Trees bordering the residential properties along Riverdale should be protected, to maintain visual screening and minimize impacts to adjacent properties.

    b. The trees growing in the municipal easement to the North must be retained.

    c. Prioritize the retention of existing trees on site, along the MUP to the East.

    d. Minimizing impacts to healthy & retainable trees from grading and excavation, in particular for the proposed underground parking.

3. The LP should include large-growing trees planted along Riverdale Ave, following development. Additional tree plantings along the MUP and within the site are strongly encouraged.

4. Please maximise contiguous soft landscaping areas and connected soil volumes, to support large-growing trees. Consider combining pathways for the new ground-floor units along Riverdale, and/or exploring walkway design options that require minimal compaction and do not constrain root growth.

5. Please include any identified tree species at risk (butternut & black ash) in the TCR.

6. The following Tree Conservation Report (TCR) guidelines have been adapted from the Schedule E of the Tree Protection By-law – for more information on these requirements please contact julian.alvarez-barkham@ottawa.ca.

    a. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City.

        i. An approved TCR is a requirement of Site Plan approval.

    b. Any removal of privately-owned trees 10cm or larger in diameter within the urban area, or city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.

    c. The TCR must contain 2 separate plans:

        i. Plan/Map 1 - show existing conditions with tree cover information.

        ii. Plan/Map 2 - show proposed development with tree cover information.

    d. The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition.

        i. For ease of review, the Planning Forester suggests that all trees be numbered and referenced in an inventory table.

    e. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

    f. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.

        i. Compensation may be required for the removal of city owned trees.

    g. The removal of trees on a property line will require the permission of both property owners.

h. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available on the Tree Protection Specification or by searching Ottawa.ca.

    i. The location of tree protection fencing must be shown on the plan.

    ii. Show the critical root zone of the retained trees.

i. As per the Official Plan §4.8.2, the retention of healthy trees must be prioritized wherever possible. Please seek opportunities for retention of trees that will contribute to the design and function of the site.

7. The following Landscape Plan (LP) guidelines have been adapted from Schedule E of the Tree Protection By-law – for more information on these requirements please contact julian.alvarez-barkham@ottawa.ca.

    a. Please ensure any retained trees are shown on the LP.

    b. Minimum Setbacks

        i. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.

        ii. Maintain 2.5m from curb.

        iii. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.

        iv. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas.

        v. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

    b. Tree specifications

        i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.

        ii. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.

    c. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and if possible, include watering and warranty as described in the specification.

    d. No root barriers, dead-man anchor systems, or planters are permitted.

    e. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

    f. Hard surface planting

        i. If there are hard surface plantings, a planting detail must be provided.

        ii. Curb style planter design is highly recommended.

iii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

c. Trees are to be planted at grade.

d. Soil Volume - Please demonstrate as per the **Landscape Plan Terms of Reference** that the available soil volumes for new plantings will meet or exceed the following:

Tree Type/Size	Single Tree Soil Volume (m^3)	Multiple Tree Soil Volume (m^3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

i. It is strongly suggested that the proposed species list include a column listing the available soil volume.

e. Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.

f. The City requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

g. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. **Please provide a projection of the future canopy cover for the site to 40 years.**

Feel free to contact Julian Alvarez-Barkham, Forester, for follow-up questions.

Parkland

Comments:

8. PFP is supportive of the proposed pathway linkage in support of active transportation throughout our communities.

Parkland Dedication

9. The proposal intends to replace an existing 23-unit townhome complex with a new 4-storey, 74-unit complex and four 4-unit stacked dwellings for a total of 90 units. The new development will roughly occupy the same footprint with an extension to the south.

10. At this point, we understand that none of the proposed units are considered affordable per Bill 23.

11. Residential density is greater than 18 units/hectare, therefore the rate of 1 hectare per 1,000 net residential units to a maximum of 10% of the gross land area for sites under 5 hectares applies to primary dwelling units.

12. The amount of required parkland conveyance is to be calculated per the City of Ottawa Parkland Dedication By-law No.2022-280 (or as amended):

    - For cash-in-lieu of conveyance of parkland (residential > 18 units/net ha):

        1. one hectare per 1,000 net residential units but shall not exceed a maximum of 10% of the gross land area where less than or equal to five hectares.

Form of Parkland Dedication:

13. PFP will be requesting cash-in-lieu of conveyance of parkland for parkland dedication in accordance with the Parkland Dedication By-law.

Pre-existing units	Proposed units	Applicable Units	Cash in Lieu per unit (1/1,000)	Conveyance per Unit
23	90	67	10 sq. m	670 sq. m

Gross Land Area (sq. m.)	10% Cap on Gross Land Area
4,741.10	474.1 sq. m

14. *Preliminary* parkland conveyance calculations based on information provided/identified in the pre-application consultation, is calculated to be **474.1 square meters.**

15. Cash-in-lieu will be calculated using the appraised value of the land. The Owner shall also pay the parkland appraisal fee.

16. Please note, if the proposed unit count or land use changes, then the parkland dedication requirement will be re-evaluated accordingly.

17. Please note that the park comments are preliminary and will be finalized (and subject to change) upon receipt of the development application.

Feel free to contact Ryan Palagia, Parks Planner, for follow-up questions.

<u>Conservation Authority</u>

Comments:

18. Further to the meeting on November 20th, RVCA would be look for the following items to be submitted/addressed as a part of a future *Planning Act* application for the development of the site with a mid-rise apartment building:

RVCA Requirements

19. Flood plain confirmation – Confirmation of the limit of the regulatory flood plain on the property. Applicable flood plain elevation from RVCA's mapping will need to be identified on site specific topographic survey.

20. Flood proofing confirmation:

    a. The building must be adequately floodproofed. For this development, all openings (i.e. windows, doors, etc.) and electrical panels, heating units, and mechanical units must be located at or above the Regulatory flood elevation with a 0.30m vertical freeboard buffer.

    b. Structural design and specifications for foundations or for fill materials shall be prepared or approved by a qualified professional engineer certifying in writing (and indicated on the stamped drawings) that:

        - the design has considered the regulatory flood (velocity and depth of flow) and site conditions (soil type, bearing capacity, etc.) encountered at the specific location of the development.

        - the foundation and building are designed to withstand hydrostatic pressures and impact loading that would develop under water levels equivalent to the regulated flood level plus 0.3 metres of freeboard.

        - all operation and maintenance requirements to be met to ensure the effective performance of the floodproofing measures over the design life of the structure.

21. Stormwater management report – Outlining how the proposed stormwater management design conforms with requirements for water quantity (i.e., controls to protect downstream properties from flood increases due to upstream development), erosion control and water balance (i.e., matching the pre-development proportions of infiltration, runoff, and evapotranspiration in the post

development condition) per the Ministry of Environment, Conservation and Parks' Stormwater Management Planning and Design Manual.

22. Dewater plans - If dewatering is required as a component of the development, a plan/report should be submitted that identifies the applicable details (e.g., how long will dewatering occur, what are the anticipated volumes, where will water be discharged to and what method/set up will be used to discharge the water).

23. Engineering Drawings/Plans – Including Site Plan, Grading Plan, Site Servicing Plan, Erosion and Sediment Control Plan, cross-sections and associated details.

24. Restoration plans – Outlining how the disturbed areas in and around the riparian areas of the river will be stabilized/naturalized.

25. Current topographic survey of the property prepared by an Ontario Land Surveyor.

Feel free to contact Stephen Bohan, Planner, Rideau Valley Conservation Authority, for follow-up questions.

Community issues

Comments:

26. Appreciate that the interface of the new building mimics the existing townhouses along the rear and the visual connection to the river.

27. Appreciate the central courtyard area.

28. Concerns with losing Large-Household Dwelling Units (3-Bedroom dwelling units) and opportunities to house a diversity of residents and families with the shift to an apartment building.

29. Given the limited on-site parking, managing deliveries will be important to consider.

30. Affordable housing is encouraged.

31. Consider car-sharing opportunities.

Other

32. 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 and will be applicable to Site Plan Control and Plan of Subdivision applications.

c. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

d. Please refer to the HPDS information at ottawa.ca/HPDS for more information.

33. Under the Affordable Housing Community Improvement Plan, a Tax Increment Equivalent Grant (TIEG) program was created to incentivize the development of affordable rental units. It provides a yearly fixed grant for 20 years. The grant helps offset the revenue loss housing providers experience when incorporating affordable units in their developments.

    a. To be eligible for the TIEG program you must meet the following criteria:

        i. the greater of five units OR 15 per cent of the total number of units within the development must be made affordable

        ii. provide a minimum of 15 per cent of each unit type in the development as affordable

        iii. enter into an agreement with the city to ensure the units maintain affordable for a minimum period of 20 years at or below the city-wide average market rent for the entire housing stock based on building form and unit type, as defined by the Canada Mortgage and Housing Corporation

        iv. must apply after a formal Site Plan Control submission, or Building Permit submission for projects not requiring Site Plan Control, and prior to Occupancy Permit issuance

    b. Please refer to the TIEG information *at Affordable housing community improvement plan / Plan d'améliorations communautaires pour le logement abordable for more details or contact the TIEG coordinator via email at affordablehousingcip@ottawa.ca.*

Submission Requirements and Fees

1. A Zoning By-law Amendment (Lifting of H) and Site Plan Control application is 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,

Jean-Charles Renaud, Planner III

c.c. Jack Smith, Planner II
Haris Khan, Planner I
Lisa Stern, Urban Designer
Brett Hughes, Infrastructure Project Manager
Wally Dubyk, Transportation Project Manager
Matthew Hayley, Environmental Planner
Julian Alvarez-Barkham, Forester
Ryan Paliga, Parks Planner
Stephen Bohan, RVCA

TOPOGRAPHIC PLAN OF SURVEY OF

PART OF LOT M
CONCESSION C (RIDEAU FRONT)
GEOGRAPHIC TOWNSHIP OF NEPEAN
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2025

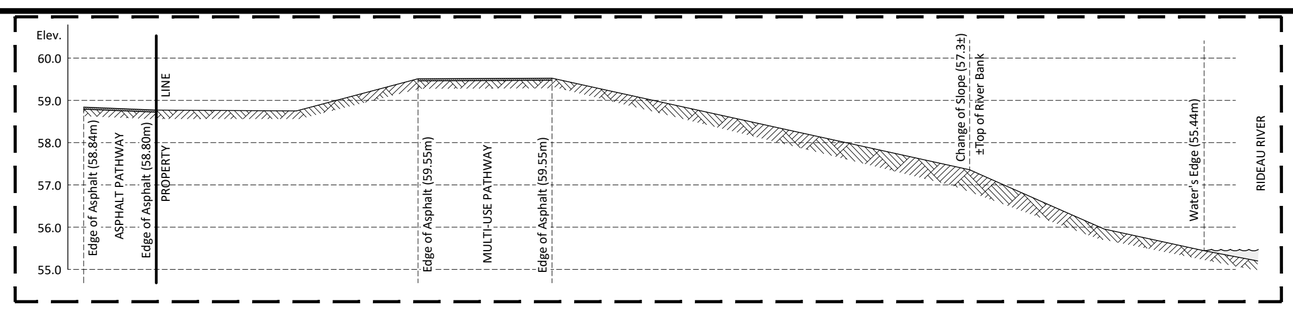
Scale 1: 200

0 2.5 5 10 15 20 metres

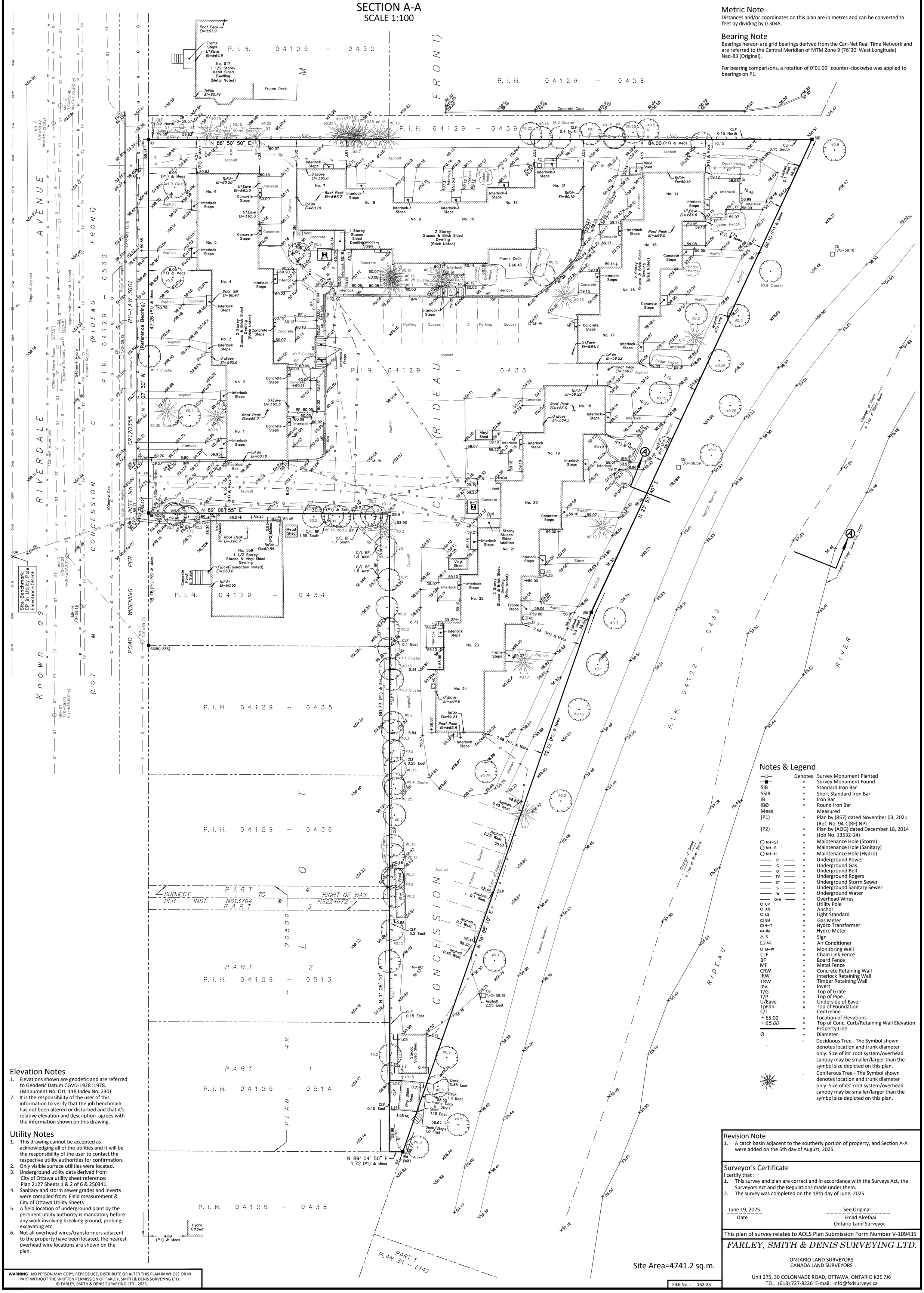
Metric Note
Distances and/or coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Bearing Note
Bearings hereon are grid bearings derived from the Can-Net Real Time Network and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) Nad-83 (Original).

For bearing comparisons, a rotation of 0°01'00" counter-clockwise was applied to bearings on P1.



SECTION A-A
SCALE 1:100



Notes & Legend

—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
IBØ	"	Round Iron Bar
Meas		Measured
(P1)	"	Plan by (857) dated November 03, 2021 (Ref. No. 94-C(RF) NP)
(P2)	"	Plan by (AOG) dated December 18, 2014
	"	(Job No. 13532-14)
MH–ST	"	Maintenance Hole (Storm)
MH–S	"	Maintenance Hole (Sanitary)
MH–H	"	Maintenance Hole (Hydro)
—P—	"	Underground Power
—G—	"	Underground Gas
—B—	"	Underground Bell
—TV—	"	Underground Rogers
—ST—	"	Underground Storm Sewer
—S—	"	Underground Sanitary Sewer
—W—	"	Underground Water
—OHW—	"	Overhead Wires
UP	"	Utility Pole
AN	"	Anchor
LS	"	Light Standard
GM	"	Gas Meter
H–T	"	Hydro Transformer
HM	"	Hydro Meter
S	"	Sign
AC	"	Air Conditioner
M–W	"	Monitoring Well
CLF	"	Chain Link Fence
BF	"	Board Fence
MF	"	Metal Fence
CRW	"	Concrete Retaining Wall
IRW	"	Interlock Retaining Wall
TRW	"	Timber Retaining Wall
Inv.	"	Invert
T/G	"	Top of Grate
T/P	"	Top of Pipe
U/Eave	"	Underside of Eave
TpFdn	"	Top of Foundation
C/L		Centreline
+65.00	"	Location of Elevations
+65.00	"	Top of Conc. Curb/Retaining Wall Elevation
	"	Property Line
Ø	"	Diameter
	"	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.
	"	Coniferous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

Elevation Notes
1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978. (Monument No. Ott. 118 Index No. 230)
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. Underground utility data derived from City of Ottawa utility sheet reference: Plan 2127 Sheets 1 & 2 of 6 & 250341.
4. Sanitary and storm sewer grades and inverts were compiled from: Field measurement & City of Ottawa Utility Sheets
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
6. Not all overhead wires/transformers adjacent to the property have been located, the nearest overhead wire locations are shown on the plan.

Revision Note
1. A catch basin adjacent to the southerly portion of property, and Section A-A were added on the 5th day of August, 2025.

Surveyor's Certificate
I certify that :
1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Regulations made under them.
2. The survey was completed on the 18th day of June, 2025.

June 19, 2025 — Date

See Original — Emad Alrefaai, Ontario Land Surveyor

This plan of survey relates to AOLS Plan Submission Form Number V-109435

FARLEY, SMITH & DENIS SURVEYING LTD.

ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: info@fsdsurveys.ca

FILE No. : 162-25

WARNING NO PERSON MAY COPY, REPRODUCE, DISTRIBUTE OR ALTER THIS PLAN IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF FARLEY, SMITH & DENIS SURVEYING LTD.
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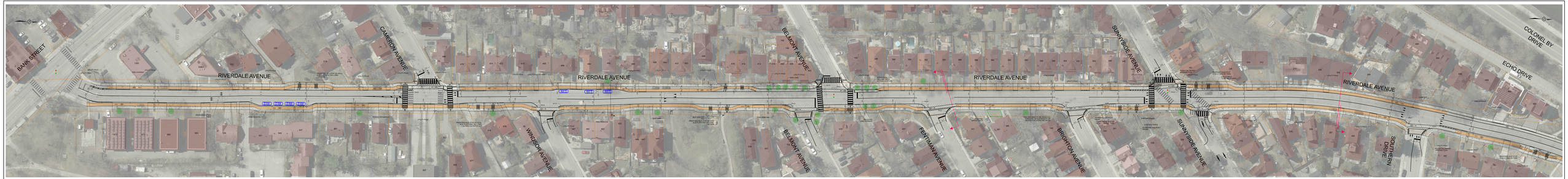
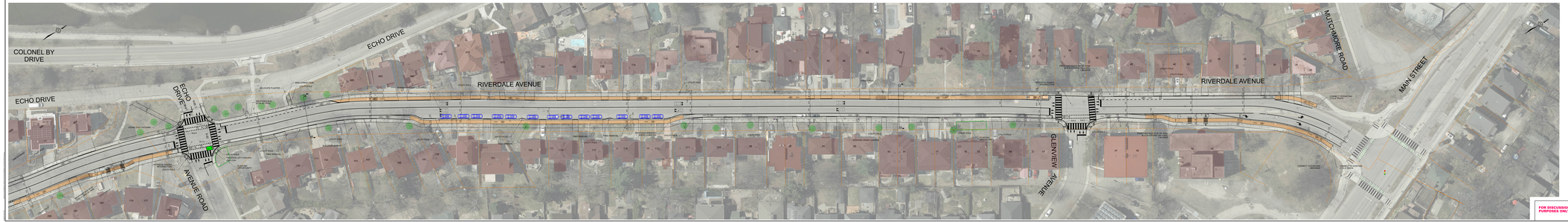
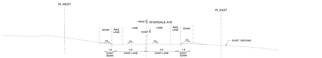
TOPO 24X36 (P)

J:\2025\162-25_551 Riverdale Ave_topo\Final\162-25 551 Riverdale Ave_LtM Con C_Topo_F2.dwg

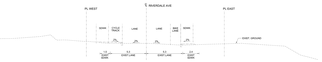




PROPOSED SECTION A-A
AT DRIVEWAY 47 AND 51 RIVERDALE AVENUE
SCALE 1:100



PROPOSED SECTION B-B
AT DRIVEWAY 47 AND 51 RIVERDALE AVENUE
SCALE 1:100



PROPOSED SECTION C-C
AT DRIVEWAY OF 51 RIVERDALE AVENUE
SCALE 1:100

FOR DISCUSSION PURPOSES ONLY

RIVERDALE AVENUE INTEGRATED RENEWAL

FUNCTIONAL DESIGN - RIVERDALE AVENUE
FROM BANK STREET TO MAIN STREET

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- EXISTING CURB
- PROPOSED CURB
- EXISTING CURB FACE
- PROPOSED CURB FACE
- EXISTING TRAFFIC SIGNALS
- EXISTING PEDESTRIAN CROSSOVER
- PROPOSED PEDESTRIAN CROSSOVER
- EXISTING TRAFFIC SIGNS
- PROPOSED TRAFFIC SIGNS
- EXISTING CONCRETE SIDEWALK
- PROPOSED CONCRETE SIDEWALK

DRAWN:	CHECKED:	DESIGN:	PLAN NO.
DATE:	DATE:	DATE:	
SCALE: 1:100			

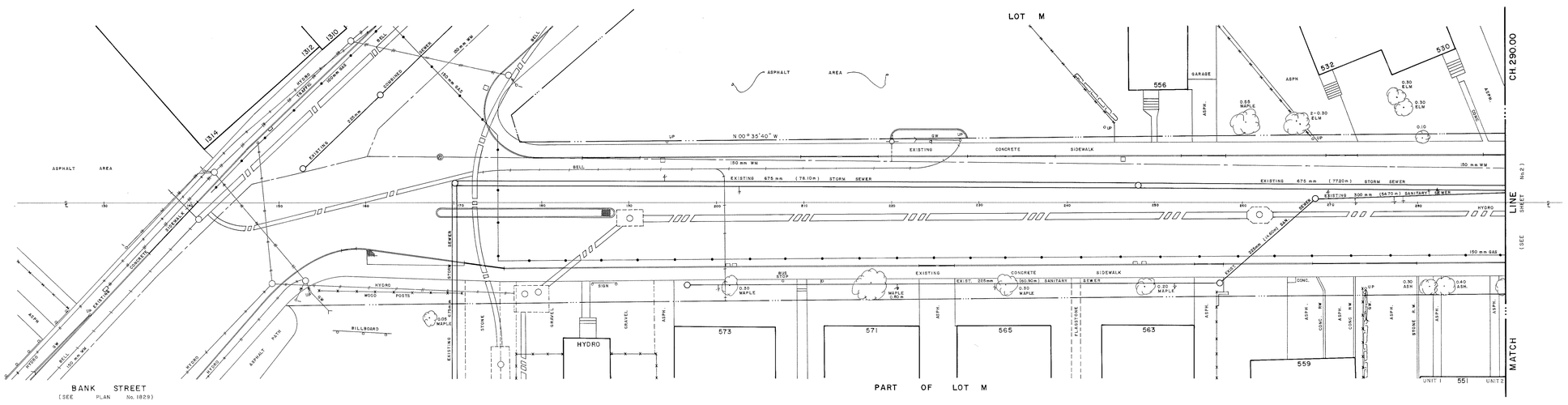
DATE PLOTTED: 6 JUL 2022

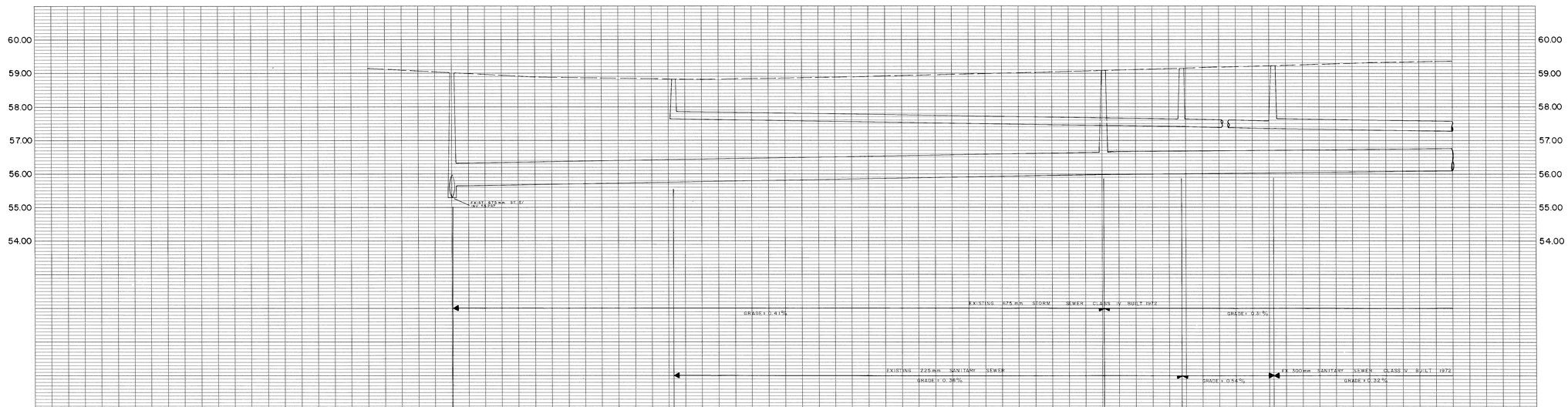
OCDSB

DATE PLOTTED: 6 JUL 2022

wsp

2127 RIVERDALE AVENUE





Stations	Existing Surface	Type & Diameter (sewer)	Inverts Exist. & Prop. (sewer)
130.00			
140.00	59.145		
150.00			
160.00			
170.00	FR. 58.937	675mm STN	55.657
170.10			55.657
180.00	58.890		
190.00			
196.60	FR. 58.805	225mm SAN	57.645
200.00	58.810		
210.00			
220.00	58.903		
230.00			
240.00	59.032		
248.20			55.980
250.00	FR. 59.040	675mm ST	
257.50	FR. 59.175	225mm SAN & 225mm SAN	57.415 / 57.430
260.00	59.183		
268.50	FR. 59.211	225mm SAN & 300mm SAN	57.751 / 57.351
270.00			
280.00	59.305		
290.00			

Elevations

City Of Ottawa
Department Of Engineering And Works
Engineering Branch

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: **Mon. No. Ott1118 Riverdale & Windsor Elev. 60.232**
- 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 American Society for Testing and Materials (A.S.T.M.) C-76 reinforced concrete sewer pipe with approved rubber gaskets (W.A.R.G.).
- 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: **Trow Ontario Ltd. Jan 15/88**
- Date of television inspection:
- This plan supercedes (in whole or in part) plan no: **E12c, E38a, 1489, 89b.**
- Actual rock line recorded during construction of existing sewer.
- Registered plan no.: **105374, 283252, 270464, 96962, 92334, 102636, 118266, 116, 98977, 33**

Legend:

	EXISTING	PROPOSED
STORM SEWER		
SANITARY SEWER		
STREET LINE		
LOT LINE		
ROADS & DRIVEWAYS		
Curb	TYPE	TYPE
Asphalt or Concrete	TYPE	TYPE
Surface Treated	TYPE	TYPE
WALKS		
Concrete or Asphalt	TYPE	TYPE
Gravel, Cinder or Dirt	TYPE	TYPE
DEPRESSED ACCESS		
On Curb		
On Sidewalk		
WATERMAIN		PROP.
GASMAIN & VALVE		PROP.
BELL		PROP.
HYDRO		PROP.
TRAFFIC		PROP.
FIRE ALARM		
CABLEVISION	TV	TV PROP.
STEAM LINE	S	S PROP.
HYDRANT		
WATER VALVE		WV
STAND PIPE		SP
WATER VALVE CHAMBER		
SEWER, TRAFFIC, HYDRO & BELL MANHOLES (may be labelled for clarification)		
TRAFFIC HANDHOLE	TH	TH
GUARD RAIL		
RETAINING WALL	RW	RW PROP.
FENCE		PROP.
HYDRO POLE	HP	HP
HYDRO POLE & LIGHT	HP	HP
BELL POLE	BP	BP
TRAFFIC LIGHT		
LIGHT STANDARD		
TRAFFIC SIGN		
STREET SIGN		
CULVERT & DITCH		PROP.
STANDARD CATCH BASIN & LEAD		
HEAVY DUTY CATCH BASIN & LEAD		
CATCH BASIN TO BE REMOVED & REPLACED WITH STANDARD C.B.		
HEAVY DUTY CATCH BASIN TO BE REMOVED & REPLACED WITH HEAVY DUTY CATCH BASIN		
HOUSE or CATCH BASIN CONNECTION TAKEN FROM T.V. INSPECTION		
HOUSE or CATCH BASIN CONNECTION TAKEN FROM RECORDS		
RELOCATION		
REMOVAL		
SQUARE IRON BAR	SIB	
STANDARD IRON BAR	SIB	
ROUND IRON BAR	RIB	
TREE, SHRUB & HEDGE		
BOREHOLE	BH	
ROCK		

- IN PLAN SEWERS 600mm & ABOVE ARE SHOWN AS DOUBLE LINE, TO SCALE, USING SAME LINE WEIGHT.
- UTILITIES X-OUT ARE ABANDONED, BELL PLANT SO MARKED MAY BECOME ACTIVE

Revisions:

No	Date	Description	Drawn By	Apprv'd By

Designed By	Date	Structural Check By	Date
Survey Detail By: Bill Craig	Date	Checked By	Date
Drafting By: Bruce Cronk Feb/88	Date	Checked By	Date

Final Measurements:			
Construction Type: Road		Contractor: McFarland	
Work Commenced: July 13, 1988		Inspector: A. Peck & D. Deugo	
Work Completed: Nov. 18, 1988		Instrumentman: W. Craig	
Designer: D. Dougherty		Field Book #: 4895, 4918, 4919	
Drafting Revisions: B. Green (T.E.S.)		Date: Dec. 8, 1988	
		Checked By	

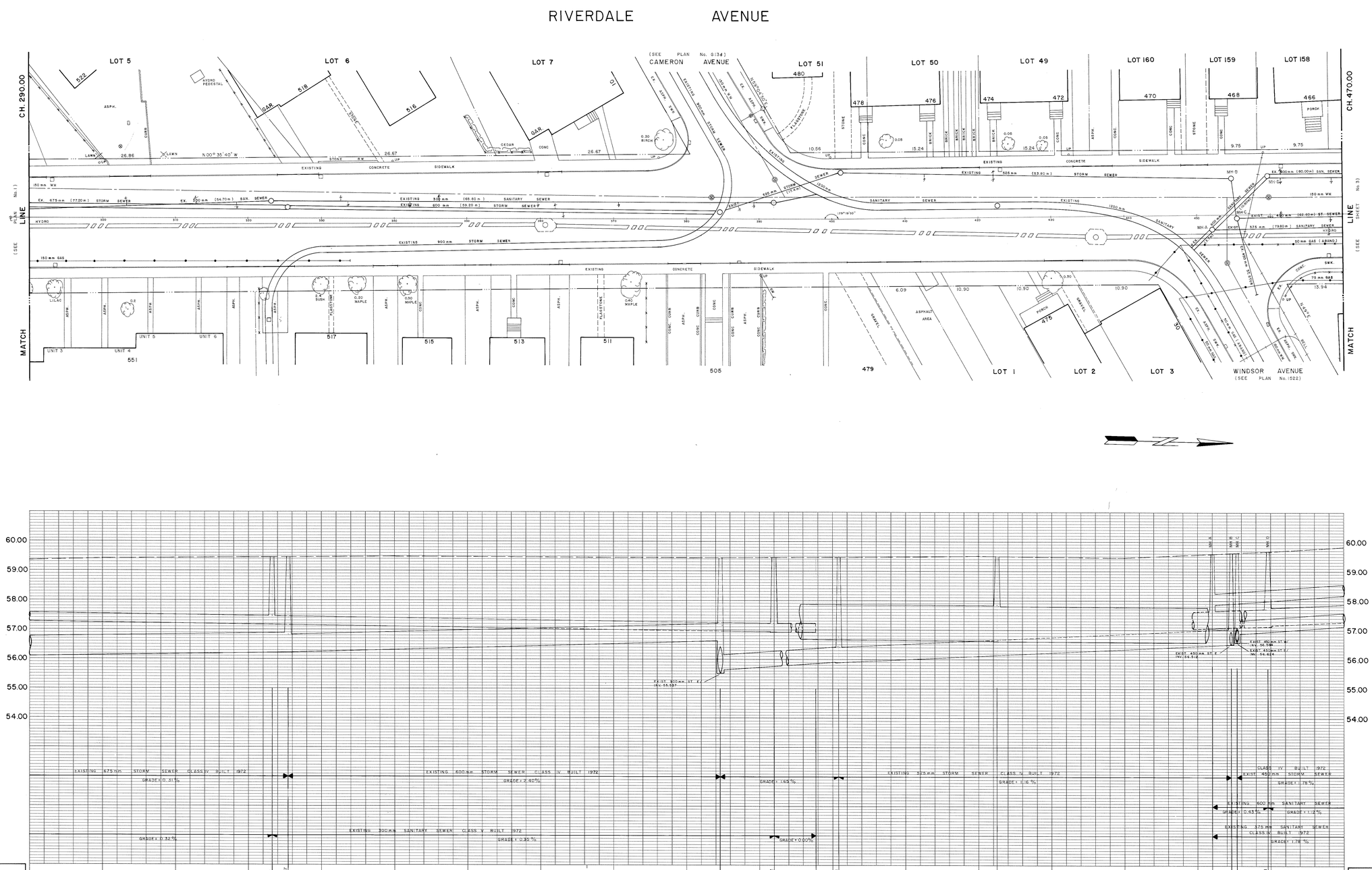
Design And Construction Division
1355 BANK STREET · OTTAWA ONTARIO · K1H 8K7

C. Sim, P. Eng. Commissioner		W.R. Cole, P. Eng. Branch Director	
Chief Design & Constr. Eng.	Senior Design & Constr. Eng.		Senior Const. Coord.

RIVERDALE AVENUE
FROM BANK ST. TO CH. 290.00

Contract No.	Survey Books	Scales	Plan No.
88-23	4733, 4742, 4743, 4787, 4791, 4852	HOR. 1:200, VERT. 1:50	2127 Sheet 1 of 6

2127 RIVERDALE AVENUE



City Of Ottawa
Department Of Engineering And Works
Engineering Branch

Notes:

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- 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 American Society for Testing and Materials (A.S.T.M.) C76 reinforced concrete sewer pipe with approved rubber gaskets (W.A.R.G.).
- 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.:
- See additional notes on sheet # 1.

Legend:

	EXISTING	PROPOSED
STORM SEWER		
SANITARY SEWER		
STREET LINE		
LOT LINE		
ROADS & DRIVEWAYS		
Curb	TYPE	TYPE
Asphalt or Concrete	TYPE	TYPE
Surface Treated	TYPE	TYPE
WALKS		
Concrete or Asphalt	TYPE	TYPE
Gravel, Cinder or Dirt	TYPE	TYPE
DEPRESSED ACCESS		
On Curb		
On Sidewalk		
WATERMAIN		PROP.
GASMAIN & VALVE		PROP.
BELL		PROP.
HYDRO		PROP.
TRAFFIC		PROP.
FIRE ALARM		
CABLEVISION	TV	TV PROP.
STEAM LINE	S	S PROP.
HYDRANT		
WATER VALVE	W	W
STAND PIPE		WP
WATER VALVE CHAMBER		
SEWER, TRAFFIC, HYDRO & BELL MANHOLES (may be labelled for clarification)		
TRAFFIC HANDHOLE	TH	TH
GUARD RAIL		
RETAINING WALL	RW	RW PROP.
FENCE		PROP.
HYDRO POLE	HP	HP
HYDRO POLE & LIGHT	HP	HP
BELL POLE	BP	BP
TRAFFIC LIGHT		
LIGHT STANDARD		
TRAFFIC SIGN		
STREET SIGN		
CULVERT & DITCH		PROP.
STANDARD CATCH BASIN & LEAD		
HEAVY DUTY CATCH BASIN & LEAD		
CATCH BASIN TO BE REMOVED & REPLACED WITH STANDARD C.B.		
HEAVY DUTY CATCH BASIN TO BE REMOVED & REPLACED WITH HEAVY DUTY CATCH BASIN		
HOUSE or CATCH BASIN CONNECTION TAKEN FROM T.V. INSPECTION		
HOUSE or CATCH BASIN CONNECTION TAKEN FROM RECORDS		
RELOCATION		
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STANDARD IRON BAR	IB	
ROUND IRON BAR	IB	
TREE, SHRUB & HEDGE		
BOREHOLE	BH	
ROCK		

- IN PLAN SEWERS 600mm & ABOVE ARE SHOWN AS DOUBLE LINE, TO SCALE, USING SAME LINE WEIGHT.
- UTILITIES X-OUT ARE ABANDONED, BELL PLANT SO MARKED MAY BECOME ACTIVE

Revisions:

No	Date	Description	Drawn By	Apprv'd By

Designed By		Structural Check By	Date
Survey Detail By	Bill Craig	Date	Checked By	Date
Drafting By	Bruce Crombie Feb/88	Date	Checked By	Date

Final Measurements:

See Sheet No.

Construction Type		Contractor	
Work Commenced		Inspector	
Work Completed		Measurement Book	
Designer		Field Book #	
Drafting Revisions		Date	
		Checked By	

Design And Construction Division
1355 BANK STREET · OTTAWA ONTARIO · K1H 8K7

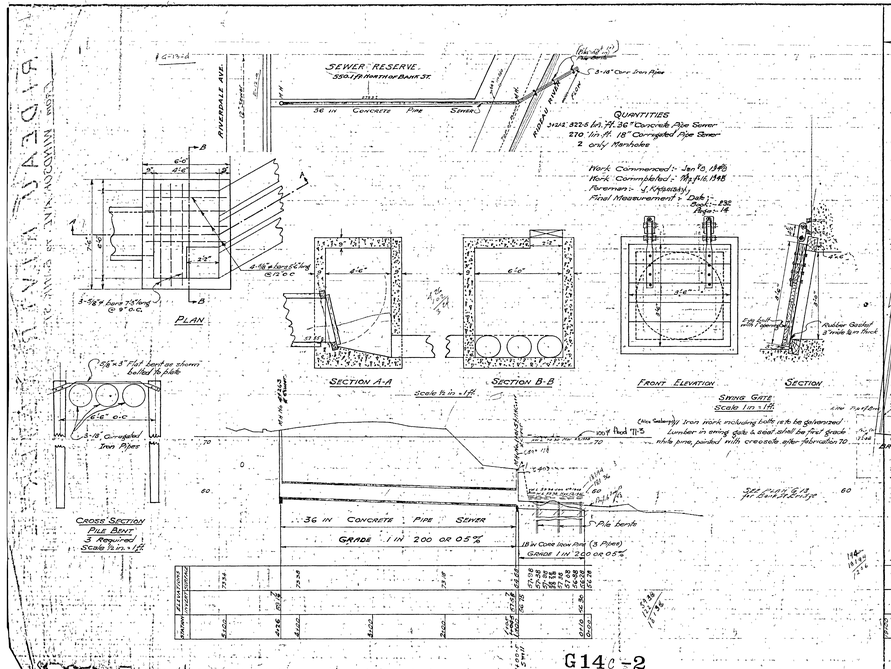
C. Sim P. Eng. — Commissioner
W.R. Cole P. Eng. — Branch Director

Chief Design & Constr. Eng. | Senior Design & Constr. Eng. | Senior Const. Coord.

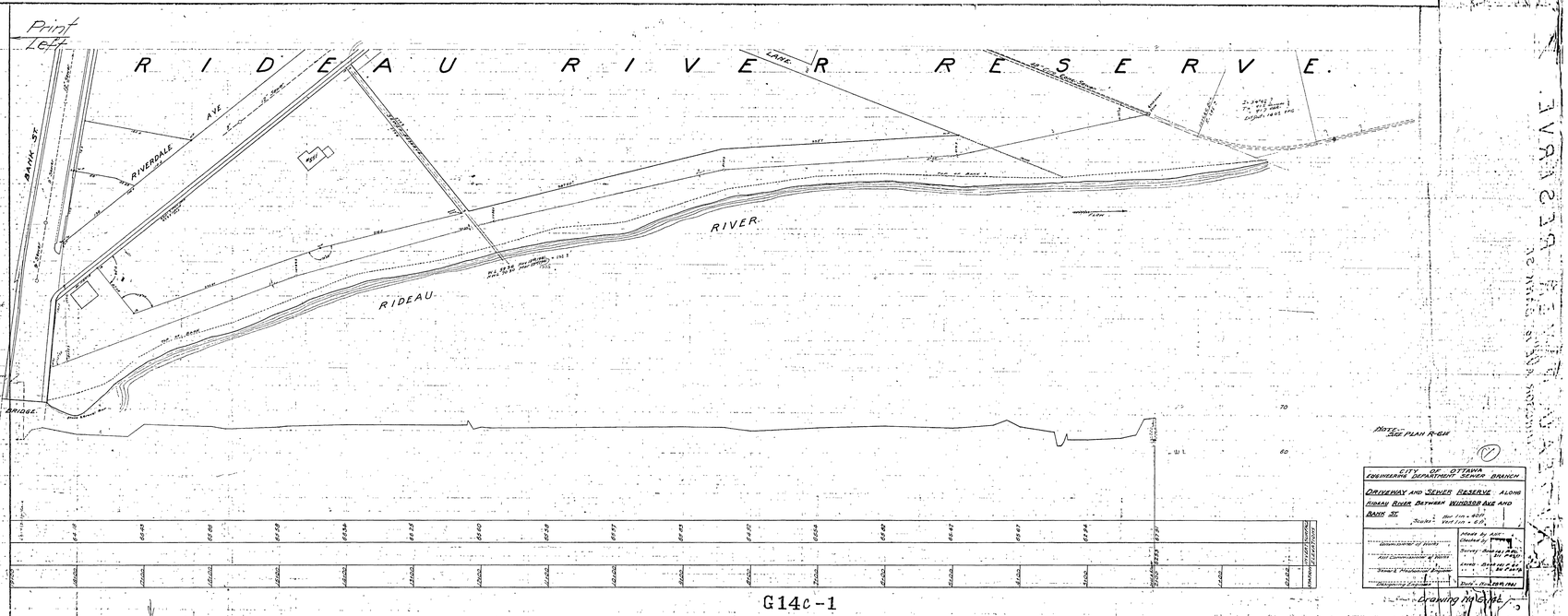
RIVERDALE AVENUE

FROM CH. 290.00 TO CH. 470.00

Contract No:	Survey Books:	Scales:	Plan No:
88-23	4732, 4742, 4752, 4786, 4761, 4632	HOR. 1:200 VERT. 1:50	2127 Sheet 2 of 6


SEWER RESERVE.
350.0 ft North of Bank St.
RIVERDALE AVE.
36 in Concrete Pipe Sewer
QUANTITIES
3412.322.6 lin. ft. 36" Concrete Pipe Sewer
270 lin. ft. 18" Corrugated Pipe Sewer
2 only Manholes
Work Commenced:- Jan. 10, 1948
Work Completed:- May 11, 1948
Foreman:- J. Kryzansky
Final Measurement:- Pole:- Page:- Page:-
PLAN
SECTION A-A
SECTION B-B
FRONT ELEVATION
SECTION
SHIVA GATE
Scale 1 in = 1 ft
Scale 1/4 in = 1 ft
CROSS SECTION
Pile Bent
5 Required
Scale 1/4 in = 1 ft
36 IN CONCRETE PIPE SEWER
GRADE 1 IN 200 OR 0.5%
Pile bents
18 in Corr. Iron Pipe (5 Pipes)
GRADE 1 IN 200 OR 0.5%

G14c-2


Print Left
R I D E A U R I V E R R E S E R V E.
RIVERDALE AVE.
BANK ST.
RIDEAU
RIVER
BRIDGE
Plate
See Plan R-638
CITY OF OTTAWA
ENGINEER'S DEPARTMENT SEWER BRANCH
DRIVEWAY AND SEWER RESERVE ALONG
RIDEAU RIVER BETWEEN WOODBINE AVE AND
BANK ST.
Scale: Hor. 1 in = 40 ft.
Vert. 1 in = 4 ft.
Drawing No. 1-2

G14c-1

Tim Eisner

From: Hayley, Matthew <Matthew.Hayley@ottawa.ca>
Sent: December 18, 2025 3:37 PM
To: Tim Eisner
Cc: Hughes, Brett; Khan, Haris; Renaud, Jean-Charles; Smith, Jack; Kunjikutty, Sobha
Subject: RE: 551 Riverdale - Request 350 year floodplain elevation

Hi Tim,

Our Infrastructure Policy team was able to provide the information you requested. Sobha (copied) is our contact and should be able to assist if you have any more detailed questions.

The HECRas model cross-sections (FPM report) for this site will be 7891 (D/S) and 7994 (U/S), and the corresponding 350-year WSEs are 58.98m and 59.04 m, respectively.

Sohba has provided some screenshots from the relevant reports below:

		Water Elevation (m)				
C/S	Reach	5-year	20-Year	50-Year	100-Year	350-Year
7327	RVCA Rideau River (HB to RF) FPM 2016	58.08	58.46	58.63	58.73	58.88
7891	RVCA Rideau River (HB to RF) FPM 2016	58.16	58.56	58.73	58.84	58.98
7994	RVCA Rideau River (HB to RF) FPM 2016	58.21	58.61	58.79	58.89	59.04
8101	RVCA Rideau River (HB to RF) FPM 2016	58.27	58.68	58.85	58.96	59.1

Please let us know if you have any questions.

Sincerely,

Matthew

Matthew Hayley
Senior Environmental Planner, Development Review,
Planificateur environnemental principal, Examen des projets d'aménagement,
Planning, Development and Building Services Department
Direction générale de la planification, de aménagement et du bâtiment
City of Ottawa | Ville d'Ottawa
613.580.2424 ext. |poste 23358
ottawa.ca/planning | ottawa.ca/urbanisme

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

From: Tim Eisner <teisner@jfsa.com>
Sent: December 16, 2025 11:27 AM
To: Hayley, Matthew <Matthew.Hayley@ottawa.ca>
Subject: 551 Riverdale - Request 350 year floodplain elevation

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hi Matthew,

I am looking into addressing comment 59 (below) from our preconsult on 551 Riverdale. The primary way we intend to address flood risk is through raising grade on the site, so we need to know the elevation of the 350 year floodplain in this location. Are you able to provide the elevation?

> *59. The site is located within the 1:350 (1 in 350 year) floodplain (mapped on GeoOttawa layer - Surface Water - Flood Extents). This is a related but separated consideration to the 1:100 floodplain/area of reduced flood risk. The applicant team will need to address the Official Plan 10.3.1 policy 3 "Where lands located in a climate change flood vulnerable area are subject to site plan control or plan of subdivision applications, flood risk will be evaluated, and mitigation measures will be applied as part of the planning and design of the site. These measures will be determined through the servicing studies required as part of the development approvals process." geoOttawa or Interactive Flood Plain Map*

Thank You,

Tim Eisner, M.Pl., RPP, MCIP, LEED Green Associate
Planner

52 Springbrook Drive, Ottawa ON, K2S 1B9
Tel.: 613-836-3884 x227 | Email: teisner@jfsa.com | Website: jfsacanada.com

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**** Caution : External Email /// Attention : Courriel externe ****

Appendix B

Site Plan (prepared by M. David Blakely Architect Inc.)

Servicing Plan (DWG. 25042-S1)

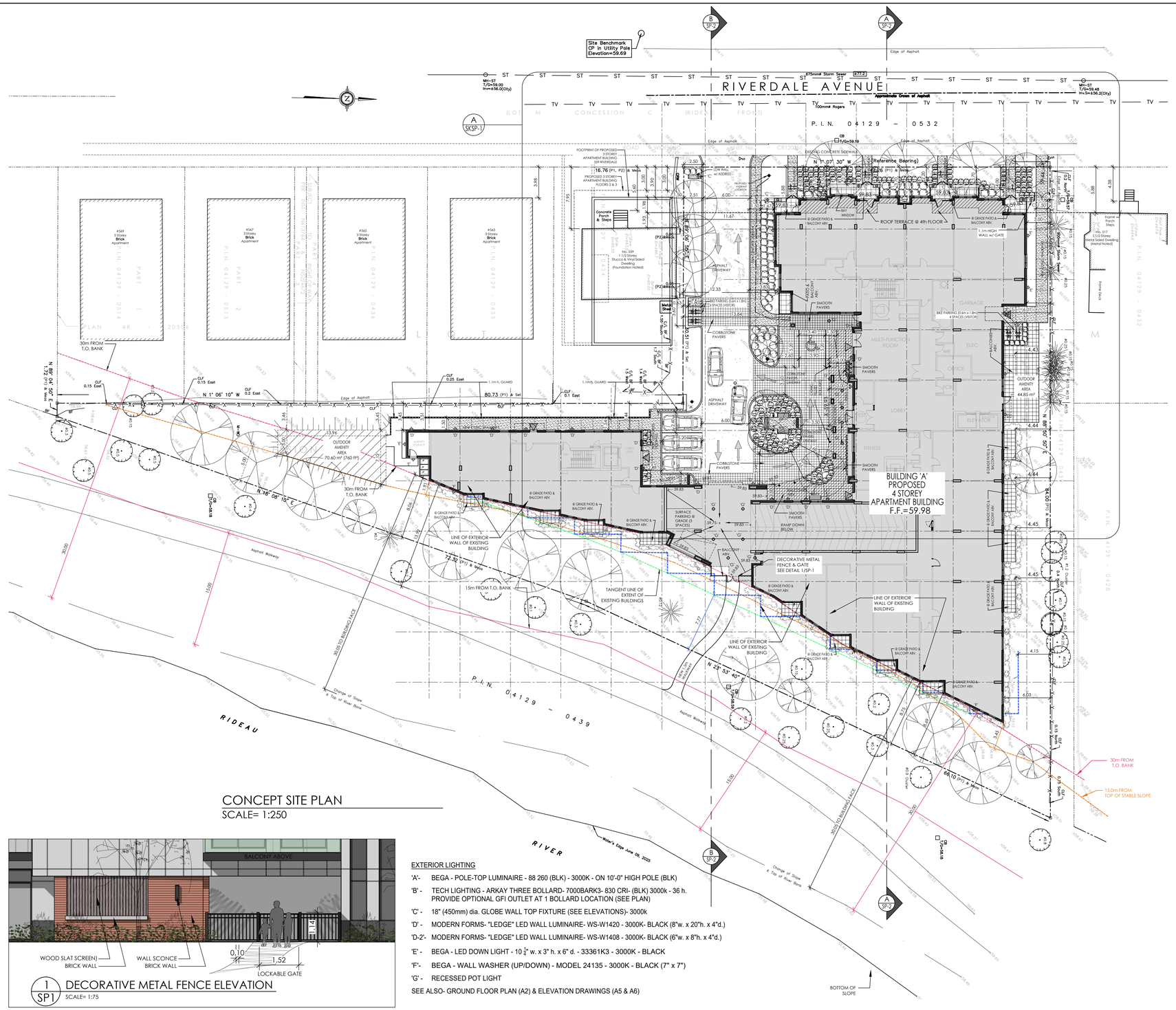
Grading Plan (DWG. 25042-GR1)

Floodplain Confirmation Plan (DWG. 25042-FP1)

Erosion and Sediment Control Plan (DWG. 25042-ESC1)

Notes & Details (DWG. 25042-N1)

Existing Conditions and Removals Plan (DWG. 25042-R1)



CONCEPT SITE PLAN
SCALE= 1:250

1 SP1 DECORATIVE METAL FENCE ELEVATION
SCALE= 1:75

EXTERIOR LIGHTING

'A'- BEGA - POLE-TOP LUMINAIRE - 88 260 (BLK) - 3000K - ON 10'-0" HIGH POLE (BLK)

'B' - TECH LIGHTING - ARKAY THREE BOLLARD- 7000BARK3- 830 CRI- (BLK) 3000k - 36 h. PROVIDE OPTIONAL GFI OUTLET AT 1 BOLLARD LOCATION (SEE PLAN)

'C' - 18" (450mm) dia. GLOBE WALL TOP FIXTURE (SEE ELEVATIONS)- 3000k

'D' - MODERN FORMS- "LEDGE" LED WALL LUMINAIRE- WS-W1420 - 3000K- BLACK (8"w. x 20"h. x 4"d.)

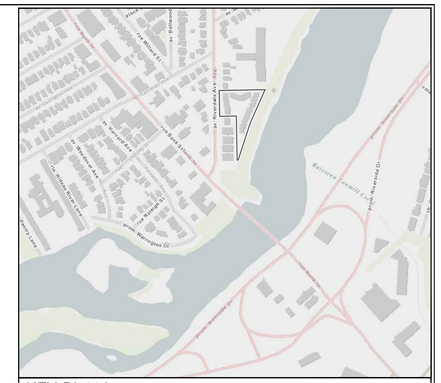
'D-2'- MODERN FORMS- "LEDGE" LED WALL LUMINAIRE- WS-W1408 - 3000K- BLACK (6"w. x 8"h. x 4"d.)

'E' - BEGA - LED DOWN LIGHT - 10 $\frac{3}{4}$" w. x 3" h. x 6" d. - 33361K3 - 3000K - BLACK

'F'- BEGA - WALL WASHER (UP/DOWN) - MODEL 24135 - 3000K - BLACK (7" x 7")

'G' - RECESSED POT LIGHT

SEE ALSO- GROUND FLOOR PLAN (A2) & ELEVATION DRAWINGS (A5 & A6)



KEY PLAN NOT TO SCALE

ZONING BY-LAW 2026-50 -N4B[2657]-h

EXCEPTION [2647] -h HOLDING SYMBOL WILL BE REMOVED UPON CONFIRMATION BY THE RVCA THAT LOCAL FLOOD CONTROL MEASURES ARE ADEQUATE TO MITIGATE FLOOD RISK

PERMITTED USES : - DWELLING UNIT (APARTMENT DWELLING, LOW RISE)
SITE AREA : 4,741.10 m² (0.472 ha)
BUILDING AREA : 2,030.64 m²
GROSS FLOOR AREA : 6,152.32 m²

	REQUIRED	PROVIDED:
TABLE 801A BUILDING HEIGHT (MAX.):	14.5 m	13.0m
TABLE 801B LOT WIDTH (MIN.):	7.5 m	47.26 m
LOT WIDTH PER VERTICALLY ATTACHED UNIT(MIN.):	5.6 m	N/A
FRONT YARD (MIN.) :	4.5 m	3.7 m **
MIN. TOTAL INTERIOR SIDE YARD (MIN.) :	1.8 m	3.0 m
EXTERIOR SIDE YARD (MIN.) :	3.0 m	N/A
BUILDING WIDTH (MAX.):	N/A	N/A
REAR YARD (MIN.) :	7.5 m (1)	8.06 m
TABLE 802A MIN. AGGREGATED SOFT LANDSCAPING – FRONT AND EXTERIOR SIDE YARD	20% OF THE YARD	104.66m² = 73.85% OF FRONT YARD
SECTION 802(12)(a)(iii) LANDSCAPED AREA IN REAR YARD (MIN.) :	50% OF THE YARD	100%
SECTION 208 (1) REQUIRED AMENITY AREA @ 6.0m²/ D.U	552m²	752.55m²
(6)(a) COMMUNAL AMENITY AREA REQ'D = 50% REQ'D	276m²	389.40m²
PRIVATE AMENITY AREA (BALCONIES/PATIO)	N/A	363.15m²

ENDNOTES:
(1) -SECTION 801(7)(d) - DESPITE ROW (vii), THE REAR YARD SETBACK NEED NOT EXCEED 7.5 m.

4 STOREY APARTMENT :	1-BR.	BARRIER FREE	2-BR.	BARRIER FREE	3-BR.	BARRIER FREE	
GROUND FLOOR=	9	1	4	1	4	1	17 UNITS
SECOND FLOOR =	11	2	10	2	4	1	25 UNITS
THIRD FLOOR =	11	2	10	2	4	1	25 UNITS
FOURTH FLOOR =	10	1	12	1	3	0	25 UNITS
TOTAL UNITS =	41	6 14.6% 1BR	36	6 16.6% 2BR	15	3 20.0% 2BR	92 UNITS

BARRIER FREE UNITS = 15 UNITS/92 = 16.3% OF TOTAL UNIT BARRIER FREE
SITE DENSITY = 194.91 UNITS/ha

MAXIMUM PARKING SPACE RATES - SECTION 602 - BY-LAW NO. 2026-50
AREA B - SCHEDULE A1 = 1.25/ DWELLING UNIT = 92 x 1.25= 115 SPACES

VISITOR PARKING SPACE RATES - SECTION 603 - BY-LAW NO. 2026-50
AREA C - SCHEDULE A3 = (92 - 24) x 0.1 = 6.8 = 7 VISITOR PARKING SPACES REQUIRED
TOTAL PARKING PROVIDED = 38 SPACES

BICYCLE PARKING SPACE RATES - SECTION 613 - BY-LAW NO. 2026-50
SHORT TERM SPACES REQUIRED
2+ 1/20d.u. = 92/20=4.6 + 2 = 6.7 = 7 SPACES
SHORT TERM SPACES PROVIDED= 10 SPACES
LONG TERM SPACES REQUIRED
1.0/ DWELLING UNIT = 92 SPACES
TOTAL LONG TERM SPACES PROVIDED = 124 SPACES
INCLUSIVE SPACES REQUIRED
5% OF REQUIRED LONG TERM SPACES = 92 x 0.05= 4.6= 5 SPACES
TOTAL INCLUSIVE SPACES PROVIDED = 5 SPACES

NOTE:
SITE PLAN TO BE READ IN CONJUNCTION WITH :
- SITE SERVICING PLAN PREPARED BY ROBINSON LAND DEVELOPMENT.
- LANDSCAPING PLAN PREPARED BY JAMES B. LENNOX & ASSOCIATES INC.
- BOUNDARIES DERIVED FROM: TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M CONCESSION C (RIDEAU FRONT) , GEOGRAPHIC TOWNSHIP OF NEPEAN CITY OF OTTAWA PLAN PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2025 - DATED: JUNE 19, 2025

LEGEND:
- BUILDING ABOVE
- 30m SETBACK FROM TOP OF BANK
- 15.0m FROM TOP OF STABLE SLOPE (SEE NOTE A)
- LINE OF EXISTING BUILDINGS EXTERIOR WALLS
- EXISTING REAR YARD SETBACK LINE OF EXISTING BUILDINGS
- EXISTING TREE TO REMAIN
- EXISTING TREE TO REMAIN
- PROPOSED TREE
- BIKE RACKS (VISITOR)

WOONERF SRFACE MATERIALS:
- SMOOTH SURFACE PAVERS
- COBBLESTONE TYPE PAVERS TECHO-BLOC VILLAGIO OR APPROVED ALTERNATE

NOTE A
LOCATION OF 15.0m SETBACK FROM STABLE TOP OF SLOPE DERIVED FROM: DRAWING PG7423-1 PREPARED BY PATERSON GROUP

LOCATION OF 15m SETBACK FROM STABLE TOP OF SLOPE TO BE CONFIRMED BY GEOTECHNICAL ENGINEER & ONTARIO LAND SURVEYOR PRIOR TO CONSTRUCTION

M. David Blakely
Architect Inc.
2200 Prince of Wales Dr. - Suite 101
Ottawa, Ontario K2E 6Z9
Phone (613) 226-8811 Fax (613) 226-7942

GENERAL NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS, ANY DISCREPANCY MUST BE REPORTED TO M. DAVID BLAKELY ARCHITECT INC.
2. ALL WORK AND MATERIALS TO BE IN COMPLIANCE WITH ALL CODES, REGULATIONS, AND BY-LAWS.
3. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST THE PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE PLANS IN CONTRACT DOCUMENTS.
4. DO NOT SCALE DRAWINGS.
5. THIS DRAWING SHALL NOT BE USED FOR PERMIT OR CONSTRUCTION UNLESS THE DRAWING BEARS THE ARCHITECT'S SEAL AND SIGNATURE.
6. THIS REPRODUCTION SHALL NOT BE ALTERED

CONSTRUCTION NORTH

SEAL: ONTARIO ASSOCIATION OF ARCHITECTS M. DAVID BLAKELY LICENCE 3658

No.	DATE	DESCRIPTION	INIT.
10.	05/03/26	LOHL & T.O. SLOPE ADDED TO PLAN	JB
9.	03/03/26	REVISED ZONING TABLE	JB
8.	24/02/26	FIRE DEPARTMENT CONNECTION ADDED	JB
7.	19/02/26	FOR CLIENT REVIEW	JB
6.	15/12/25	REVISED ENTRANCE COURTYARD	JB
5.	29/09/25	FOR PRE-CONSULTATION w/ CITY	JB
4.	18/09/25	CONCEPT GRADING PLAN/FOR COORD.	JB
3.	27/08/25	FOR COORDINATION	JB
2.	20/08/25	FOR REVIEW & COORDINATION	JB
1.	12/08/25	FOR REVIEW	JB

REVISIONS

No.	DATE	DESCRIPTION	INIT.
20.			
19.			
18.			
17.	28/07/26	FOR SITE PLAN CONTROL	JB
16.	17/06/26	EXTERIOR SITE LIGHTING ADDED	JB
15.	10/06/26	REVISED PER COMMENTS	JB
14.	04/06/26	REVISED PER COMMENTS/FOR COORD'N	JB
13.	20/05/26	REVISED PER COMMENTS/FOR COORD'N	JB
12.	06/05/26	REVISED BUILDING FOOTPRINT & HEIGHT	JB
11.	30/03/26	REVISED NOTES	JB

REVISIONS

PROJECT
PROPOSED 4 STOREY APARTMENT
551 RIVERDALE AVE.
OTTAWA, ONT.

CLIENT
JSS RIVERDALE HOLDINGS INC.
24-551 RIVERDALE AVE.
OTTAWA, ON, K1S 1S3

DRAWING TITLE
PRELIMINARY SITE PLAN

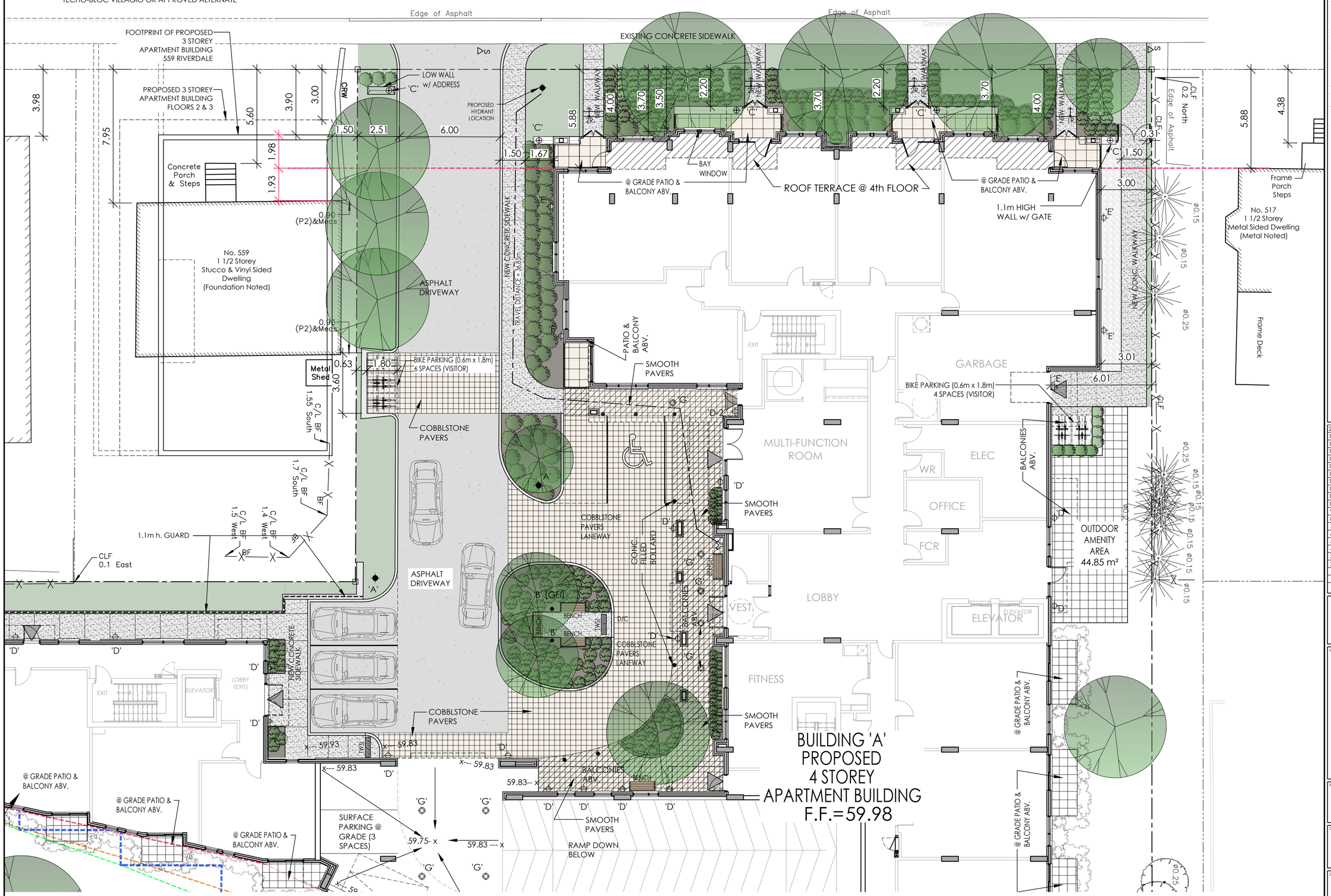
DATE: AUG., 2025.
SCALE: 1:250
DRAWN BY: JB
CHECKED: MDB
SHEET No. SP-1

LEGEND:

- BUILDING ABOVE
- EXISTING TREE TO REMAIN
- EXISTING TREE TO REMAIN
- PROPOSED TREE
- BIKE RACKS (VISITOR)

WOONERF SRFACE MATERIALS:

- SMOOTH SURFACE PAVERS
- COBBLESTONE TYPE PAVERS TECHO-BLOC VILLAGIO OR APPROVED ALTERNATE



A PARTIAL SITE PLAN - ENTRANCE COURTYARD
SCALE= 1:150

* SEE DRAWINGS SP-1, A2, A5 & A6 FOR EXTERIOR LIGHTING SCHEDULE *

M. David Blakely Architect Inc.
2200 Prince of Wales Dr. - Suite 101
Ottawa, Ontario K2E 6Z9
Phone (613) 226-8811 Fax (613) 226-7942

GENERAL NOTES:

1 - THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS. ANY DISCREPANCY MUST BE REPORTED TO M. DAVID BLAKELY ARCHITECT Inc.
2 - ALL WORK AND MATERIALS TO BE IN COMPLAINCE WITH ALL CODES, REGULATIONS, & BY-LAWS
3 - ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST THE PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE PLANS IN CONTRACT DOCUMENTS
4 - DO NOT SCALE DRAWINGS.
5 - THIS DRAWING SHALL NOT BE USED OR COPIED WITHOUT THE AUTHORIZATION OF THE ARCHITECT
6 - THIS DRAWING SHALL NOT BE USED FOR PERMIT OR CONSTRUCTION UNLESS THE DRAWING BEARS THE ARCHITECT'S SEAL AND SIGNATURE
7 - THIS REPRODUCTION SHALL NOT BE ALTERED.

BRICK LINTELS

OPENINGS UP TO	L SIZE
5'-0"	L 3 1/2" x 3 1/2" x 5/16"
7'-0"	L 4" x 3 1/2" x 5/16"
8'-0"	L 5" x 3 1/2" x 5/16"
9'-0"	L 5" x 3 1/2" x 3/8"
10'-0"	L 6" x 4" x 3/8"

6"min. BEARING EACH END

#	DATE:	DESCRIPTION	INIT.
20.			
19.			
18.			
17.			
16.			
15.			
14.			
13.			
12.			
11.			
10.			
9.			
8.			
7.			
6.			
5.	28/06/26	FOR SITE PLAN CONTROL	JB
4.	17/06/26	EXTERIOR SITE LIGHTING ADDED	JB
3.	10/06/26	REV. PER COMMENTS	JB
2.	04/06/26	REV. PER COMMENTS FOR COORDINATION	JB
1.	21/05/26	FOR REVIEW & COORDINATION	JB

REVISIONS

A - DETAIL NUMBER
B - SHEET NUMBER (DETAIL REQUIRED)
C - SHEET NUMBER (DETAIL LOCATION)

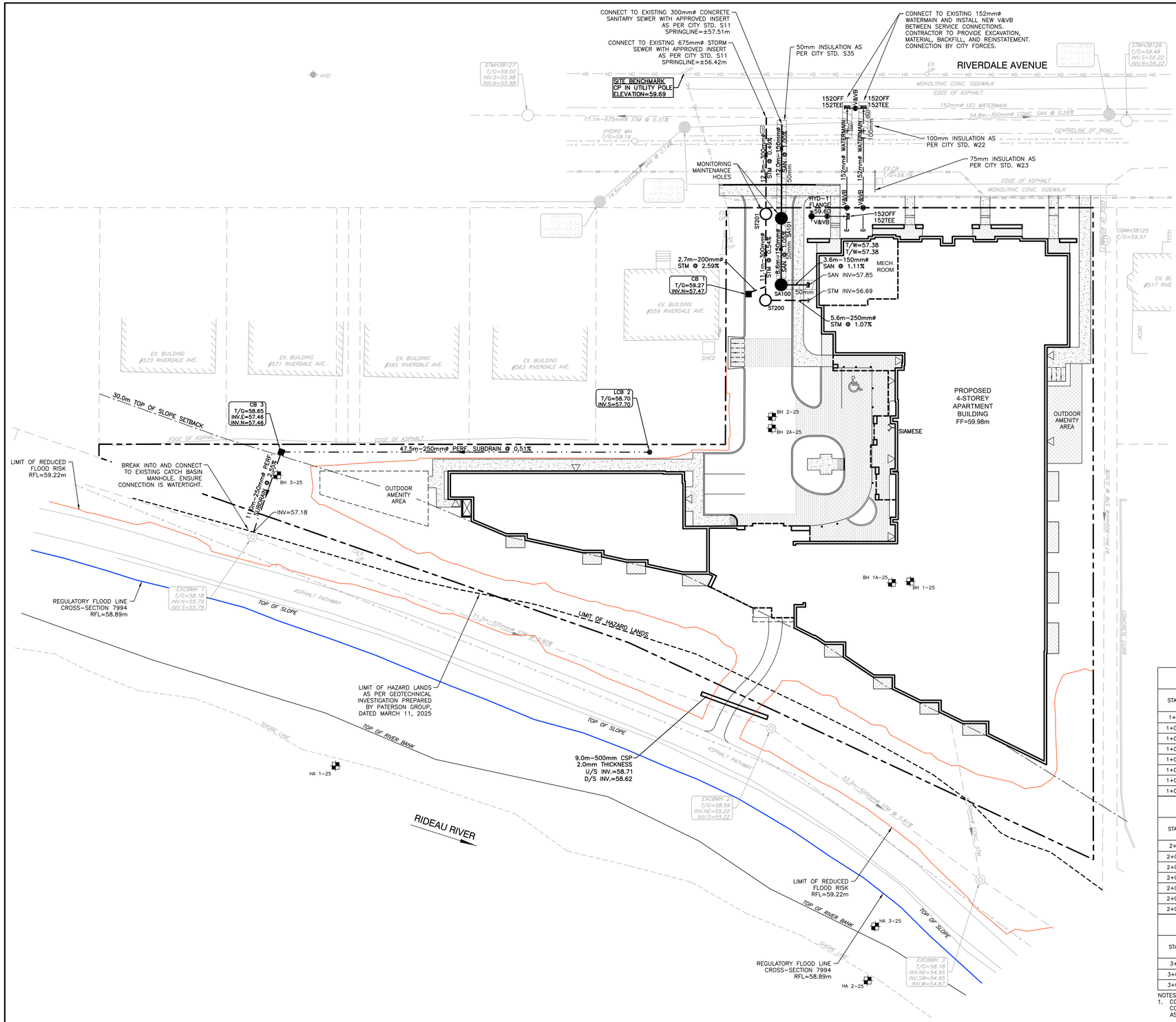
SEAL: ONTARIO ASSOCIATION OF ARCHITECTS M. DAVID BLAKELY LICENCE 3658

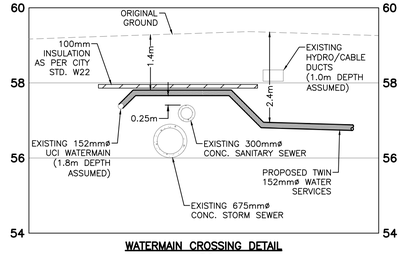
PROJECT: PROPOSED 4 STOREY APARTMENT 551 RIVERDALE AVE. OTTAWA, ONT.

CLIENT: JSS RIVERDALE HOLDINGS INC. 24-551 RIVERDALE AVE. OTTAWA, ON, K1S 1S3

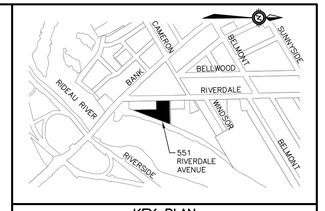
DRAWING TITLE: PARTIAL SITE PLAN ENTRANCE COURTYARD

DATE:	SCALE:	
DEC. 2025	1:150	SK-SP1
DRAWN BY: JB	CHECKED: MDB	





WATERMAIN CROSSING DETAIL
N.T.S.



KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- LIMIT OF HAZARD LANDS
- 30.0m TOP OF SLOPE SETBACK
- LIMIT OF REDUCED FLOOD RISK (EL=59.22m)
- REGULATORY FLOOD LINE (EL=58.89m)
- BUILDING ENTRANCE
- EXISTING GAS
- EXISTING HYDRO
- EXISTING CABLE
- EXISTING OVERHEAD UTILITIES
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING WATERMAIN
- EXISTING VALVE & VALVE BOX
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- HYDRANT
- WATERMAIN
- V&VB — VALVE & VALVE BOX
- SIAMESE CONNECTION
- SANITARY SEWER & MANHOLE (WATERTIGHT COVER)
- STORM SEWER & MANHOLE
- CATCH BASIN
- TCB — TEE LANDSCAPE CATCH BASIN (CITY STD. S30)
- LCB — ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- 1 — CROSSING NUMBER
- 50mm — INSULATION & THICKNESS (CITY STD. W22/S35)
- SWALE WITH 250mmø PERFORATED SUBDRAIN
- BOREHOLE (REFER TO GEOTECHNICAL REPORT)

INLET CONTROL DEVICE (ICD) TABLE

STRUCTURE	ORIFICE TYPE
CB 1	TEMPEST HF WITH NO FLOW RESTRICTION

CROSSING TABLE

CROSSING No.	SERVICE	INVERT/OBVERT	SEPARATION (m)
1	*SANITARY*	*57.29*	0.56
	STORM	56.73	
2	WATER	57.66	0.76
	STORM	*56.90*	
3	WATER	57.66	0.25*1
	SANITARY	*57.41*	

NOTES:
1. MINIMUM SEPARATION REDUCED TO 250mm TO MAXIMIZE COVER DEPTH OVER WATER SERVICES.

152mmø WATERMAIN GRADE TABLE – SERVICE 1

STATION	FINISHED GRADE (m)	TOP OF WATER (m)	COVER DEPTH (m)	COMMENTS
1+000	59.25	±57.45	1.80	152 OFF 152 TEE (ROTATE AT 45°)
1+000.3	59.25	57.81	1.44	45° VERTICAL BEND
1+001.3	59.29	57.81	1.48	STORM CROSSING
1+002.9	59.35	57.81	1.54	45° VERTICAL BEND
1+003.8	59.35	56.95	2.40	45° VERTICAL BEND
1+012.8	59.42	57.02	2.40	VALVE & VALVE BOX
1+013.9	59.45	57.05	2.40	152 OFF 152 TEE
1+015.8	59.78	57.38	2.40	CAP

152mmø WATERMAIN GRADE TABLE – SERVICE 2

STATION	FINISHED GRADE (m)	TOP OF WATER (m)	COVER DEPTH (m)	COMMENTS
2+000	59.25	±57.45	1.80	152 OFF 152 TEE (ROTATE AT 45°)
2+000.3	59.25	57.81	1.44	45° VERTICAL BEND
2+001.3	59.29	57.81	1.48	STORM CROSSING
2+002.9	59.35	57.81	1.54	45° VERTICAL BEND
2+003.8	59.35	56.95	2.40	45° VERTICAL BEND
2+012.8	59.42	57.02	2.40	VALVE & VALVE BOX
2+015.8	59.78	57.38	2.40	CAP

152mmø WATERMAIN GRADE TABLE – HYDRANT LEAD

STATION	FINISHED GRADE (m)	TOP OF WATER (m)	COVER DEPTH (m)	COMMENTS
3+000	59.45	57.05	2.40	152 OFF 152 TEE
3+002.5	59.40	57.00	2.40	VALVE & VALVE BOX
3+004.5	59.47	57.07	2.40	HYDRANT

NOTES:
1. CONNECTIONS TO LIVE WATERMAINS TO BE COMPLETED BY CITY FORCES. CONTRACTOR TO PROVIDE EXCAVATION, MATERIAL, BACKFILL, REINSTATEMENT AND ASSISTANCE AS REQUIRED.

SANITARY STRUCTURE TABLE

STRUCTURE ID	DIMENSIONS (mm)	FRAME	T/G ELEV	INVERT
SA101	1200	S24	59.27	E=57.66 W=57.83
SA100	1200	S24	59.35	N=57.81 W=57.75

STORM STRUCTURE TABLE

STRUCTURE ID	DIMENSIONS (mm)	FRAME	T/G ELEV	INVERT
CB 1	600x600	S19	59.27	N=57.47
CB 3	600x600	S19	58.65	N=57.46 E=57.46
LCB 2	300	S31	58.70	S=57.70
ST200	1200	S24.1	59.33	W=56.57 N=56.63
ST201	1200	S24.1	59.24	E=56.51 W=56.48

NOTES

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

PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M, CONCESSION C (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2025. BEARINGS ARE DERIVED FROM THE CAN-NET REAL TIME NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD-83 (ORIGINAL). ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CGVD-1928:1978 DATUM (MONUMENT No. Ott. 118 INDEX No. 230)

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	29/07/26	BLM

SCALE
HORIZONTAL 1:250

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
29 July '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

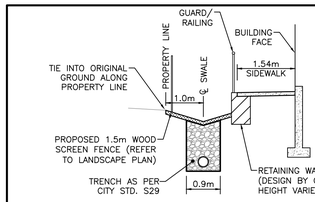
DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

JSS RIVERDALE HOLDINGS INC.

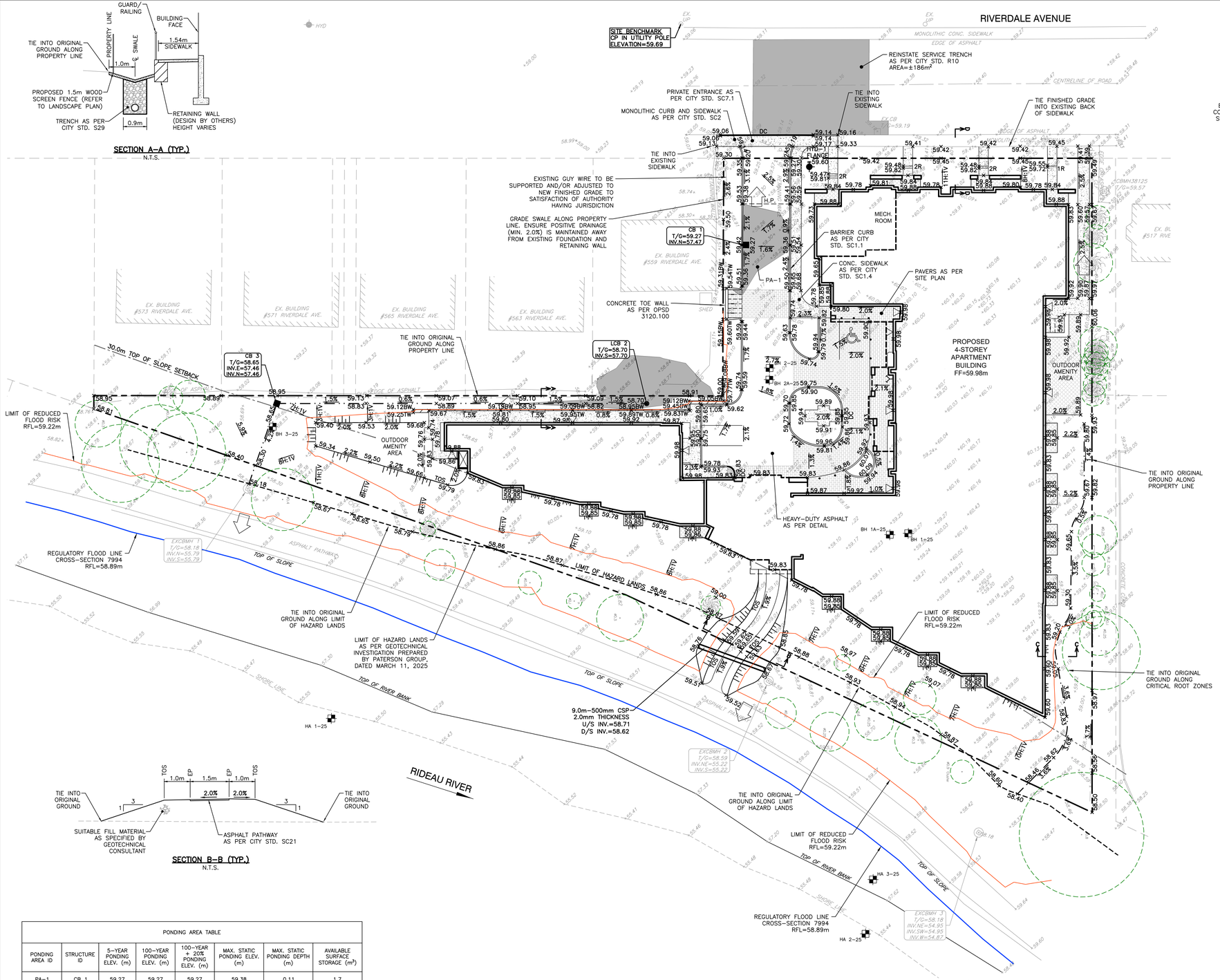
551 RIVERDALE AVENUE
OTTAWA, ON

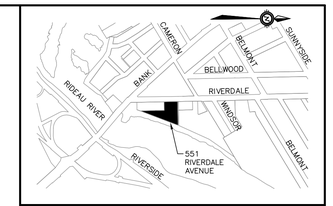
SERVICINIG PLAN

PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-S1

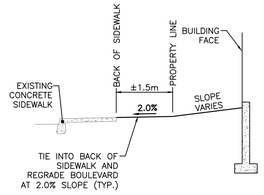


SECTION A–A (TYP.)
N.T.S.





KEY PLAN



SECTION D–D (TYP.)
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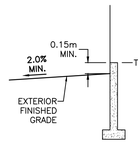
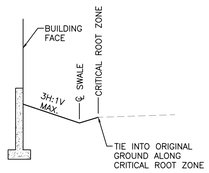


TYPICAL FOUNDATION DETAIL
N.T.S.

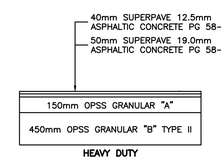


SECTION C–C (TYP.)
N.T.S.

SECTION B–B (TYP.)
N.T.S.

LEGEND

- PROPERTY BOUNDARY
- LIMIT OF HAZARD LANDS
- 30.0m TOP OF SLOPE SETBACK
- LIMIT OF REDUCED FLOOD RISK (EL=59.22m)
- REGULATORY FLOOD LINE (EL=58.89m)
- BUILDING ENTRANCE
- × 60.00 EXISTING ELEVATION
- × 62.00 PROPOSED GRADE
- 2.0% DRAINAGE SLOPE & DIRECTION
- 3R PROPOSED NUMBER OF RISERS
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- CATCH BASIN
- LCB ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- EXISTING HYDRANT
- HYDRANT
- SWALE
- SWALE WITH 250mmø PERFORATED SUBDRAIN
- H.P. HIGH POINT
- DC DEPRESSED CURB WITH TWSI
- TERRACING (3H:1V MAX.)
- RETAINING WALL
- BOREHOLE (REFER TO GEOTECHNICAL REPORT)
- MAJOR OVERLAND FLOW ROUTE
- RETAINED EXISTING TREE AND CRZ
- MAX. STATIC PONDING LIMIT



HEAVY DUTY

NOTES:
1. REFER TO GEOTECHNICAL INVESTIGATION PREPARED BY PATERSON GROUP.
2. GEOTECHNICAL CONSULTANT TO REVIEW SUBGRADE PRIOR TO PLACEMENT OF GRANULARS.

PAVEMENT STRUCTURE DETAIL
N.T.S.

PONDING AREA TABLE

PONDING AREA ID	STRUCTURE ID	5–YEAR PONDING ELEV. (m)	100–YEAR PONDING ELEV. (m)	100–YEAR + 20% PONDING ELEV. (m)	MAX. STATIC PONDING ELEV. (m)	MAX. STATIC PONDING DEPTH (m)	AVAILABLE SURFACE STORAGE (m³)
PA–1	CB 1	59.27	59.27	59.27	59.38	0.11	1.7
PA–2	LCB 2	58.70	58.70	58.70	58.95	0.25	5.8

NOTES:
1. NO SURFACE PONDING WILL OCCUR FOR UP TO AND INCLUDING THE 100–YEAR + 20% DESIGN EVENT.

NOTES

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PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M, CONCESSION C (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2025. BEARINGS ARE DERIVED FROM THE CAN–NET REAL TIME NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD–83 (ORIGINAL). ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CGVD–1928:1978 DATUM (MONUMENT No. Ott. 118 INDEX No. 230)

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	29/07/26	BLM

SCALE
HORIZONTAL 1:250

LICENSED PROFESSIONAL ENGINEER
B.L. MACKECHNIE
100199554
29 July '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

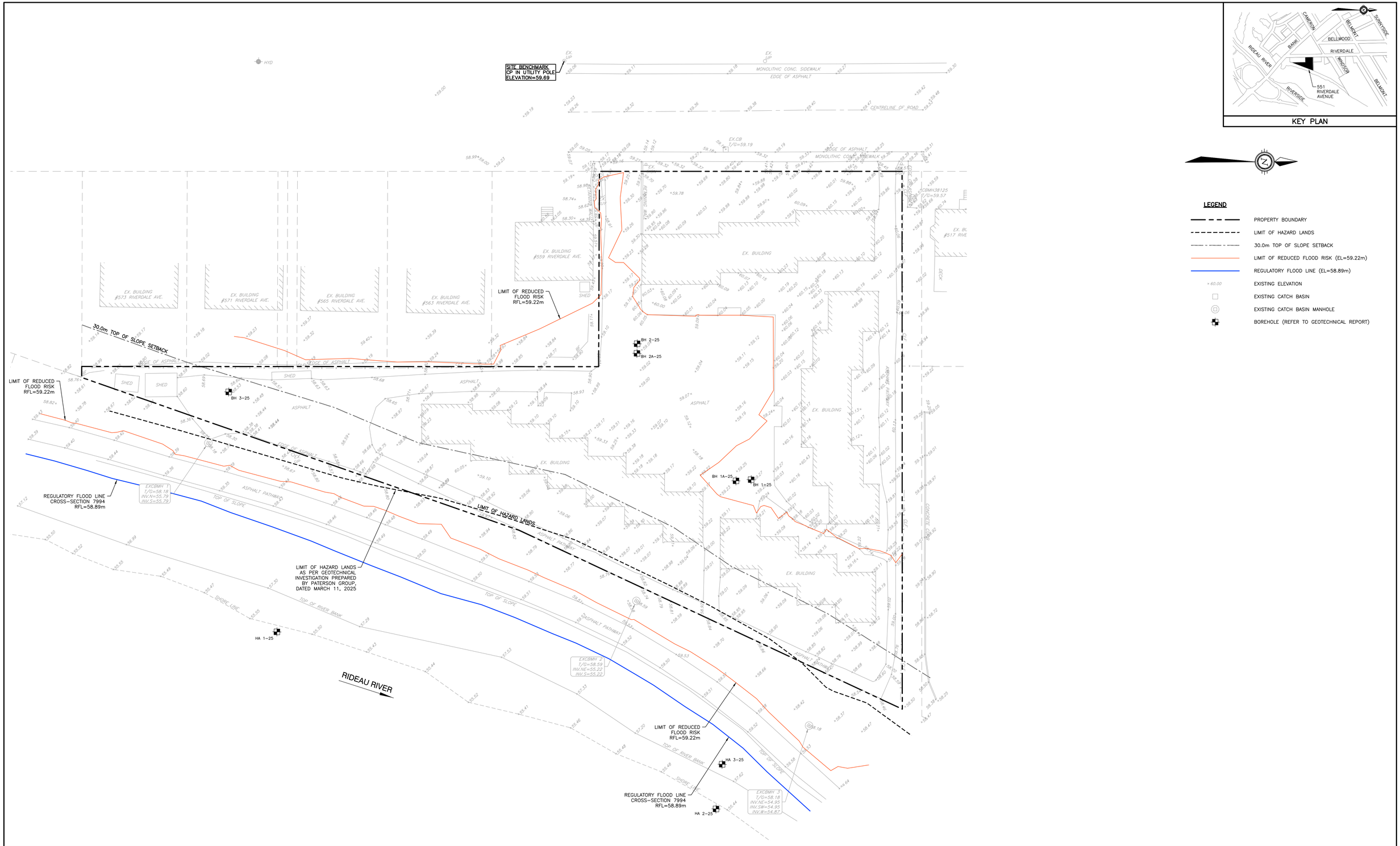
DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

JSS RIVERDALE HOLDINGS INC.

551 RIVERDALE AVENUE
OTTAWA, ON

GRADING PLAN

PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-GR1



NOTES

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0 2m 4m 10m

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(613) 592-6060 rcii.com

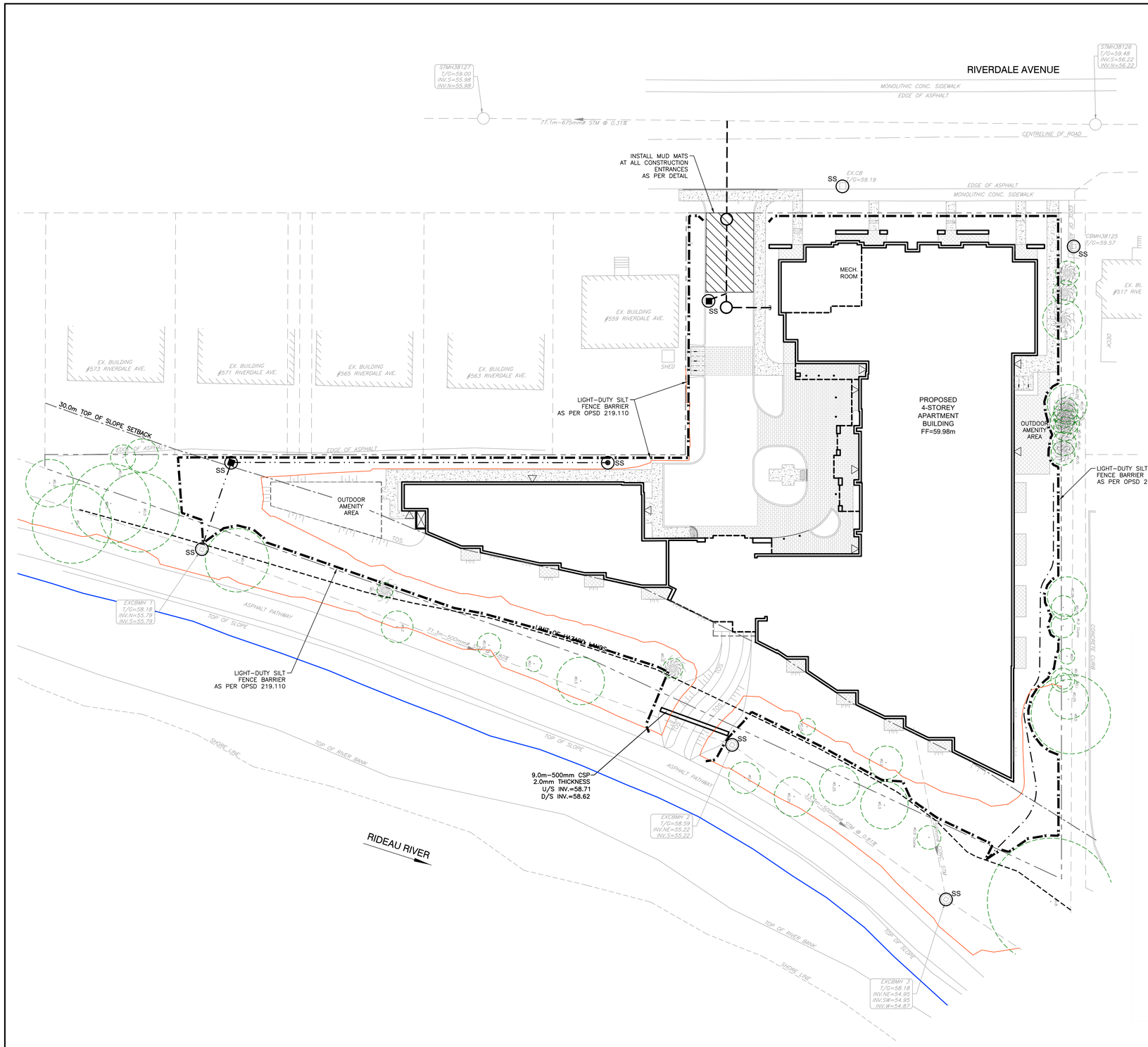
DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

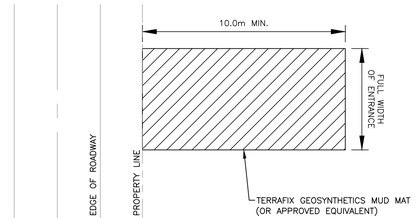
JSS RIVERDALE HOLDINGS INC.

551 RIVERDALE AVENUE
OTTAWA, ON

FLOODPLAIN CONFIRMATION PLAN

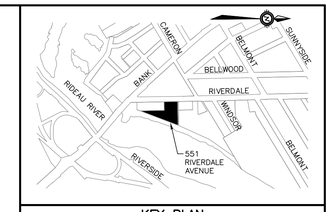
PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-FP1





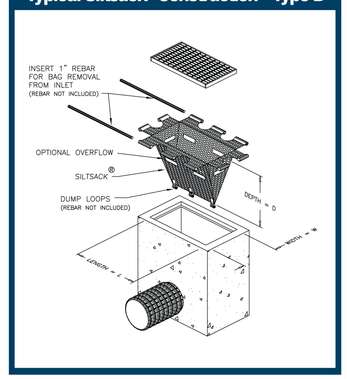
NOTES:
1. SEDIMENT SHALL BE CLEANED FROM ROADWAYS AS REQUIRED.
2. INSTALL AND MAINTAIN MUD MATS AT ALL CONSTRUCTION ENTRANCES.

MUD MAT DETAIL
N.T.S.



KEY PLAN

Typical Siltsack® Construction - Type B



LEGEND

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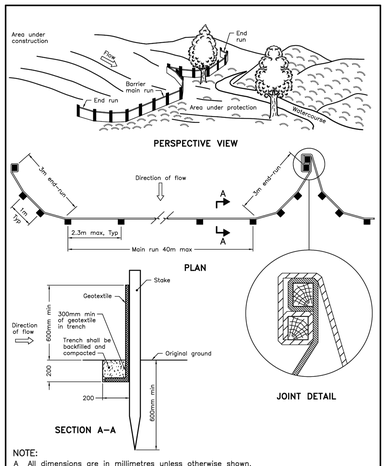
- LIMIT OF HAZARD LANDS
- 30.0m TOP OF SLOPE SETBACK
- LIMIT OF REDUCED FLOOD RISK (EL=59.22m)
- REGULATORY FLOOD LINE (EL=58.89m)
- BUILDING ENTRANCE
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING STORM SEWER & MANHOLE
- STORM SEWER & MANHOLE
- CATCH BASIN
- LCB — ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- SWALE
- SWALE WITH 250mmø PERFORATED SUBDRAIN
- TERRACING (3H:1V MAX.)
- RETAINED EXISTING TREE AND CRZ
- LIGHT–DUTY SILT FENCE BARRIER
- SS — SILT SACK (OR APPROVED EQUIVALENT)



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

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

NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE ULTIMATE RECEIVING WATERCOURSE DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. LIMIT THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME.
3. RETAIN EXISTING VEGETATION TO THE GREATEST EXTENT POSSIBLE FOR AS LONG AS POSSIBLE.
4. MINIMIZE SLOPE LENGTH AND GRADIENT OF DISTURBED AREAS.
5. MAINTAIN OVERLAND SHEET FLOW AND AVOID CONCENTRATED FLOWS.
6. REDUCE RUNOFF VELOCITIES AND DETAIN RUNOFF TO PROMOTE SETTLING.
7. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION HAS BEEN RE–ESTABLISHED IN ALL DISTURBED AREAS. RE–VEGETATE DISTURBED AREAS AS SOON AS POSSIBLE.
8. ALL ESC MATERIALS WHICH ARE NON–BIODEGRADABLE SHALL BE REMOVED ONCE DISTURBED AREAS ARE STABILIZED.
9. DIVERT RUNOFF FROM PROBLEM AREAS AND AWAY FROM INFILTRATION BASED LID PRACTICES (WHERE APPLICABLE).
10. AVOID HEAVY VEHICLE TRAFFIC WHERE INFILTRATION BASED LID MEASURES ARE PROPOSED (WHERE APPLICABLE).
11. CONTRACTOR SHALL MINIMIZE THE AMOUNT OF STOCKPILED MATERIAL. ALL STOCKPILE SOIL SHALL BE 30 METRES OR GREATER FROM WATERCOURSES, LID PRACTICES, DRAINAGE FEATURES AND TOP OF STEEP SLOPES. THE DOWNSTREAM SIDE OF ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCE, FIBRE ROLLS OR EQUIVALENT MEASURES PRIOR TO A RAINFALL EVENT.
12. STOCKPILED MATERIAL (<150mm DIA. GRAVEL) SHALL BE LOCATED IN A PROPERTY FENCED AREA (e.g. ENCLOSED BY SILT FENCE AND CONSTRUCTION FENCE) DURING THE TURTLE NESTING PERIOD (LATE MAY TO EARLY JULY) AS PER MNRF, 2015b.
13. REFUELING OF MACHINERY SHALL OCCUR 30 METRES OR GREATER FROM SURFACE WATER FEATURES AND ALL MACHINERY SHALL REMAIN ON THE PROJECT–SIDE OF THE PERIMETER SILT FENCE AND/OR CONSTRUCTION FENCE.
14. SILT SACKS ARE TO BE PLACED UNDERNEATH THE FRAME AND COVER OF ALL PROPOSED AND EXISTING CATCH BASIN AND OPEN COVER STORM MANHOLES UNTIL CONSTRUCTION IS COMPLETED.
15. LIGHT–DUTY SILT FENCE BARRIERS SHALL BE INSTALLED AS PER OPSD 219.110 WHERE INDICATED AND MAINTAINED AS REQUIRED.
16. A STURDY CONSTRUCTION FENCE SHALL ALSO BE PROVIDED AROUND THE SITE PERIMETER TO ACT AS A WILDLIFE EXCLUSION MEASURE AND ISOLATE THE WORK AREA.
17. DURING ACTIVE CONSTRUCTION PERIODS, VISUAL INSPECTIONS SHALL BE UNDERTAKEN ON A WEEKLY BASIS AND AFTER MAJOR STORM EVENTS (>25mm RAIN IN 24 HOUR PERIOD) ON SEDIMENT CONTROL BARRIERS AND ANY DAMAGE REPAIRED IMMEDIATELY.
18. EROSION AND SEDIMENT CONTROL BARRIERS SHALL ALSO BE ASSESSED (AND REPAIRED AS REQUIRED) FOLLOWING SIGNIFICANT SNOWMELT EVENTS.
19. VISUAL INSPECTIONS SHALL ALSO BE UNDERTAKEN IN ANTICIPATION OF LARGE STORM EVENTS (OR A SERIES OF RAINFALL AND/OR SNOWMELT DAYS) THAT COULD POTENTIALLY YIELD SIGNIFICANT RUNOFF VOLUMES.
20. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION OPERATIONS.
21. IN SOME CASES, BARRIERS MAY BE REMOVED TEMPORARILY TO ACCOMMODATE THE CONSTRUCTION OPERATIONS. THE AFFECTED BARRIERS SHALL BE REINSTATED IMMEDIATELY AFTER CONSTRUCTION OPERATIONS ARE COMPLETED.
22. SEDIMENT CONTROL DEVICES SHALL BE CLEANED OF ACCUMULATED SEDIMENTATION AS REQUIRED AND REPLACED AS NECESSARY.
23. DURING THE COURSE OF CONSTRUCTION, IF THE ENGINEER BELIEVES THAT ADDITIONAL PREVENTION METHODS ARE REQUIRED TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES, AS REQUIRED, TO THE SATISFACTION OF THE ENGINEER.
24. CONSTRUCTION AND MAINTENANCE REQUIREMENTS FOR EROSION AND SEDIMENT CONTROLS ARE TO COMPLY WITH OPSS 805.
25. MUD MATS SHALL BE INSTALLED AT ALL CONSTRUCTION ENTRANCES.
26. INSPECTION AND MAINTENANCE OF TEMPORARY ESC MEASURES SHALL CONTINUE UNTIL THEY ARE NO LONGER REQUIRED.
27. THE CONTRACTOR SHALL ENSURE THAT RECORDS OF INSPECTION ARE TAKEN, INCLUDING INSPECTOR'S NAME, DATE OF INSPECTION, VISUAL OBSERVATIONS, AND ANY NECESSARY REMEDIAL MEASURES TAKEN TO MAINTAIN INTERIM ESC MEASURES.
28. THE CONTRACTOR IS RESPONSIBLE TO DEVELOP A RESPONSE PLAN WHICH SHALL BE IMPLEMENTED IMMEDIATELY FOLLOWING A SPILL OF A DELETERIOUS SUBSTANCE.
29. THE CONTRACTOR SHALL KEEP AN EMERGENCY SPILL KIT ON–SITE AT ALL TIMES.
30. IN THE EVENT OF A SPILL, WORK SHALL BE STOPPED AND THE DELETERIOUS SUBSTANCE SHOULD BE CONTAINED TO PREVENT FURTHER DISPERSAL.
31. ANY SPILLS SHALL BE REPORTED IMMEDIATELY TO THE MECP SPILLS RESPONSE CENTRE ONLINE OR BY TELEPHONE (1–866–663–8477).

NOTES

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1	ISSUED FOR REVIEW	29/07/26	BLM

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LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
29 JULY '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

JSS RIVERDALE HOLDINGS INC.

551 RIVERDALE AVENUE
OTTAWA, ON

EROSION AND SEDIMENT CONTROL PLAN

PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-ESC1

GENERAL NOTES:

1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE CITY OF OTTAWA AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), AS AMENDED BY THE CITY OF OTTAWA.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
4. DESIGN ELEVATIONS GIVEN ARE TO BE ADHERED TO WITH NO CHANGES WITHOUT PRIOR WRITTEN APPROVAL BY ROBINSON LAND DEVELOPMENT.
5. ANY AREAS BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
7. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE M.T.O. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST AMENDMENT).
8. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH, AS SPECIFIED BY OPSD, IS EXCEEDED.
10. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING.
11. REFER TO GEOTECHNICAL INVESTIGATION PREPARED BY PATERSON GROUP DATED MARCH 11, 2025.
12. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL PROVIDE FOR DEWATERING, SUPPORT AND PROTECTION OF EXCAVATIONS AND TRENCHING AS WELL AS RELEASE OF ANY PUMPED GROUNDWATER IN A CONTROLLED AND APPROVED MANNER.
13. DO NOT CONSTRUCT USING DRAWINGS THAT ARE NOT MARKED "ISSUED FOR CONSTRUCTION".
14. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
15. MOVEMENT OF MATERIAL ON AND/OR OFF SITE SHALL BE IN ACCORDANCE WITH ONTARIO EXCESS SOIL REGULATION O.REG. 406/19.
16. THE CONTRACTOR SHALL COMPLETE A CCTV INSPECTION OF ALL NEW SANITARY AND STORM SEWERS. A COPY OF THE VIDEO INSPECTION SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW.
17. THE CONTRACTOR SHALL COMPLETE PRE AND POST CONSTRUCTION CCTV INSPECTION OF ALL EXISTING MUNICIPAL SEWERS WHERE CONNECTIONS WILL OCCUR.

STORM SEWERS:

1. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2 (LATEST AMENDMENT). ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1 (LATEST AMENDMENT). PIPE SHALL BE JOINTED WITH STD. RUBBER GASKETS AS PER CSA A257.3 (LATEST AMENDMENT).
2. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE AS PER THE GEOTECHNICAL INVESTIGATION.
3. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
4. STORM MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S24.1.
5. CATCH BASIN MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S28.1.
6. STORM SEWER MANHOLES SERVING SEWERS LESS THAN 900mm SHALL BE CONSTRUCTED WITH A 300mm SUMP. FOR STORM SEWERS 900mm AND OVER USE BENCHING IN ACCORDANCE WITH OPSD 701.021.
7. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADDITIONAL BEDDING, A DIFFERENT TYPE OF BEDDING OR A HIGHER PIPE STRENGTH AT THEIR OWN EXPENSE AND SHALL ALSO BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
8. ALL STORM MANHOLES SHALL BE 1200mm DIAMETER AS PER OPSD 701.010 UNLESS OTHERWISE NOTED.
9. ALL CATCH BASINS SHALL BE 600mm X 600mm AS PER OPSD 705.010 UNLESS OTHERWISE NOTED.

SANITARY SEWERS:

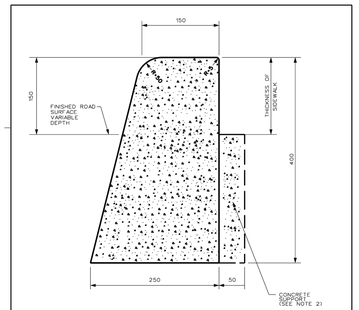
1. ALL SANITARY SEWERS 200mm IN DIAMETER (OR GREATER) SHALL BE PVC SDR 35, IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS.
2. ALL SANITARY SERVICES UNDER 200mm IN DIAMETER SHALL BE PVC SDR 28, IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS.
3. ALL SANITARY SEWERS/SERVICES WITH LESS THAN 2.5m HORIZONTAL SEPARATION TO WATERMAINS SHALL BE CONSTRUCTED USING SEWER PIPE IN ACCORDANCE WITH OPSS 1841, WITH JOINTS CAPABLE OF 345 kPa MINIMUM, CONFORMING TO PSM PVC, CSA B182.2/CSA 182.7 OR CSA B137.3 OR AWWA 302.
4. SANITARY SEWER TRENCH AND BEDDING SHALL BE AS PER CITY OF OTTAWA STD. S6 AND S7, CLASS 'B' BEDDING UNLESS OTHERWISE NOTED.
5. ALL SANITARY SERVICES ARE TO BE EQUIPPED WITH APPROVED BACKWATER VALVES.
6. SANITARY MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S24.
7. SANITARY SEWER MANHOLES SHALL BE BENCHED AS PER OPSD 701.021.
8. FOR SANITARY MANHOLES, DEPENDING ON THE ELEVATION OF THE GROUNDWATER TABLE, AND BASED ON THE RECOMMENDATION OF THE PROJECT GEOTECHNICAL CONSULTANT, CRETEX SEALS, OR A SIMILAR PRODUCT, SHALL BE INSTALLED IN THE PRE-CAST MANHOLE SECTION TO JUST BELOW THE MANHOLE FRAME TO PREVENT INFILTRATION.
9. CONTRACTOR SHALL PERFORM EXFILTRATION TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR ALL SANITARY SEWERS IN ACCORDANCE WITH OPSS 410.

WATER SUPPLY:

1. ALL PVC WATERMAINS SHALL BE EQUAL TO AWWA C-900 CLASS 150, SDR 18, OR APPROVED EQUAL.
2. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17, UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE AS PER THE GEOTECHNICAL INVESTIGATION.
3. ALL PVC WATERMAINS SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W36.
4. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS AS PER CITY OF OTTAWA STD. W40 AND W42.
5. CONTRACTOR TO SUPPLY HYDRANT EXTENSION TO ADJUST THE LENGTH OF HYDRANT BARREL IF REQUIRED.
6. FIRE HYDRANTS SHALL BE INSTALLED AS PER CITY OF OTTAWA STD. W19, AND LOCATED AS PER CITY STD. W18.
7. VALVE BOXES SHALL BE INSTALLED AS PER CITY OF OTTAWA STD. W24.
8. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS AS PER CITY OF OTTAWA STD. W25.5 AND W25.6.
9. THRUST BLOCKING OF WATERMAIN TO BE INSTALLED AS PER CITY OF OTTAWA STD. W25.3 AND W25.4.
10. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS AND BLOW-OFFS AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
11. INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STD. W22 WHERE DEPTH OF COVER IS LESS THAN 2.4m.
12. INSULATION SHALL BE PROVIDED AS PER CITY OF OTTAWA STD. W23 WHERE SEPARATION TO OPEN STRUCTURES IS LESS THAN 2.4m.
13. WATERMAINS CROSSING ABOVE SEWERS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. W25.2. MINIMUM BARREL TO BARREL SEPARATION SHALL BE 500mm.
14. WATERMAINS CROSSING BELOW SEWERS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. W25. MINIMUM BARREL TO BARREL SEPARATION SHALL BE 500mm.
15. CONNECTION TO EXISTING WATERMAIN TO BE PERFORMED BY CITY FORCES. CONTRACTOR TO PROVIDE EXCAVATION, MATERIAL, BACKFILL AND ASSISTANCE AS REQUIRED.
16. SWABBING, DISINFECTION, AND HYDROSTATIC TESTING TO BE CONDUCTED AS PER CITY OF OTTAWA STANDARDS IN THE PRESENCE OF A CITY INSPECTOR AND/OR CONSULTANT.

ROADWORK SPECIFICATIONS:

1. CONCRETE BARRIER CURB SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SC1.1 WHERE INDICATED.
2. ALL BARRIER CURB TO BE 150mm ABOVE FINISHED ASPHALT GRADE UNLESS OTHERWISE NOTED.
3. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SC3 WHERE INDICATED.
4. MONOLITHIC CURB AND SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SC2 WHERE INDICATED.
5. TWSIs SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF OTTAWA STD. SC7.3.
6. ANY PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. R10.
7. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA.
8. ALL GRANULARS FOR ROADS/DRIVEWAYS SHALL BE COMPACTED TO TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT.
9. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300mm LIFTS OR AS DIRECTED BY THE GEOTECHNICAL CONSULTANT.
10. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW-CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW ASPHALT. PROVIDE STEP KEY IN ACCORDANCE WITH CITY OF OTTAWA STD. R10.
11. PAVEMENT STRUCTURE DETAILS AS PER THE GEOTECHNICAL INVESTIGATION.
12. GEOTECHNICAL CONSULTANT SHALL REVIEW SUBGRADE PRIOR TO PLACEMENT OF GRANULAR SUB-BASE.



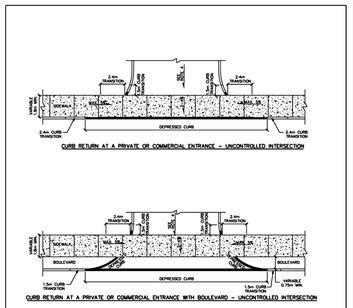
CONCRETE BARRIER CURB

NOTES:

1. THE FULL CURB DEPTH SHALL BE CARRIED THROUGH THE DEPRESSED ACCESS CROSSING.
2. A CONCRETE SUPPORT IS REQUIRED WHEN BUILT ADJACENT TO THE SIDEWALK.
3. THE ENDS OF THE CURB SHALL BE FINISHED WITH EXPANSION BITUMINOUS MATERIAL AND THE *15 DOWELS ARE TO BE PLACED AT THE END OF THE EXTRUSION.
4. EXPANSION AND CONTRACTION JOINTS AS PER SC3.
5. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS: 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm.

(DIMENSIONS mm)
NTS

Ottawa	CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT (MODIFIED OPSD 600.110)	DATE: JAN 2003 / DATE: JANUARY 2026	DWG. No.: SC1.1

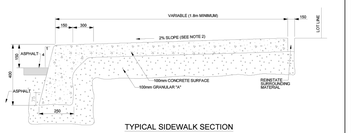


CURB RETURN AT A PRIVATE OR COMMERCIAL ENTRANCE - UNCONTROLLED INTERSECTION

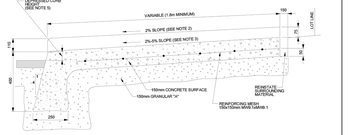
CURB RETURN AT A PRIVATE OR COMMERCIAL ENTRANCE WITH BOULEVARD - UNCONTROLLED INTERSECTION

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. CURB DETAILS SEE SC1.1, SC1.2 AND SC1.3.
3. SIDEWALK DETAILS SEE SC2 AND SC3.
4. MAXIMUM SLOPE VARIES, SEE PRIVATE APPROACH BYLAW.
5. UNCONTROLLED INTERSECTION MEANS AN ENTRANCE NOT LOCATED AT A TRAFFIC SIGNAL OR ALL-WAY STOP CONTROL.

Ottawa	CURB RETURN ENTRANCES - UNCONTROLLED INTERSECTIONS	DATE: MARCH 2007 / REV.: MARCH 2021 / DATE:	DWG. No.: SC7.1



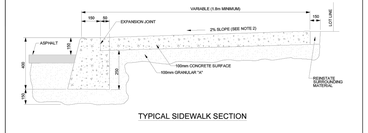
TYPICAL SIDEWALK SECTION



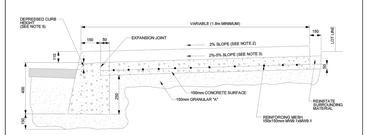
SECTION AT PRIVATE ENTRANCE AND PEDESTRIAN RAMPS

NOTES:
1. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
2. THE MAXIMUM SLOPE IS NOT TO EXCEED 2%
3. FOR CURB RAMPS, SLOPE OF 2% TO 5%, MAXIMUM 8%
4. EXPANSION AND DUMMY JOINTS AS PER SC3
5. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm

Ottawa	TITLE: MONOLITHIC CONCRETE CURB AND SIDEWALK	DATE: MAY 2001 / REV.: JUNE 2026	DWG No: SC2

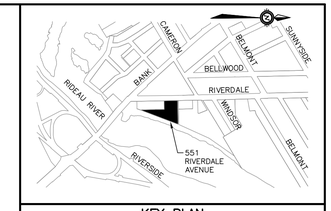


TYPICAL SIDEWALK SECTION

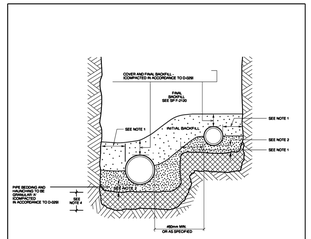


NOTES:
1. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
2. THE MAXIMUM SLOPE IS NOT TO EXCEED 2%
3. FOR CURB RAMPS, SLOPE OF 2% TO 5%, MAXIMUM 8%
4. EXPANSION AND DUMMY JOINTS AS PER SC3
5. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm

Ottawa	TITLE: CONCRETE BARRIER CURB WITH SIDEWALK	DATE: JAN 2003 / REV.: JULY 2025	DWG No: SC1.4



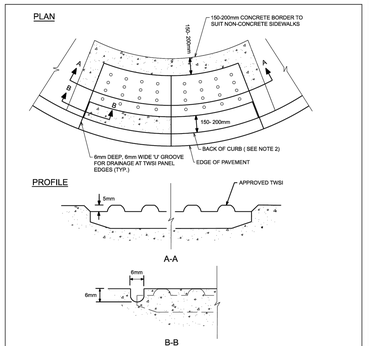
KEY PLAN



NOTES:

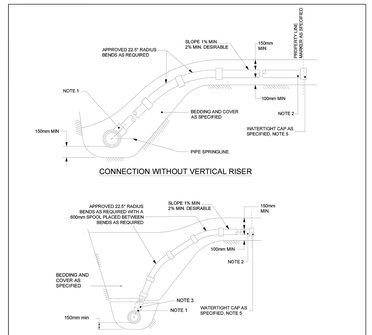
1. PIPE INSIDE DIAMETER (mm) — CLEARANCE (mm):
   - 150 TO 600: CONC -300 / PVC -450
   - OVER 600: 600
2. CONDITION — SEWER — SERVICES:
   - EARTH — 150 Min — 150 Min
   - ROCK — 300 Min — 150 Min
3. FINAL BACKFILL - APPROVED NATIVE MATERIAL OR SELECT SUBGRADE IN ACCORDANCE WITH F-2130
4. WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, ROCK SOIL S (HVL) MAY BE USED FOR BACKFILL. ROCK SOIL S (HVL) SHALL BE PLACED TO THE BOTTOM OF THE BEDDING (GRANULAR B)
5. SEE SI-1 FOR TYPICAL SINGLE, SEMI-DETACHED AND TOWNHOUSE LOT SERVICING
6. INITIAL BACKFILL - CONCRETE PIPE - GRANULAR A OR GRANULAR 'B' PVC PIPE - GRANULAR 'B' PVC PIPE - GRANULAR 'B'

Ottawa	COMBINED TRENCH (SEWERS & SEWER SERVICES)	DATE: MAY 2001 / REV.: MARCH 2019	DWG No: S7



NOTES:
1. TOPS OF TWSI'S (TACTILE WALKING SURFACE INDICATOR) SHALL BE ALIGNED & LEVEL WITH THE ADJACENT CONCRETE SURFACE & INSTALLATION IN WET CONCRETE SHALL BE EFFECTIVE IN PERMANENTLY SECURING THE TWSI IN PLACE ONCE DRY.
2. FOR MONOLITHIC SIDEWALKS, TWSI SHALL BE 300 TO 350mm BACK FROM THE CURB FACE
3. JOINTS SHALL BE CONSTRUCTED TRANSVERSELY ACROSS THE SIDEWALK, PERPENDICULAR TO THE FACE OF THE TWSI PANEL.
4. WHEN JOINTS ARE CONSTRUCTED ADJACENT TO TWSI'S, THE JOINTS SHALL EXTEND FROM THE BACK CORNERS OF THE OUTSIDE TWSI PLATES TO THE BACK OF SIDEWALK, OR TERMINATE AT AN ADJACENT JOINT
5. THE TERMINATION OF THE JOINTS AT BOTH THE FRONT AND BACK OF SIDEWALK SHALL BE NO LESS THAN 600mm APART
6. JOINTS IN ALL CONCRETE ELEMENTS SHALL BE LAID OUT TO ENSURE THAT NO INDIVIDUAL RESULTING CONCRETE PANEL IS LESS THAN 0.5m² OR GREATER THAN 8m²

Ottawa	TITLE: ATTENTION TWSI DETAIL	DATE: MAR 2015 / REV.: JAN 2026	DWG No: SC7.3

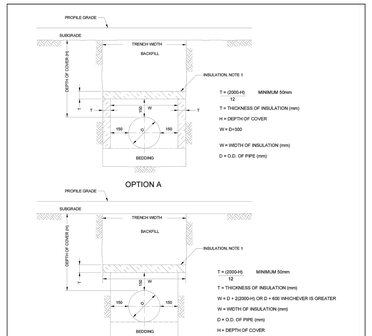


CONNECTION WITHOUT VERTICAL RISER

VERTICAL RISER

NOTES:
1. DIAMETER OF SERVICE CONNECTIONS SHALL BE NO GREATER THAN 50% OF THE DIAMETER OF THE RIGID SEWER MAIN. DIAMETER: THE CONNECTION SHALL BE MADE USING A SELL END INSERT PER S1.2 OR AN APPROVED RUBBER GASKETED INSERT. INVERT OF SERVICE CONNECTION SHALL BE AT THE SAME ELEVATION OR GREATER THAN THE ELEVATION OF THE SPRINGLINE OF THE SEWER MAIN
2. CONNECTIONS TO SEWERS 900mm DIA. OR LARGER SHALL BE MADE USING A SADDLE PER S1.3 OR S1.4
3. OTHERWISE SERVICE PIPE AND RADIUS BENDS TO BE APPROVED CSA B182.2, SDR35 PRODUCTS UNLESS SPECIFIED OTHERWISE
4. APPROVED CONTROLLED SETTLEMENT JOINTS OPTIONAL FOR SERVICE CONNECTIONS TO MAIN SEWERS UP TO 5m DEEP. WHERE APPROVED, CONNECTIONS TO SEWERS OVER 5m DEEP REQUIRE APPROVED CONTROLLED SETTLEMENT JOINTS
5. VERTICAL RISER SHALL BE SAME AS SERVICE PIPE UNLESS OTHERWISE SPECIFIED
6. ALL PIPE JOINTS SHALL BE WATERTIGHT AND SHALL BE CAPABLE OF WITHSTANDING TESTING PRESSURE
7. FOR NEW CONSTRUCTION, INSERTS MUST BE INSTALLED ON THE MAIN PIPE BEFORE THAT PIPE IS LAID. FOR SERVICES/BRANCHES 375mm DIA. OR LESS, APPROVED "CORED TEES" MAY BE USED
8. APPROVED CUT IN TOOL MUST BE USED FOR FIELD MADE CONNECTIONS
9. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
10. RADIUS BENDS GREATER THAN 22.5° ARE NOT ALLOWED

Ottawa	TITLE: SEWER SERVICE CONNECTIONS FOR RIGID MAIN SEWER PIPE (MODIFIED OPSD-1006.010)	DATE: MAR 2006 / REV.: MAR 2024	DWG No: S11

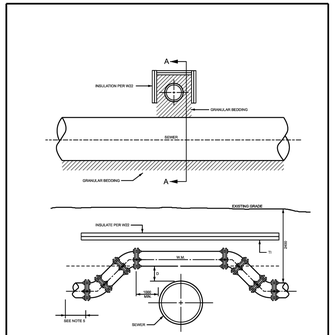


OPTION A

OPTION B
TYPICAL PIPE INSULATION DETAIL

NOTES:
1. THE INSULATION MATERIAL SHALL BE EXTRUDED POLYSTYRENE ACCORDING TO MW-18.15 WITH A MINIMUM COMPRESSIVE STRENGTH OF 275 kPa
2. MINIMUM INSULATION THICKNESS SHALL BE 50mm
3. JOINTS SHALL BE STAGGERED FOR MULTIPLE INSULATION SHEETS
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

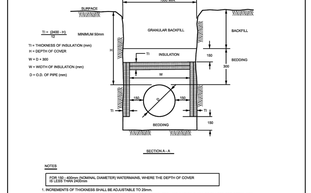
Ottawa	TITLE: INSULATION FOR SHALLOW SEWERS	DATE: MAY 2001 / REV.: JULY 2024	DWG No: S35



SECTION A - A

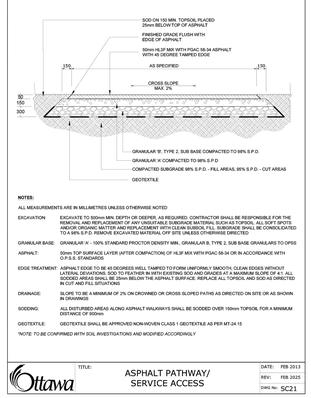
NOTES:
FOR WATERMAIN 150mm (NOMINAL) TO 400mm (NOMINAL)
1. BARREL TO BARREL SEPARATION (S) SHALL BE 500mm MINIMUM.
2. THRUST BLOCKS FOR MAINS LARGER THAN 400mm (NOMINAL) SHALL BE PER SPECIAL DESIGN.
3. THRUST BLOCKS SHALL BE PLACED BETWEEN UNDISTURBED EARTH AND THE FITTINGS SHALL BE MAX. 50° 30'
4. CONCRETE FOR THRUST BLOCKS SHALL BE 20 MPa.
5. REFER TO W35.6 FOR RESTRAINED LENGTH REQUIREMENTS.
6. REFER TO W35.3 AND W35.4 FOR THRUST BLOCK REQUIREMENTS.
7. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
8. ALL WATERMAIN TO BE INSTALLED IN ACCORDANCE WITH PROVINCIAL CRITERIA JUNE 2013.
9. CATHODIC PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH W39, W40, AND W42.
10. TRACER WIRE REQUIRED FOR PVC, PE4 AND HDPE WATERMAIN PER OHC-M-R16.

Ottawa	WATERMAIN CROSSING OVER SEWER	DATE: MAY 2001 / REV.: JULY 2026	DWG No: W25.2



NOTES
1. INCREMENTS OF THICKNESS SHALL BE ADJUSTABLE TO 25mm.
2. IN PROXIMITY OF SHUTTERGARD KELSS CULVERTS, CATCHBASINS, ETC., INSULATION SHALL BE PLACED PER DETAIL W23
3. DEPTH OF COVER LESS THAN 1200mm REQUIRES SPECIAL DESIGN.
4. STAGGER JOINTS OF MULTIPLE SHEETS.
5. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
7. INSULATION NOT TO BE USED AS A BEDDING TO AVOID EXCAVATION.

Ottawa	THERMAL INSULATION FOR WATERMAINS	DATE: MAY 2001 / REV.: JANUARY 2026	DWG No: W22



NOTES:

ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED

EXCAVATION: EXCAVATE TO 600mm MIN. DEPTH OR DEEPER, AS REQUIRED. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF ANY UNSUITABLE SUBGRADE MATERIAL SUCH AS TOPSOIL, ALL SOFT SPOTS AND/OR ORGANIC MATTER AND REPLACEMENT WITH CLEAN SUBSOIL FILL. SUBGRADE SHALL BE CONSOLIDATED TO A 98% S.P.D. REMOVE EXCAVATED MATERIAL OFF SITE UNLESS OTHERWISE DIRECTED

GRANULAR BASE: GRANULAR 'A' - 100% STANDARD PROCTOR DENSITY MIN., GRANULAR B, TYPE 2, SUB BASE GRANULARS TO OPSS

ASPHALT: 50mm TOP SURFACE LAYER (AFTER COMPACTION) OF HL3F MIX WITH PGAC 58-34 OR IN ACCORDANCE WITH C.F.S.S. STANDARDS

EDGE TREATMENT: ASPHALT EDGE TO BE 45 DEGREES WELL TAMPED TO FORM UNIFORMLY SMOOTH, CLEAN EDGES WITHOUT LATERAL DEVIATIONS. SOD TO FEATHER IN WITH EXISTING SOD AND GRADES AT A MAXIMUM SLOPE OF 4:1. ALL SODDED AREAS SHALL BE 25mm BELOW THE ASPHALT SURFACE. REPLACE ALL TOPSOIL AND SOD AS DIRECTED IN CUT AND FILL SITUATIONS

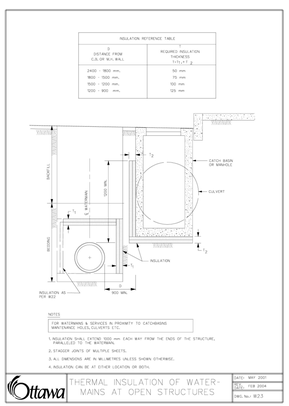
DRAINAGE: SLOPE TO BE A MINIMUM OF 2% ON CROWNED OR CROSS SLOPED PATHS AS DIRECTED ON SITE OR AS SHOWN IN DRAWINGS

SODDING: ALL DISTURBED AREAS ALONG ASPHALT WALKWAYS SHALL BE SODDED OVER 150mm TOPSOIL FOR A MINIMUM DISTANCE OF 900mm

GEOTEXTILE: GEOTEXTILE SHALL BE APPROVED NON-WOVEN CLASS 1 GEOTEXTILE AS PER MT-24.15

*NOTE: TO BE CONFIRMED WITH SOIL INVESTIGATIONS AND MODIFIED ACCORDINGLY

Ottawa	TITLE: ASPHALT PATHWAY/ SERVICE ACCESS	DATE: FEB 2013 / REV.: FEB 2025	DWG No: SC21



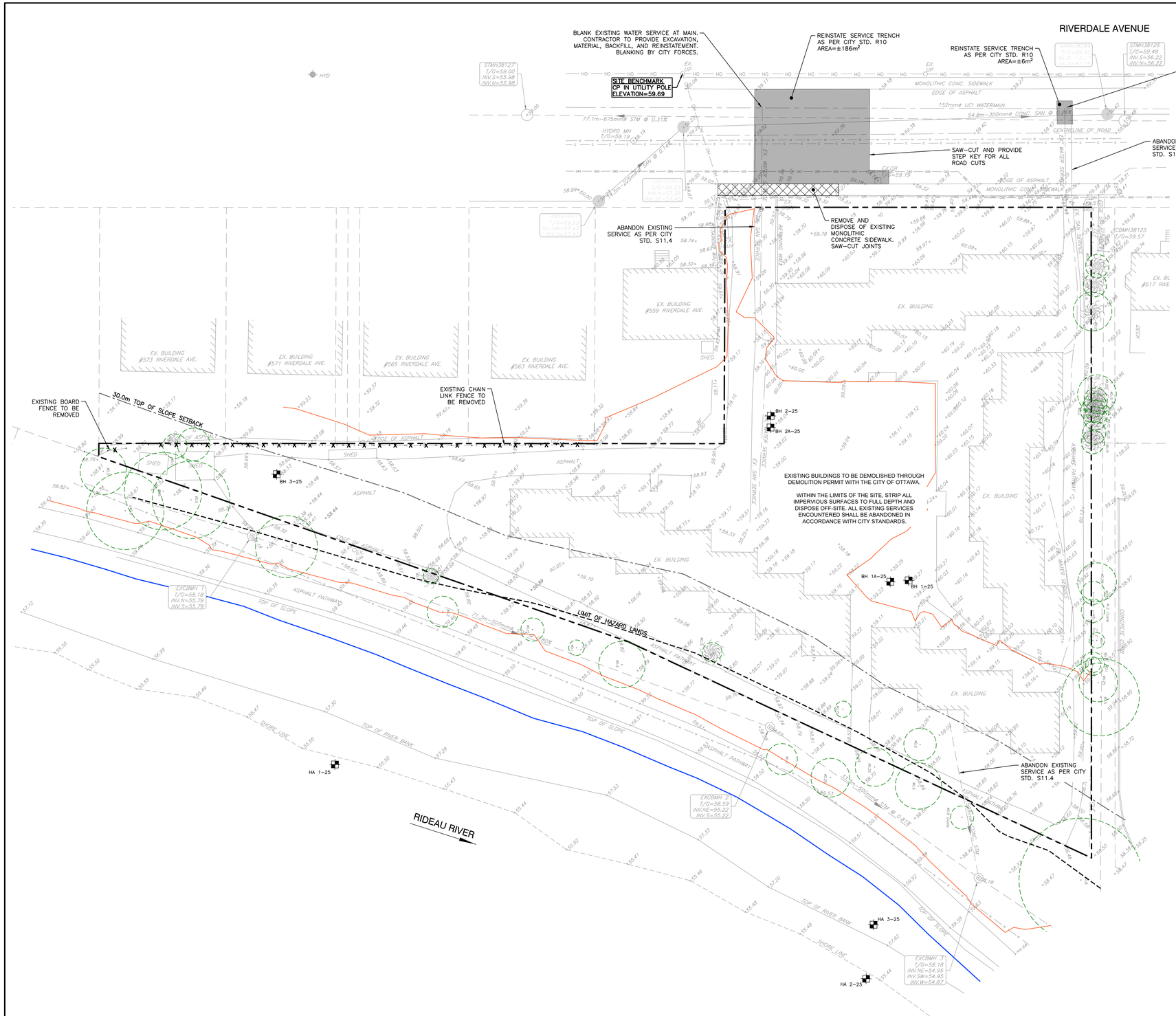
NOTES
FOR WATERMAIN & SERVICES IN PROXIMITY TO CATCHBASINS MANHOLES, COLVERTS, ETC.
1. INSULATION SHALL EXTEND 1000 mm EACH WAY FROM THE ENDS OF THE STRUCTURE, STAGGER JOINTS OF MULTIPLE SHEETS.
2. STAGGER JOINTS OF MULTIPLE SHEETS.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
4. INSULATION CANNOT BE AT OTHER LOCATION OR BOTH.

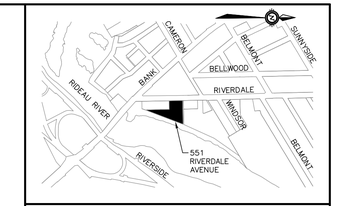
Ottawa	THERMAL INSULATION OF WATER-MAINS AT OPEN STRUCTURES	DATE: MAY 2001 / REV.: FEB 2004	DWG No.: W23

NOTES

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

PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M, CONCESSION C (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, PREPARED





KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- LIMIT OF HAZARD LANDS
- 30.0m TOP OF SLOPE SETBACK
- LIMIT OF REDUCED FLOOD RISK (EL=59.22m)
- REGULATORY FLOOD LINE (EL=58.89m)
- × 60.00 EXISTING ELEVATION
- GAS EXISTING GAS
- H EXISTING HYDRO
- C EXISTING CABLE
- OH EXISTING OVERHEAD UTILITIES
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING WATERMAIN
- VALVE EXISTING VALVE & VALVE BOX
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- BOREHOLE (REFER TO GEOTECHNICAL REPORT)
- RETAINED EXISTING TREE AND CRZ (REFER TO LANDSCAPE PLAN FOR TREES TO BE REMOVED)

NOTES

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

PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M, CONCESSION C (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2025. BEARINGS ARE DERIVED FROM THE CAN-NET REAL TIME NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD-83 (ORIGINAL). ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CGVD-1928:1978 DATUM (MONUMENT No. Ott. 118 INDEX No. 230)

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	29/07/26	BLM

SCALE

0 2m 4m 10m
HORIZONTAL 1:250

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
29 July '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

JSS RIVERDALE HOLDINGS INC.

551 RIVERDALE AVENUE
OTTAWA, ON

EXISTING CONDITIONS AND REMOVALS PLAN

PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-R1

Appendix C

Water Demand Calculations

Correspondence with Architect

OBC Fire Flow Calculations

FUS Fire Flow Calculations

Figure 4.0: Exposures for Fire Flow

Boundary Conditions

Figure 5.0: Hydrant Coverage Plan

Figure 6.0: Fire Access Routes

WATER DEMAND CALCULATIONS

551 Riverdale Avenue, City of Ottawa
Project No. 25042

Robinson Land Development

JUNCTION NODE	RESIDENTIAL POPULATION				COMMERCIAL AREA (ha)	INSTITUTIONAL AREA (ha)	BASIC DAY DEMAND (L/s)				MAX. DAY DEMAND (L/s)				PEAK HOUR DEMAND (L/s)				AVG. DAY DEMAND (m^3/day)
	APARTMENT UNIT COUNT			TOTAL POPULATION															
	1-BEDROOM	2-BEDROOM	3-BEDROOM				RES.	COMM.	INST.	TOTAL	RES.	COMM.	INST.	TOTAL	RES.	COMM.	INST.	TOTAL	
CONNECTION 1	39	38	15	180.9			0.59			0.59	2.70			2.70	4.10			4.10	50.7
Total	**39**	**38**	**15**	**180.9**			**0.59**			**0.59**	**2.70**			**2.70**	**4.10**			**4.10**	**50.7**

Notes:
1. Per unit populations as per OWDG Table 4.1.
2. For populations less than 500 persons, peaking factors as per MOE Table 3-3 (OWDG; Section 4.2.8)
3. Peaking factor for use with basic day demand as per MOE Table 3-3.

Per Unit Populations

Bachelor =	1.4	persons/unit
1-Bedroom =	1.4	persons/unit
2-Bedroom =	2.1	persons/unit
3-Bedroom =	3.1	persons/unit

Basic Day Demand:

Residential	280	L/person/day
Commercial	28000	L/ha/day
Institutional	28000	L/ha/day

Max. Day Demand:

Residential	4.6	x Avg. Day[*2,3]
Commercial	1.5	x Avg. Day
Institutional	1.5	x Avg. Day

Peak Hour Demand:

Residential	7.0	x Avg. Day[*2,3]
Commercial	1.8	x Max. Day
Institutional	1.8	x Max. Day

Table 3-3: Peaking Factors for Drinking-Water Systems Serving Fewer than 500 People

DWELLING UNITS SERVICED	EQUIVALENT POPULATION	NIGHT MINIMUM HOUR FACTOR	MAXIMUM DAY FACTOR	PEAK HOUR FACTOR
10	30	0.1	9.5	14.3
50	150	0.1	4.9	7.4
100	300	0.2	3.6	5.4
150	450	0.3	3.0	4.5
167	500	0.4	2.9	4.3

(Source: MOE Design Guidelines for Drinking-Water Systems)

Brandon Mackechnie

From: mdblakely_jon@bellnet.ca
Sent: March 2, 2026 3:20 PM
To: Brandon Mackechnie; 'Tim Eisner'
Cc: 'JSS Riverdale Holdings Inc Manager'; 'M. David Blakely'
Subject: RE: 551 Riverdale - Input for Site Servicing Design

"CAUTION: External Sender"

Brandon,

1. Building Volume above grade is as follows.
   (heated floor area x floor/floor height)
   1st - 2,015.74m^2 x 3.4m = 6,853.51m^3 (includes covered parking & ramp area = 255.44m^2)
   2nd- 2,040.11m^2 x 3.05m = 6,222.33m^3
   3rd- 2,040.11m^2 x 3.05m = 6,222.33m^3
   4th - 1,990.66m^2 x 3.05m = 6,071.51m^3

   Total building volume= 25,369.68m^3

2. Building O.B.C. Classification (3.2.2.) – 3.2.2.51 – Group C – Up to 6 Stories – Sprinklered.
   Combustible construction permitted (wood framed building)
   Floors- 1 Hour fire separations
   Columns & arches – 1 Hour fire resistance rating
   Roof – 1 Hour fire resistance rating

   This would put us in the following section of the table.

arches do not have a fire-resistance rating.					
Building is of combustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2. of the OBC.	18	22	25	31	41
Building is of combustible construction. Floor assemblies are fire	23	28	32	39	53

Unit type breakdown is shown on the Site Plan,

4 STOREY APARTMENT :	1-BR.	2-BR.	3-BR.	
GROUND FLOOR=	9	4	4	17 UNITS
SECOND FLOOR =	10	11	4	25 UNITS
THIRD FLOOR =	10	11	4	25 UNITS
FOURTH FLOOR =	10	12	3	25 UNITS
TOTAL UNITS =	39	38	15	92 UNITS

SITE DENSITY = 194.91 UNITS/ha

Jonathon Blakely

M. David Blakely Architect Inc.
2200 Prince of Wales Dr., Suite 101
Ottawa, Ontario K2E 6Z9
P- 613-226-8811
F- 613-226-7942
E- mdblakely_jon@bellnet.ca

From: Brandon Mackechnie <bmackechnie@rcii.com>
Sent: March 2, 2026 12:09 PM
To: Tim Eisner <teisner@jfsa.com>; mdblakely_jon@bellnet.ca
Cc: 'JSS Riverdale Holdings Inc Manager' <jssrhi.manager@gmail.com>; 'M. David Blakely' <mdblakely@bellnet.ca>
Subject: 551 Riverdale - Input for Site Servicing Design

Hi Jonathon,

We'll need some information on the building design to complete our design calculations.

1. Building volume (excluding underground parking garage). If each level has the same area, you can just confirm the building height. If the area varies per level, then can you provide areas and heights per level.
2. Building group/division and type of construction so we can select the appropriate water supply coefficient from OBC Table 1 (see attached for reference).

For water and sanitary demands, we can estimate the population based on the type of units. If the exact breakdown of unit types is known (i.e. bachelor, 1-bedroom, 2-bedroom, 3-bedroom, etc.) we can use that otherwise we can use an average rate per unit if the breakdown is still undetermined. Please advise.

Tim, I'll wait for you to confirm that you have no comments on the site plan before we get started with any design work.

Thanks,

Robinson Land Development

Brandon MacKechnie, P.Eng. | Project Engineer
2936 Baseline Road, Suite 200, Ottawa ON, K2H 1B3
O: 613-592-6060 D: 613-891-6485 | bmackechnie@rcii.com | www.rcii.com

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Table C1: Required Water Storage for Fire Protection

Building	BLDG Volume, V (m^3)	Water Supply Coefficient[*1], K	S^{*2}_{TOT}	Min. Water Supply[*3], Q (L)	Required Water Supply Flow Rate[*4] (L/min)
Building A	25,370	18	2.0	913,320	9,000

Notes:

1 Water supply coefficient as per OBC Table 1 (as per Architect)

2 Total spatial coefficient as per OBC Figure 1

3 $Q = K \times V \times S_{TOT}$

4 Required water supply flow rate as per OBC Table 2

5 If Flow Rate = 2700, 3600 or 4500 L/min then Storage = Q - 57000, if Flow Rate = 5400 or 6300 L/min then Storage = Q

Table 1: Water Supply Coefficient - K					
TYPE OF CONSTRUCTION	**Classification by Group or Division in Accordance with Table 3.1.2.1 of the Ontario Building Code**				
	A-2 B-1 B-2 B-3 C D	**A-4 F-3**	**A-1 A-3<**	**E F-2**	**F-1**
Building is of noncombustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches.	10	12	14	17	23
Building is of noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6. of the OBC. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	16	19	22	27	37
Building is of combustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2. of the OBC.	18	22	25	31	41
Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	23	28	32	39	53
Column 1	2	3	4	5	6

Table 2: **Minimum Water Supply Flow Rates**	
Building Code, **Part 3 Buildings**	**Required Minimum Water Supply Flow Rate (L/min.)**
One-storey building with building area not exceeding 600m² (excluding F-1 occupancies)	1800
All other buildings	2700 (If **Q** ≤ 108,000L)[1] 3600 (If **Q** > 108,000L **and** ≤ 135,000L)[1] 4500 (If **Q** > 135,000L **and** ≤ 162,000L)[1] 5400 (If **Q** > 162,000L **and** ≤ 190,000L)[1] 6300 (If **Q** > 190,000L **and** ≤ 270,000L)[1] 9000 (If **Q** > 270,000L)[1]

Note: [1] $\mathbf{Q=KVS_{Tot}}$ as referenced in Section 3(a)

Side	Building A		
	Exposure Distance (m)	S_{side}	Comments
West	3.4	0.5	Measured to northwest property line
North	9.5	0.2	Measured to centreline of Riverdale
East	3.0	0.5	Measured to eastern property line
South	8.0	0.2	Measured to southern property line
Total		2.0	

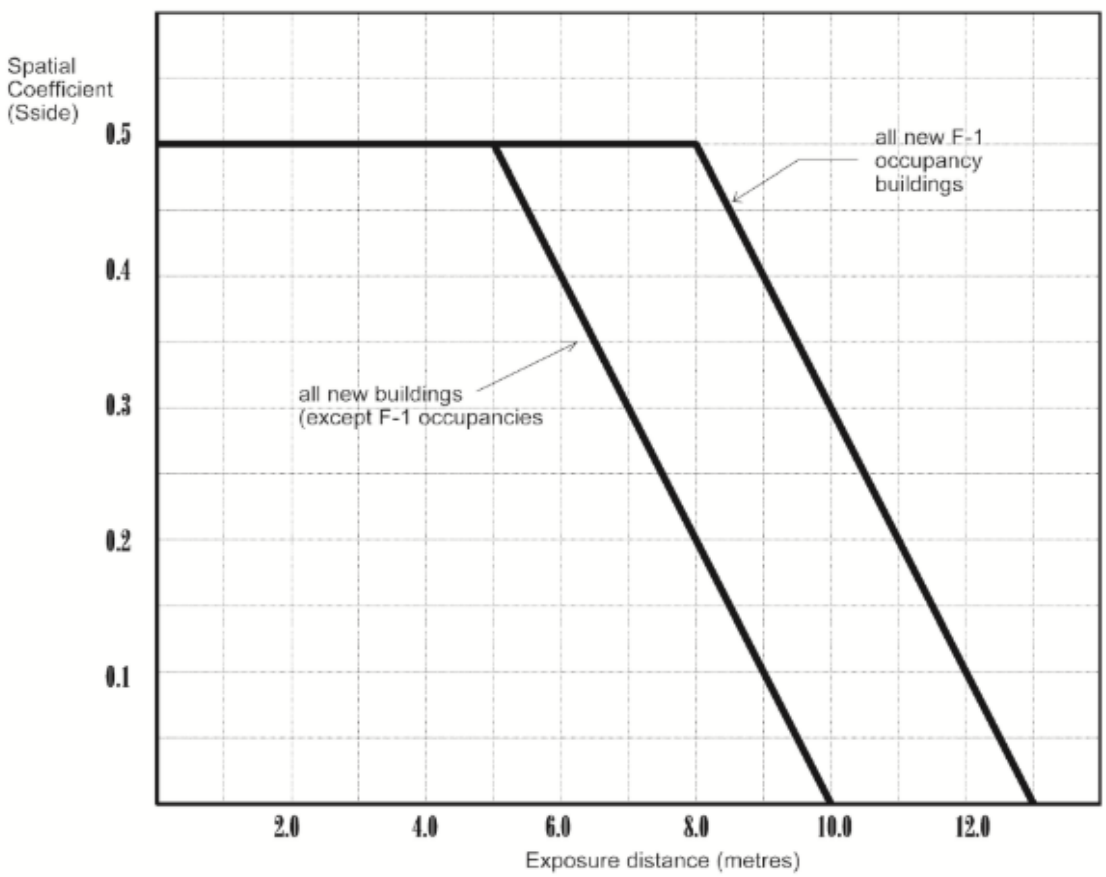

Figure 1
Spatial Coefficient vs Exposure Distance

Project Name:	551 Riverdale
Project Location:	551 Riverdale Avenue
Project No:	25042
Date:	13-Jul-26
Building Type:	4-Storey Apartment
Building Being Considered:	Building A

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Calculations for Total Required Fire Flow

Step	Parameter				Value	
A	**Type of Construction**	**Options**	**C**	Ordinary Construction (Type III)	1.0	
		Wood Frame (Type V)	1.5			
		Ordinary Construction (Type III)	1.0			
		Non-Combustible Construction (Type II)	0.8			
		Fire Resistive Construction (Type I)	0.6			
B	Ground Floor Area				2,016.0	m^2
	2nd Floor Area				2,040.0	m^2
	3rd Floor Area				2,040.0	m^2
	4th Floor Area				1,991.0	m^2
	Total Effective Floor Area				**8,087.0**	**m^2**
C	**Fire Flow**				**20,000**	**L/min**
D	**Occupancy Class**	**Options**	**Charge**	Limited Combustible	-0.15	
		Non-combustible	-0.25			
		Limited Combustible	-0.15			
		Combustible	0.00			
		Free burning	0.15			
		Rapid Burning	0.25			
	Occupancy Adjustment				**-3000**	**L/min**
	Fire Flow				**17,000**	**L/min**
E	**Sprinkler Protection**	**Options**	**Charge**	Automatic Sprinkler Protection	-0.30	
		Automatic Sprinkler Protection	-0.30			
		None	0.00			
		Water Supply is Standard for System and Hose Lines	-0.10	Yes	-0.10	
		Full Supervision of the Sprinker System	-0.10	Yes	-0.10	
	Sprinkler Reduction				**-8,500**	**L/min**
	Exposures					
	South Side					
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems				No	
	Exposed Building Fully Protected with Automatic Sprinker Systems				No	
	Exposed Wall Length				19.1	m
	Exposed Wall No. of Storeys				3	
	Length-Height Factor of Exposed Wall				57.3	m.storeys
	Construction Type of Exposed Wall	**Options**		Wood Frame		
		Wood Frame				
		Ordinary with Unprotected Openings				
		Ordinary without Unprotected Openings				
		Noncombustible or Fire Resistive with Unprotected Openings				
		Noncombustible or Fire Resistive without Unprotected Openings				
	Separation Distance			**exposures based on proposed 3-storey building at 559 Riverdale**	13.2	m
	West Side Exposure Charge				**0.12**	

F	**West Side**				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length			14.5	m
	Exposed Wall No. of Storeys			3	
	Length-Height Factor of Exposed Wall			43.5	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure; see note 2**	34	m
	North Side Exposure Charge			**0.00**	
	North Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length			8.1	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			16.2	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance			7.4	m
	East Side Exposure Charge			**0.15**	
	East Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length				m
	Exposed Wall No. of Storeys				
	Length-Height Factor of Exposed Wall			0	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	200	m
	South Side Exposure Charge			**0.00**	
	Total Exposure Charage			**0.27**	**< 0.75**
	Increase for Exposures			**4590**	**L/min**
G	**Total Required Fire Flow**			**13,000**	**L/min**

Notes:

1. Fire flow calculations have been prepared in accordance with Fire Underwriters Survey (v. 2020)

2. Where buildings are at a diagonal to each other, the shortest separtion distance is increased by 3 metres and used as the exposure distance (Ref. FUS v.2020 pg.30).

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scale 1:500	551 RIVERDALE AVENUE, OTTAWA	project no. 25042
date 13/07/26		
drawn by BLM	EXPOSURES FOR FIRE FLOW	FIG 4.0

Brandon Mackechnie

From: Hughes, Brett <brett.hughes@ottawa.ca>
Sent: April 21, 2026 8:54 AM
To: Brandon Mackechnie
Cc: Wu, John
Subject: RE: 551 Riverdale Avenue - Multi-Hydrant Analysis
Attachments: Multi-Hydrant Analysis 551 Riverdale Avenue April 2026.pdf

"CAUTION: External Sender"

Brandon,

The following are boundary conditions, HGL, for hydraulic analysis at 551 Riverdale Avenue (zone 1W) assumed to be dually connected via the 152 mm watermain on Riverdale Avenue. As requested by the consultant, a multi-hydrant analysis was performed at the following locations (see attached PDF for location):

Minimum HGL = 105.1 m
Maximum HGL = 114.6 m

Multi Hydrant Analysis assuming all three hydrants running simultaneously:

- 368027H022 (152 mm on Riverdale Avenue)
- 368028H080 (152 mm on Cameron Avenue)
- 368027H075 (406 mm on Bank Street)

	Maximum Available Flow under optimal conditions	Distance to Building*
368027H022	95 L/s	< 76m
368028H080	63 L/s	Between 76m – 152m
368027H075	63 L/s	Between 76m – 152m
Total	221 L/s	

**Measured in accordance with 18.5.1.4 & 18.5.1.5 in technical bulletin ISTB-2018-02*

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.

Regards,

Brett Hughes
Project Manager, Infrastructure Approvals
Development Review Central
PLANNING, DEVELOPMENT & BUILDING SERVICES (PDBS)
110 Laurier Ave West | 4th Floor | Ottawa, ON | K1P 1J1
City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 76665

From: Brandon Mackechnie <bmackechnie@rcii.com>
Sent: April 09, 2026 3:14 PM
To: Hughes, Brett <brett.hughes@ottawa.ca>
Subject: 551 Riverdale Avenue - Multi-Hydrant Analysis

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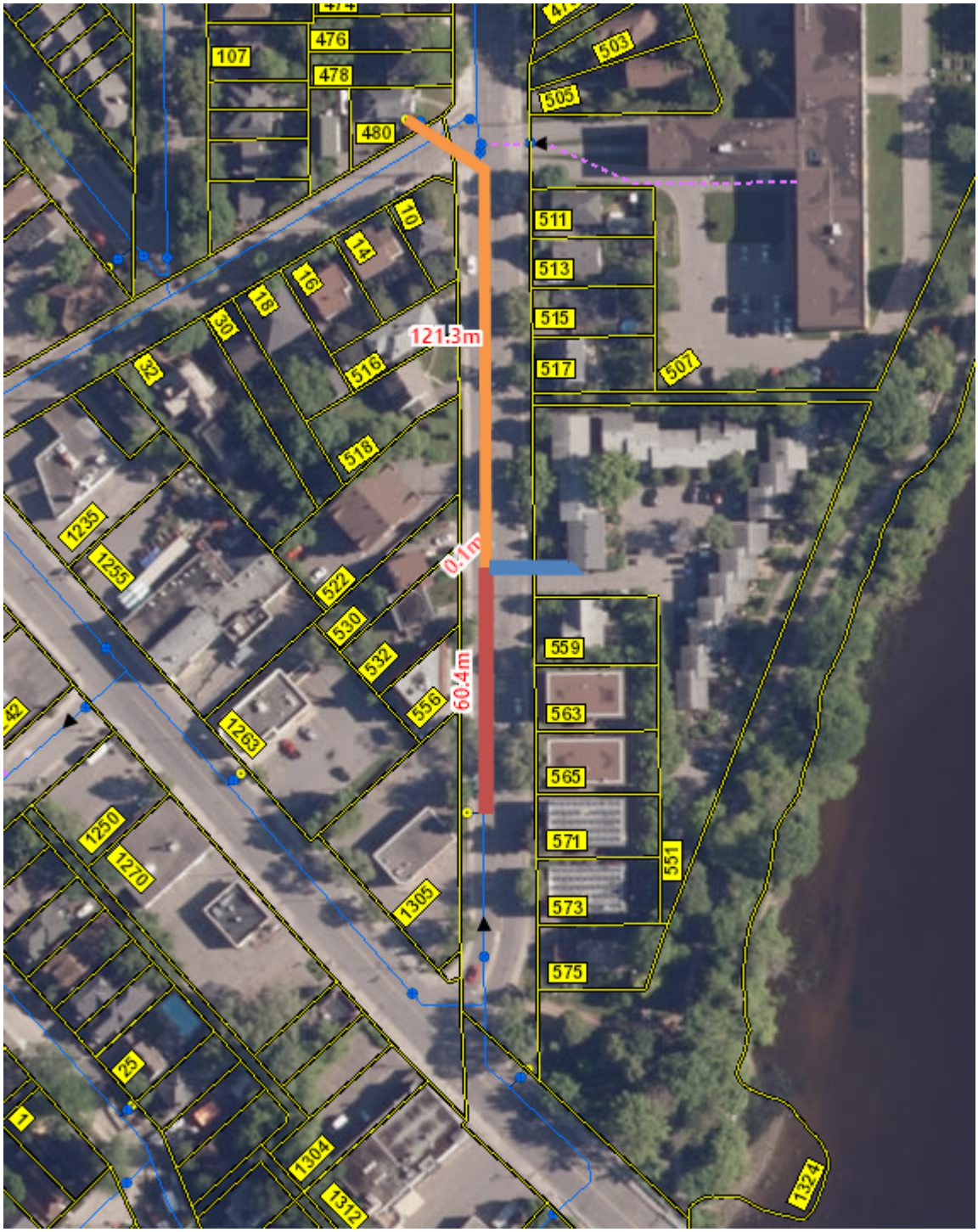
Hi Brett,

As a follow up to our call earlier this week, I would like to request a multi-hydrant analysis for a proposed development located at 551 Riverdale Avenue. The approximate location of our proposed twin water service connections is shown below in "blue". The closest municipal hydrant is located approximately 60.4 metres to the south on the west side of Riverdale Avenue. A secondary hydrant is located approximately 121.3 metres to the north, on the north side of Cameron Avenue.

Proposed demands are as follows:

- Basic Day 0.59 L/s
- Max. Day 2.70 L/s
- Peak Hour 4.10 L/s
- Fire Flow (FUS) 13,000 L/min



Please let me know if additional information is required.

Regards,

Brandon MacKechnie, P.Eng. | Project Engineer
2936 Baseline Road, Suite 200, Ottawa ON, K2H 1B3
O: 613-592-6060 D: 613-891-6485 | bmackechnie@rcii.com | www.rcii.com

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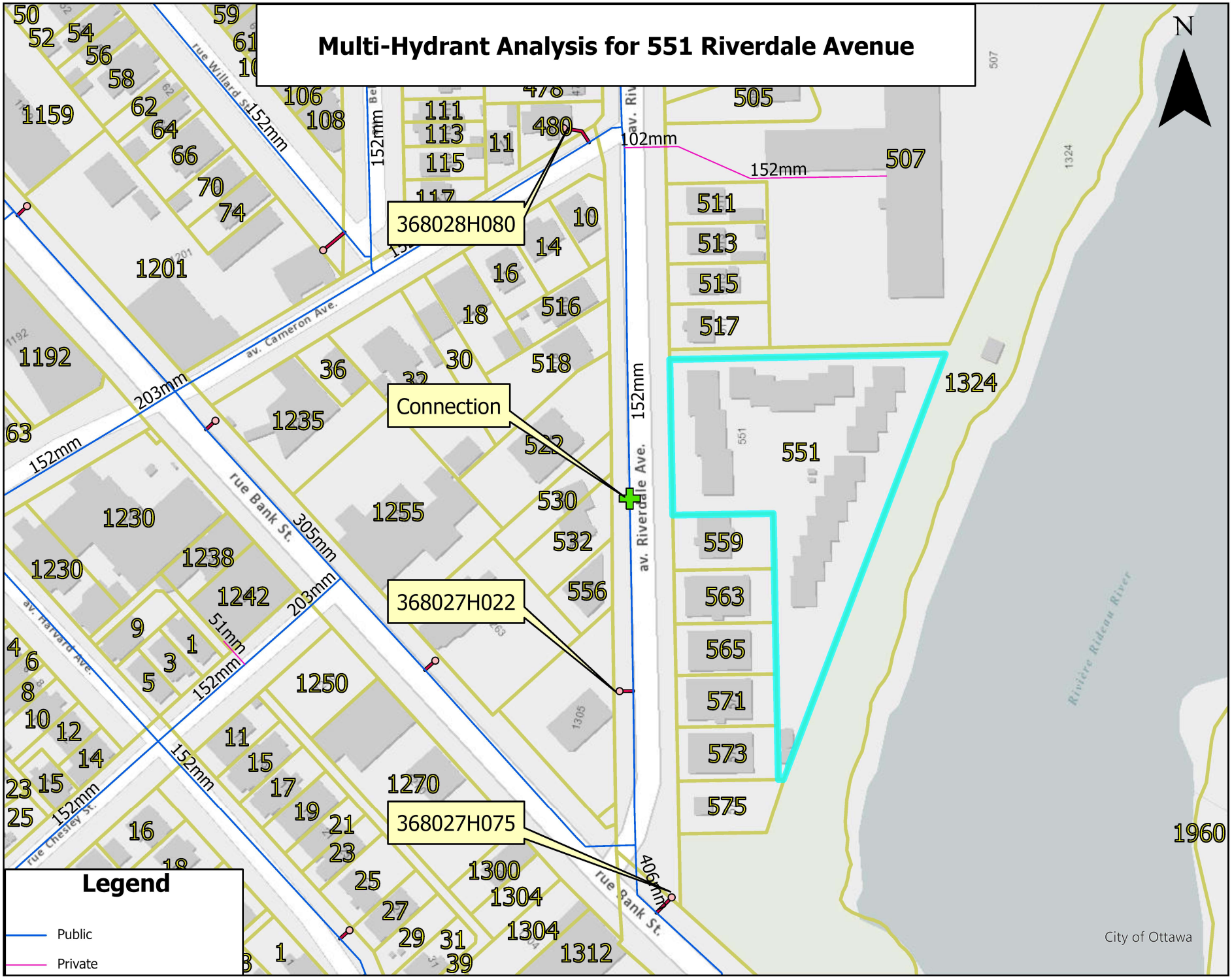
Multi-Hydrant Analysis for 551 Riverdale Avenue



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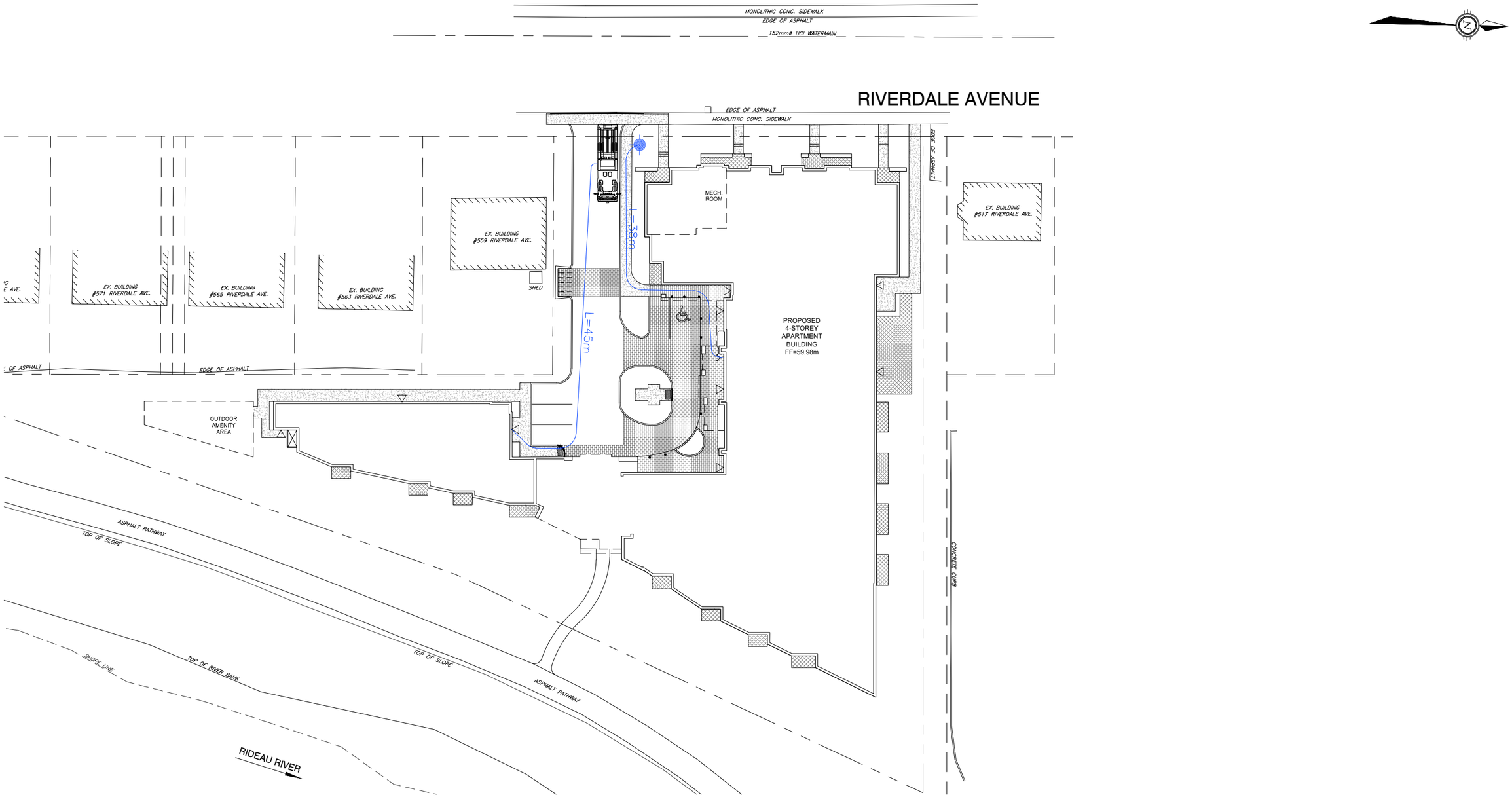
scale 1:500	551 RIVERDALE AVENUE, OTTAWA	project no. 25042
date 13/07/26		
drawn by BLM	HYDRANT COVERAGE PLAN	FIG 5.0



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scale 1:500	551 RIVERDALE AVENUE, OTTAWA	project no. 25042
date 13/07/26		
drawn by BLM	FIRE ACCESS ROUTES	FIG 6.0

Appendix D

Sanitary Sewer Design Sheet

SANITARY SEWER DESIGN SHEET
551 RIVERDALE AVENUE, OTTAWA

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Land Development

LOCATION			APARTMENT UNIT COUNT			RESIDENTIAL FLOW						COMMERCIAL				INFLOW & INFILTRATION			PEAK DESIGN FLOW (L/s)	PIPE						
						INDIVIDUAL		CUMULATIVE																		
STREET	FROM MH	TO MH	1-BEDROOM	2-BEDROOM	3-BEDROOM	POP.	AREA (ha)	POP.	AREA (ha)	PEAK FACTOR	PEAK RES. FLOW (L/s)	AREA (ha)	CUM. AREA (ha)	PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha)	CUM. AREA (ha)	EXTRAN. FLOW (L/s)		LENGTH (m)	DIAMETER (mm)	SLOPE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	EXCESS CAPACITY (L/s)	PERCENT FULL
TO RIVERDALE AVENUE SEWER (MH38061 TO MH38289)																										
PRIVATE	BLDG	100	39	38	15	180.9	0.47	180.9	0.47	3.53	2.07	0.00	0.00	1.50	0.00	0.47	0.47	0.16	2.23	3.6	148.01	1.11	15.50	0.90	13.27	14.36
PRIVATE	100	101				0.0	0.00	180.9	0.47	3.53	2.07	0.00	0.00	1.50	0.00	0.00	0.47	0.16	2.23	8.6	148.01	1.05	15.07	0.88	12.85	14.76
PRIVATE	101	EX MAIN				0.0	0.00	180.9	0.47	3.53	2.07	0.00	0.00	1.50	0.00	0.00	0.47	0.16	2.23	12.0	148.01	1.00	14.71	0.86	12.49	15.12
RIVERDALE AVENUE	*38061*	*38289*				*0.0*	*0.00*	*180.9*	*0.47*	*3.53*	*2.07*	*0.00*	*0.00*	*1.50*	*0.00*	*0.00*	*0.47*	*0.16*	*2.23*	*54.8*	*305.00*	*0.26*	*51.58*	*0.71*	*49.36*	*4.31*

DESIGN PARAMETERS

			Per Unit Populations:		
Average Daily Flow =	280	L/person/day	Single Family	3.4	persons/unit
Institutional Flow =	28,000	L/ha/day	Semi-detached	2.7	persons/unit
Commercial Flow =	28,000	L/ha/day	Duplex	2.3	persons/unit
Maximum Residential Peak Factor =	4.0		Townhouse	2.7	persons/unit
Harmon - Correction Factor (K) =	0.8		Apartments:		
Commercial/Institutional Peak Factor =	1.5		Bachelor	1.4	persons/unit
Extraneous Flow =	0.33	L/s/ha	1 Bedroom	1.4	persons/unit
Minimum Velocity =	0.6	m/s	2 Bedroom	2.1	persons/unit
Maximum Velocity =	3.0	m/s	3 Bedroom	3.1	persons/unit
			Average Apt.	1.8	persons/unit

Appendix E

Runoff Coefficient Calculations

Storm Drainage Area Plan
(DWG. 25042-STM1)

Storm Sewer Design Sheet

Figure 7.0: Subdrain Drainage Area Boundaries

Peak Flows to Rideau River Storm Sewer System

Pre-Development Runoff Coefficient Calculations

Development Condition	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
PRE1	0.02	0.03	0.00	0.05	0.52	0.65	45.2
PRE2	0.20	0.05	0.00	0.26	0.76	0.95	79.9
PRE3	0.04	0.02	0.00	0.06	0.68	0.85	68.6
PRE4	0.07	0.04	0.00	0.11	0.66	0.82	65.1
PRE TOTAL	0.34	0.13	0.00	0.47	0.70	0.88	71.5

Drainage Area Runoff Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
R1	0.20	0.00	0.00	0.20	0.90	1.00	100.0
STM1	0.06	0.01	0.00	0.07	0.81	1.00	87.3
FF1	0.01	0.01	0.00	0.03	0.52	0.65	45.1
FF2	0.00	0.07	0.00	0.07	0.24	0.30	6.3
FF3	0.00	0.04	0.00	0.04	0.26	0.33	9.1
FF4	0.01	0.05	0.00	0.06	0.32	0.40	16.7
EXT-1	0.05	0.05	0.00	0.10	0.56	0.69	50.8

Subdrain Drainage Area Runoff Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
SUB-1	0.02	0.03	0.00	0.05	0.43	0.54	33.5
SUB-2	0.03	0.01	0.00	0.05	0.71	0.88	72.4
CULV-1	0.00	0.03	0.00	0.04	0.27	0.34	10.4

Cumulative Drainage Area Runoff Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
PRE2 + PRE3 + PRE4	0.32	0.11	0.00	0.43	0.72	0.90	74.4
FF2 + FF3 + FF4	0.02	0.16	0.00	0.18	0.27	0.34	10.4

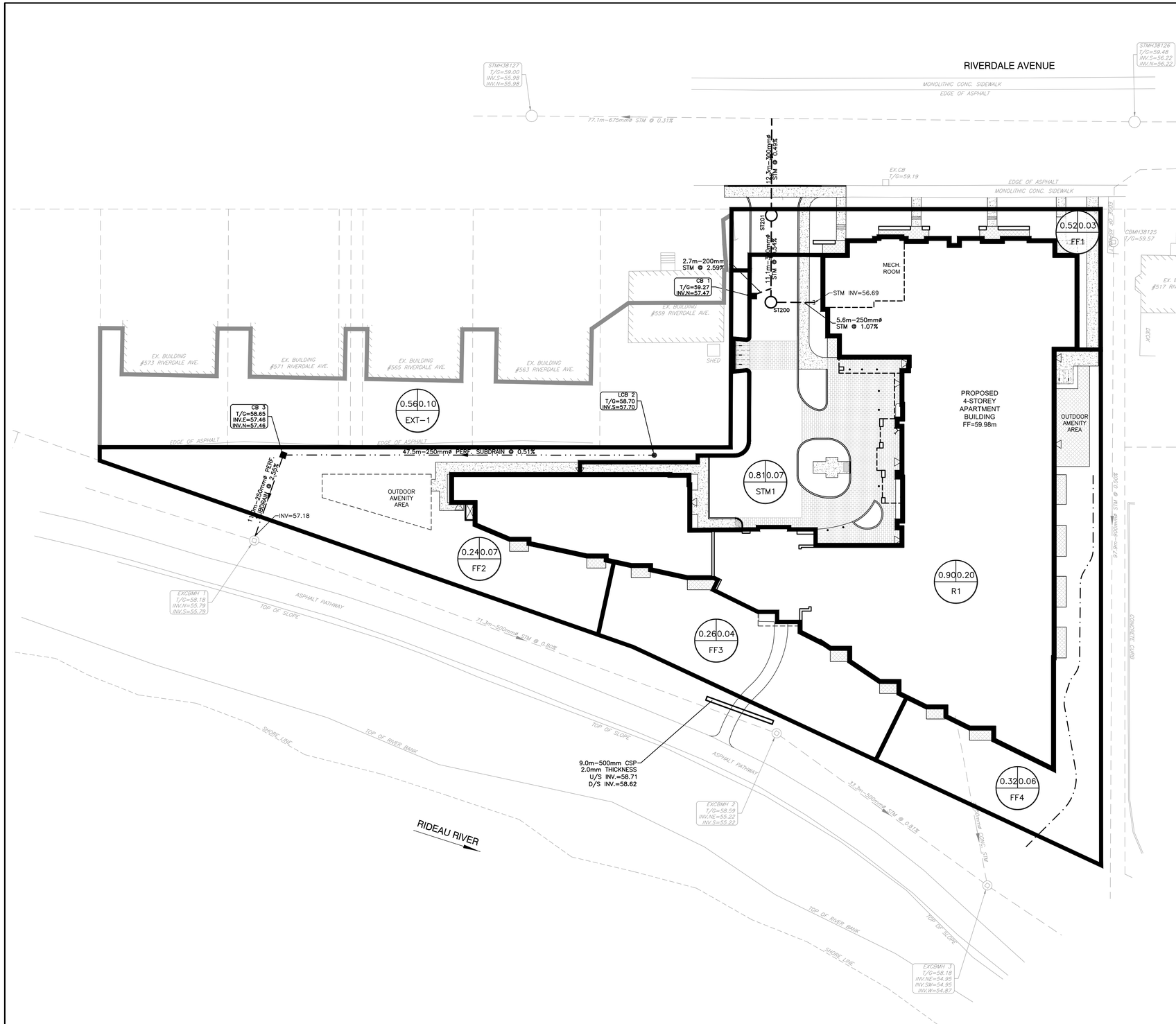
Runoff Coefficients:

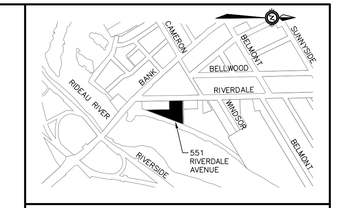
C impervious = 0.90

C pervious = 0.20

C gravel = 0.70

C_{100} = C * 1.25 (Max. 1.0)





KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- BUILDING ENTRANCE
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING STORM SEWER & MANHOLE
- STORM SEWER & MANHOLE
- CATCH BASIN
- LCB — ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- SWALE
- SWALE WITH 250mmø PERFORATED SUBDRAIN
- STORM DRAINAGE AREA BOUNDARY
- EXTERNAL DRAINAGE AREA BOUNDARY

RUNOFF COEFFICIENT → 0.85 | 0.10 ← AREA (ha)
STM1 ← DRAINAGE AREA ID

NOTES

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

PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M, CONCESSION C (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2025. BEARINGS ARE DERIVED FROM THE CAN–NET REAL TIME NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD–83 (ORIGINAL). ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CGVD–1928:1978 DATUM (MONUMENT No. Ott. 118 INDEX No. 230)

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	29/07/26	BLM

SCALE
0 2m 4m 10m
HORIZONTAL 1:250

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
29 July '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

JSS RIVERDALE HOLDINGS INC.

551 RIVERDALE AVENUE
OTTAWA, ON

STORM DRAINAGE AREA PLAN

PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-STM1

STORM SEWER DESIGN SHEET
551 RIVERDALE AVENUE, CITY OF OTTAWA

LOCATION			AREA (ha)	C	C (100 YR)	2-YR		100-YR		TIME OF CONC. (min)	2-YR RAINFALL INTENSITY (mm/hr)	2-YR PEAK FLOW (L/s)	100-YR RAINFALL INTENSITY (mm/hr)	100-YR PEAK FLOW (L/s)	100-YR RESTRICTED FLOW (L/s)	CUMULATIVE RESTRICTED FLOW (L/s)	PROPOSED SEWER							
DRAINAGE AREA	FROM MH	TO MH				INDIV. 2.78AC	ACCUM. 2.78AC	INDIV. 2.78AC	ACCUM. 2.78AC								PIPE DIA. (mm)	GRADE (%)	LENGTH (m)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min)	2-YR PERCENT FULL	100-YR PERCENT FULL WITH RESTRICTED CONTROLS
TO RIVERDALE AVENUE STORM SEWER (MH38126 TO MH38127)																								
R1	BLDG	200	0.20	0.90	1.00	0.51	0.51	0.56	0.56	10.00	76.81	38.93	178.56	100.56	8.10	8.10	251.46	1.07	5.6	62.54	1.26	0.07	62%	13%
STM1	CB 1	MAIN	0.07	0.81	1.00	0.15	0.15	0.19	0.19	10.00	76.81	11.83	178.56	33.91	33.91	33.91	201.16	2.59	2.7	53.66	1.69	0.03	22%	63%
	200	201	0.00	0.00	0.00	0.00	0.66	0.00	0.75	10.07	76.52	50.57	177.88	133.96	0.00	42.01	299.36	0.54	11.1	70.73	1.00	0.18	71%	59%
	201	EX MAIN	0.00	0.00	0.00	0.00	0.66	0.00	0.75	10.26	75.83	50.11	176.23	132.71	0.00	42.01	299.36	0.49	12.3	67.37	0.96	0.21	74%	62%
TO RIDEAU RIVER STORM SEWER (EXCBMH 1)																								
SUB-1	LCB 2	CB 3	0.05	0.43	0.54	0.06	0.06	0.08	0.08	10.00	76.81	4.64	178.56	13.47	13.47	13.47	250.00	0.51	47.5	42.51	0.87	0.91	11%	32%
SUB-2	CB 3	EXCBMH 1	0.05	0.71	0.88	0.09	0.15	0.12	0.19	10.91	73.46	11.35	170.61	32.94	32.94	46.41	250.00	2.55	11.0	95.06	1.94	0.09	12%	49%

Design Parameters

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Peak flows calculated using the Rational Method.
   Q = 2.78CIA, where:
   Q = Peak Flow (L/s)
   A = Drainage Area (ha)
   I = Rainfall Intensity (mm/hr)
   C = Runoff Coefficient
3. Manning's roughness coefficient = 0.013
4. Full flow velocity: MIN 0.8 m/s; MAX 3.0 m/s (City of Ottawa Sewer Design Guidelines, v.2025)

IDF curve equations (Intensity in mm/hr)

100 year Intensity $= 1735.688 / (\text{Time in min} + 6.014)^{0.820}$
50 year Intensity $= 1569.580 / (\text{Time in min} + 6.014)^{0.820}$
25 year Intensity $= 1402.884 / (\text{Time in min} + 6.018)^{0.819}$
10 year Intensity $= 1174.184 / (\text{Time in min} + 6.014)^{0.816}$
5 year Intensity $= 998.071 / (\text{Time in min} + 6.053)^{0.814}$
2 year Intensity $= 732.951 / (\text{Time in min} + 6.199)^{0.810}$

EX. BUILDING #573 RIVERDALE AVE.

EX. BUILDING #571 RIVERDALE AVE.

EX. BUILDING #565 RIVERDALE AVE.

EX. BUILDING #563 RIVERDALE AVE.

EX. BUILDING #559 RIVERDALE AVE.

SHED

0.71 | 0.05
SUB-2

0.43 | 0.05
SUB-1

CB 3
T/G=58.65
INV.E=57.46
INV.N=57.46

CB 1
T/G=59.27
INV.N=57.47

LCB 2
T/G=58.70
INV.S=57.70

2.7m-200mmø
STM @ 2.59%

11.1m-300mmø
STM @ 0.54%

ST2

ST200

STM INV=56.

5.6m-250m
STM @ 1.07

EDGE OF ASPHALT

EDGE OF ASPHALT

47.5m-250mmø PERF. SUBDRAIN @ 0.1%

11.0m-250mmø PERF. SUBDRAIN @ 2.55%

INV=57.18

OUTDOOR AMENITY AREA

EXCBMH 1
T/G=58.18
INV.N=55.79

ASPHALT PATHWAY

TOP OF

LEGEND

- PROPERTY BOUNDARY
- CATCH BASIN
- LCB — ELBOW LANDSCAPE CATCH BASIN (CITY STD. S31)
- SWALE WITH 250mmø PERFORATED SUBDRAIN
- SUBDRAIN DRAINAGE AREA BOUNDARY

RUNOFF COEFFICIENT

0.85 | 0.10 — AREA (ha)

STM1

DRAINAGE AREA ID

Robinson
Land Development

scale 1:250	551 RIVERDALE AVENUE, OTTAWA	project no. 25042
date 13/07/26		
drawn by BLM	SUBDRAIN DRAINAGE AREA PLAN	FIG 7.0

Free Flow Calculations to Rideau River Storm Sewer System (Existing Conditions)

Area ID = PRE2 + PRE3 + PRE4
Area (ha) = 0.43
C = 0.72
C (100 YR) = 0.90

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**65.7**
	15	61.8	52.9
	20	52.0	44.5
	25	45.2	38.7
	30	40.0	34.3
	35	36.1	30.9
5 Year	**10**	**104.2**	**89.2**
	15	83.6	71.5
	20	70.3	60.1
	25	60.9	52.1
	30	53.9	46.2
	35	48.5	41.5
100 Year	**10**	**178.6**	**191.0**
	15	142.9	152.9
	20	120.0	128.3
	25	103.8	111.1
	30	91.9	98.3
	35	82.6	88.4

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations to Rideau River Storm Sewer System (Proposed Conditions)

Area ID = FF2 + FF3 + FF4
Area (ha) = 0.18
C = 0.27
C (100 YR) = 0.34

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**10.3**
	15	61.8	8.3
	20	52.0	7.0
	25	45.2	6.1
	30	40.0	5.4
	35	36.1	4.8
5 Year	**10**	**104.2**	**14.0**
	15	83.6	11.2
	20	70.3	9.4
	25	60.9	8.2
	30	53.9	7.2
	35	48.5	6.5
100 Year	**10**	**178.6**	**29.9**
	15	142.9	23.9
	20	120.0	20.1
	25	103.8	17.4
	30	91.9	15.4
	35	82.6	13.8

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Appendix F

Pre-Development Drainage Area Plan (DWG. 25042-PRE1)

Pre-Development Peak Flow Calculations

Roof Drain Specification Sheet

Free Flow Calculations

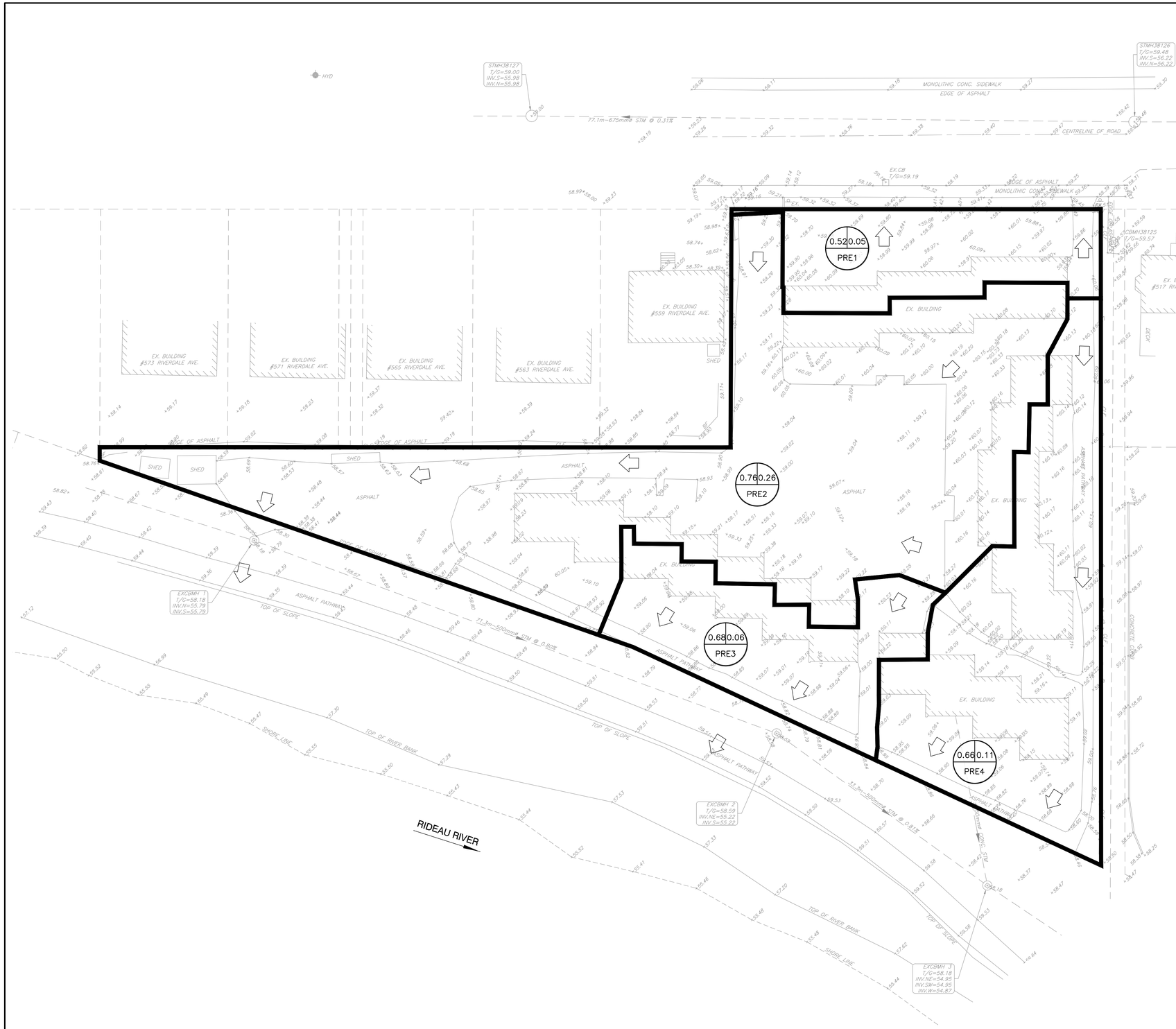
Storage Volume Tables

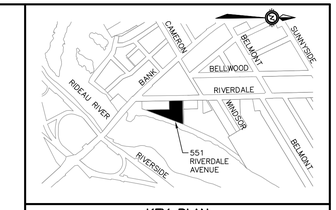
Tempest Correspondence

Culvert Design Charts

Peak Flows to Culvert

Figure 8.0: Culvert Drainage Area





KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING STORM SEWER & MANHOLE
- STORM DRAINAGE AREA BOUNDARY
- PRE-DEVELOPMENT MAJOR OVERLAND FLOW ROUTE

RUNOFF COEFFICIENT
0.85 0.10 — AREA (ha)
STM1
DRAINAGE AREA ID

NOTES

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

PROPERTY BOUNDARIES ARE DERIVED FROM TOPOGRAPHIC PLAN OF SURVEY OF PART OF LOT M, CONCESSION C (RIDEAU FRONT), GEOGRAPHIC TOWNSHIP OF NEPEAN, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2025. BEARINGS ARE DERIVED FROM THE CAN-NET REAL TIME NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN OF MTM ZONE 9, NAD-83 (ORIGINAL). ELEVATIONS ARE GEODETIC AND ARE REFERRED TO THE CGVD-1928:1978 DATUM (MONUMENT No. Ott. 118 INDEX No. 230)

NO.	REVISION DESCRIPTION	DATE	BY
1	ISSUED FOR REVIEW	29/07/26	BLM

SCALE
0 2m 4m 10m
HORIZONTAL 1:250

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
29 July '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

DESIGN	BLM
CHECKED	SM
DRAWN	BLM
CHECKED	SM
APPROVED	BLM

JSS RIVERDALE HOLDINGS INC.

551 RIVERDALE AVENUE
OTTAWA, ON

PRE-DEVELOPMENT
DRAINAGE AREA PLAN

PROJECT No.	25042
SURVEY	FSD
DATED	JULY 2026
DWG. No:	25042-PRE1

Pre-Development Flow Calculations - Area PRE1 (To Riverdale Avenue)

Area ID = PRE TOTAL
Area (ha) = 0.47
C = 0.50 (Max. 0.50 as per OSDG S8.3.7.3)
C (100 YR) = 0.63

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**50.6**
	15	61.8	40.7
	20	52.0	34.3
	25	45.2	29.8
	30	40.0	26.4
	35	36.1	23.8
5 Year	**10**	**104.2**	**68.7**
	15	83.6	55.1
	20	70.3	46.3
	25	60.9	40.1
	30	53.9	35.5
	35	48.5	32.0
100 Year	**10**	**178.6**	**147.1**
	15	142.9	117.7
	20	120.0	98.8
	25	103.8	85.5
	30	91.9	75.7
	35	82.6	68.0

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Pre-Development Flow Calculations - Area PRE1 (To Riverdale Avenue)

Area ID = PRE1
Area (ha) = 0.05
C = 0.52
C (100 YR) = 0.65

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**5.2**
	15	61.8	4.2
	20	52.0	3.5
	25	45.2	3.1
	30	40.0	2.7
	35	36.1	2.4
5 Year	**10**	**104.2**	**7.1**
	15	83.6	5.7
	20	70.3	4.8
	25	60.9	4.1
	30	53.9	3.6
	35	48.5	3.3
100 Year	**10**	**178.6**	**15.1**
	15	142.9	12.1
	20	120.0	10.1
	25	103.8	8.8
	30	91.9	7.8
	35	82.6	7.0

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area PRE2 (to EXCBMH 1)

Area ID = PRE2
Area (ha) = 0.26
C = 0.76
C (100 YR) = 0.95

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**41.5**
	15	61.8	33.4
	20	52.0	28.1
	25	45.2	24.4
	30	40.0	21.7
	35	36.1	19.5
5 Year	**10**	**104.2**	**56.3**
	15	83.6	45.2
	20	70.3	38.0
	25	60.9	32.9
	30	53.9	29.2
	35	48.5	26.2
100 Year	**10**	**178.6**	**120.7**
	15	142.9	96.6
	20	120.0	81.1
	25	103.8	70.2
	30	91.9	62.1
	35	82.6	55.8

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area PRE3 (to EXCBMH 2)

Area ID = PRE3
Area (ha) = 0.06
C = 0.68
C (100 YR) = 0.85

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**8.5**
	15	61.8	6.9
	20	52.0	5.8
	25	45.2	5.0
	30	40.0	4.5
	35	36.1	4.0
5 Year	**10**	**104.2**	**11.6**
	15	83.6	9.3
	20	70.3	7.8
	25	60.9	6.8
	30	53.9	6.0
	35	48.5	5.4
100 Year	**10**	**178.6**	**24.8**
	15	142.9	19.9
	20	120.0	16.7
	25	103.8	14.4
	30	91.9	12.8
	35	82.6	11.5

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area PRE4 (to EXCBMH 3)

Area ID = PRE4
Area (ha) = 0.11
C = 0.66
C (100 YR) = 0.82

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**15.7**
	15	61.8	12.6
	20	52.0	10.6
	25	45.2	9.2
	30	40.0	8.2
	35	36.1	7.4
5 Year	**10**	**104.2**	**21.2**
	15	83.6	17.0
	20	70.3	14.3
	25	60.9	12.4
	30	53.9	11.0
	35	48.5	9.9
100 Year	**10**	**178.6**	**45.5**
	15	142.9	36.4
	20	120.0	30.6
	25	103.8	26.5
	30	91.9	23.4
	35	82.6	21.0

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

WATTS®	Adjustable Accutrol Weir Tag: _____	Adjustable Flow Control for Roof Drains

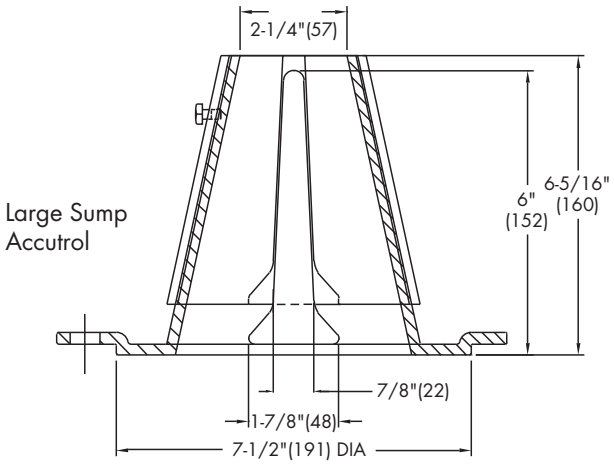
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

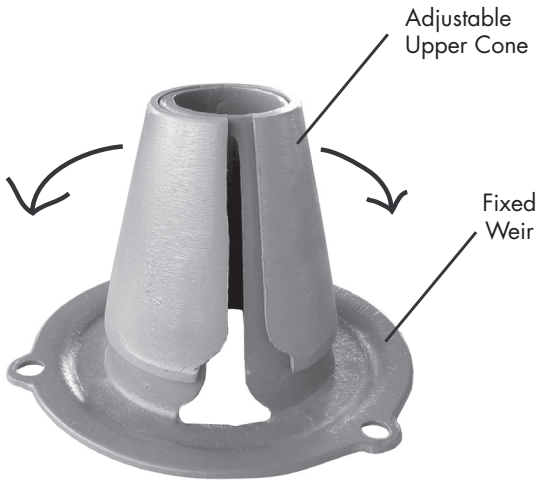
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ Contractor _____

Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

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Free Flow Calculations - Area FF1 (to Riverdale Avenue)

Area ID = FF1
Area (ha) = 0.03
C = 0.52
C (100 YR) = 0.65

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**2.9**
	15	61.8	2.4
	20	52.0	2.0
	25	45.2	1.7
	30	40.0	1.5
	35	36.1	1.4
5 Year	**10**	**104.2**	**4.0**
	15	83.6	3.2
	20	70.3	2.7
	25	60.9	2.3
	30	53.9	2.1
	35	48.5	1.8
100 Year	**10**	**178.6**	**8.5**
	15	142.9	6.8
	20	120.0	5.7
	25	103.8	4.9
	30	91.9	4.4
	35	82.6	3.9

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area FF2 (to EXCBMH 1)

Area ID = FF2
Area (ha) = 0.07
C = 0.24
C (100 YR) = 0.30

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**3.9**
	15	61.8	3.1
	20	52.0	2.6
	25	45.2	2.3
	30	40.0	2.0
	35	36.1	1.8
5 Year	**10**	**104.2**	**5.3**
	15	83.6	4.2
	20	70.3	3.6
	25	60.9	3.1
	30	53.9	2.7
	35	48.5	2.5
100 Year	**10**	**178.6**	**11.3**
	15	142.9	9.1
	20	120.0	7.6
	25	103.8	6.6
	30	91.9	5.8
	35	82.6	5.2

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area FF3 (to EXCBMH 2)

Area ID = FF3
Area (ha) = 0.04
C = 0.26
C (100 YR) = 0.33

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**2.4**
	15	61.8	1.9
	20	52.0	1.6
	25	45.2	1.4
	30	40.0	1.2
	35	36.1	1.1
5 Year	**10**	**104.2**	**3.2**
	15	83.6	2.6
	20	70.3	2.2
	25	60.9	1.9
	30	53.9	1.7
	35	48.5	1.5
100 Year	**10**	**178.6**	**7.0**
	15	142.9	5.6
	20	120.0	4.7
	25	103.8	4.0
	30	91.9	3.6
	35	82.6	3.2

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Free Flow Calculations - Area FF4 (to EXCBMH 3)

Area ID = FF4
Area (ha) = 0.06
C = 0.32
C (100 YR) = 0.40

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	**10**	**76.8**	**4.0**
	15	61.8	3.2
	20	52.0	2.7
	25	45.2	2.4
	30	40.0	2.1
	35	36.1	1.9
5 Year	**10**	**104.2**	**5.4**
	15	83.6	4.3
	20	70.3	3.7
	25	60.9	3.2
	30	53.9	2.8
	35	48.5	2.5
100 Year	**10**	**178.6**	**11.6**
	15	142.9	9.3
	20	120.0	7.8
	25	103.8	6.8
	30	91.9	6.0
	35	82.6	5.4

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)

Storage Volume Calculations - Area R1 (BUILDING A ROOF)

Area ID =	R1	2-Year Release Rate (L/s) =	8.1
Area (ha) =	0.20	5-Year Release Rate (L/s) =	8.1
C =	0.90	100-Year Release Rate (L/s) =	8.1
C (100 YR) =	1.00	100-Year + 20% Release Rate (L/s) =	8.1
		Roof Drain Release Rate (L/s/ha) =	40.0
		ailable Surface Storage Volume (m^3) =	101.3

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m^3)
2 Year	15	61.8	31.3	8.1	23.2	20.9
	20	52.0	26.4	8.1	18.3	21.9
	25	**45.2**	**22.9**	**8.1**	**14.8**	**22.2**
	30	40.0	20.3	8.1	12.2	21.9
	35	36.1	18.3	8.1	10.2	21.4
	40	32.9	16.7	8.1	8.6	20.5
5 Year	25	60.9	30.9	8.1	22.8	34.1
	30	53.9	27.3	8.1	19.2	34.6
	35	**48.5**	**24.6**	**8.1**	**16.5**	**34.6**
	40	44.2	22.4	8.1	14.3	34.3
	45	40.6	20.6	8.1	12.5	33.7
	50	37.7	19.1	8.1	11.0	32.9
100 Year	50	64.0	36.0	8.1	27.9	83.7
	55	59.6	33.6	8.1	25.5	84.1
	60	**55.9**	**31.5**	**8.1**	**23.4**	**84.1**
	65	52.6	29.6	8.1	21.5	84.0
	70	49.8	28.0	8.1	19.9	83.7
	75	47.3	26.6	8.1	18.5	83.3
100 Year + 20%	60	67.1	37.8	8.1	29.7	106.8
	65	63.2	35.6	8.1	27.5	107.2
	70	**59.7**	**33.6**	**8.1**	**25.5**	**107.3**
	75	56.7	31.9	8.1	23.8	107.2
	80	54.0	30.4	8.1	22.3	107.0
	85	51.5	29.0	8.1	20.9	106.7

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Provided storage volumes have been calculated using Civil3D by Autodesk.
3. Flow calculated using the Rational Method. Q=2.78CiA
4. C (100 YR) = C + 25% (Max. 1.0)

Storage Volume Calculations - Area STM1 (CB 1)

Area ID =	STM1	2-Year Release Rate (L/s) =	UNCONTROLLED
Area (ha) =	0.07	5-Year Release Rate (L/s) =	UNCONTROLLED
C =	0.81	100-Year Release Rate (L/s) =	UNCONTROLLED
C (100 YR) =	1.00	100-Year + 20% Release Rate (L/s) =	UNCONTROLLED
		Available Surface Storage Volume (m^3) =	1.7

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m^3)
2 Year	10	76.8	11.8	11.8	0.0	0.0
	15	61.8	9.5	9.5	0.0	0.0
	20	52.0	8.0	8.0	0.0	0.0
	25	45.2	7.0	7.0	0.0	0.0
	30	40.0	6.2	6.2	0.0	0.0
	35	36.1	5.6	5.6	0.0	0.0
5 Year	10	104.2	16.0	16.0	0.0	0.0
	15	83.6	12.9	12.9	0.0	0.0
	20	70.3	10.8	10.8	0.0	0.0
	25	60.9	9.4	9.4	0.0	0.0
	30	53.9	8.3	8.3	0.0	0.0
	35	48.5	7.5	7.5	0.0	0.0
100 Year	10	178.6	33.9	33.9	0.0	0.0
	15	142.9	27.1	27.1	0.0	0.0
	20	120.0	22.8	22.8	0.0	0.0
	25	103.8	19.7	19.7	0.0	0.0
	30	91.9	17.4	17.4	0.0	0.0
	35	82.6	15.7	15.7	0.0	0.0
100 Year + 20%	10	214.3	40.7	40.7	0.0	0.0
	15	171.5	32.6	32.6	0.0	0.0
	20	143.9	27.3	27.3	0.0	0.0
	25	124.6	23.7	23.7	0.0	0.0
	30	110.2	20.9	20.9	0.0	0.0
	35	99.1	18.8	18.8	0.0	0.0

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Provided storage volumes have been calculated using Civil3D by Autodesk.
3. Flow calculated using the Rational Method. Q=2.78CiA
4. C (100 YR) = C + 25% (Max. 1.0)

Storage Volume Calculations - Area SUB-1 (LCB 2)

Area ID =	SUB-1	2-Year Release Rate (L/s) =	UNCONTROLLED
Area (ha) =	0.05	5-Year Release Rate (L/s) =	UNCONTROLLED
C =	0.43	100-Year Release Rate (L/s) =	UNCONTROLLED
C (100 YR) =	0.54	100-Year + 20% Release Rate (L/s) =	UNCONTROLLED
		ailable Surface Storage Volume (m^3) =	5.8

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m^3)
2 Year	10	76.8	4.6	4.6	0.0	0.0
	15	61.8	3.7	3.7	0.0	0.0
	20	52.0	3.1	3.1	0.0	0.0
	25	45.2	2.7	2.7	0.0	0.0
	30	40.0	2.4	2.4	0.0	0.0
	35	36.1	2.2	2.2	0.0	0.0
5 Year	10	104.2	6.3	6.3	0.0	0.0
	15	83.6	5.0	5.0	0.0	0.0
	20	70.3	4.2	4.2	0.0	0.0
	25	60.9	3.7	3.7	0.0	0.0
	30	53.9	3.3	3.3	0.0	0.0
	35	48.5	2.9	2.9	0.0	0.0
100 Year	10	178.6	13.5	13.5	0.0	0.0
	15	142.9	10.8	10.8	0.0	0.0
	20	120.0	9.0	9.0	0.0	0.0
	25	103.8	7.8	7.8	0.0	0.0
	30	91.9	6.9	6.9	0.0	0.0
	35	82.6	6.2	6.2	0.0	0.0
100 Year + 20%	10	214.3	16.2	16.2	0.0	0.0
	15	171.5	12.9	12.9	0.0	0.0
	20	143.9	10.9	10.9	0.0	0.0
	25	124.6	9.4	9.4	0.0	0.0
	30	110.2	8.3	8.3	0.0	0.0
	35	99.1	7.5	7.5	0.0	0.0

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Provided storage volumes have been calculated using Civil3D by Autodesk.
3. Flow calculated using the Rational Method. Q=2.78CiA
4. C (100 YR) = C + 25% (Max. 1.0)

THE NEXT GENERATION IN STORM SEWER INLET CONTROLS

TEMPEST™
INLET CONTROL DEVICES

STORM WATER FLOW CONTROL

THE COST-EFFECTIVE SOLUTION TO YOUR STORM WATER SURCHARGE PROBLEMS

- Conserves sewer system capacity
- System accommodates low to high flows
- Integrated odour and floatable control
- Fast and easy to install and maintain

IPEX
by aliaxis

We build tough products for tough environments®

TEMPEST™
INLET CONTROL DEVICES

THE NEXT GENERATION IN STORM SEWER INLET CONTROLS

✓ Reduces Sewer Overflows & Basement Backups

Tempest is a family of cost-effective inlet control devices that work together across a series of catch basins to limit the amount of storm water runoff that can enter a combined sewer system during a storm event. Basement backups and sewer overflows are avoided because storm water surcharges are controlled at the sewer inlet and are allowed to remain in catch basins or temporarily above ground.

✓ Integrated Odour & Floatable Control

In addition to flow control, Tempest systems can also alleviate sewer system odour emissions as well as prevent floating debris from entering the sewer system.

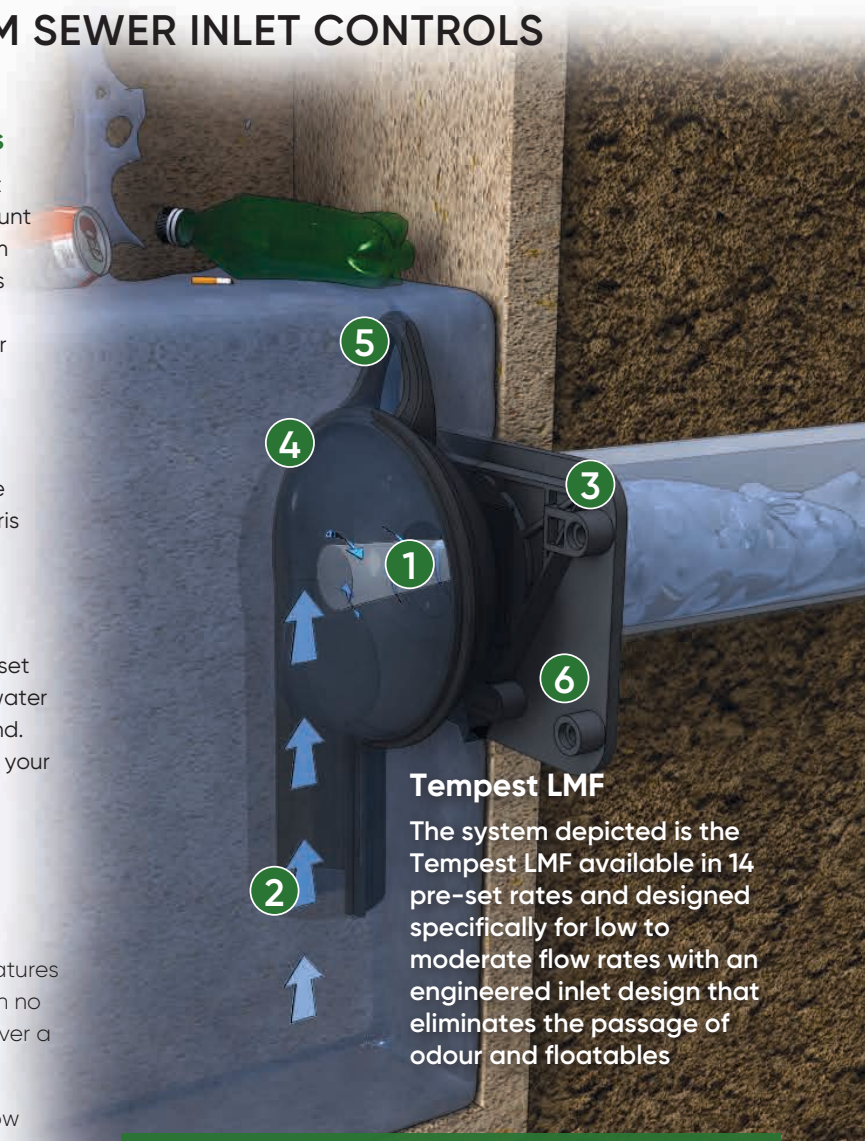
✓ Wide Range of Models & Pre-set Flow Rates

Available in a wide range of patent pending models and pre-set flow rates, Tempest systems can accommodate most storm water flow control requirements from 32 GPM to 270 GPM and beyond. Application specific solutions can also be engineered to meet your unique needs in both wet and dry catch basin environments.

✓ Easy to Install & Maintain

Constructed from durable PVC, Tempest units are corrosion free and built to last. The Tempest's light weight design accommodates both square and round catch basins and features a universal back plate and interchangeable components with no moving parts that makes the units quick and easy to install over a catch basin outlet pipe.

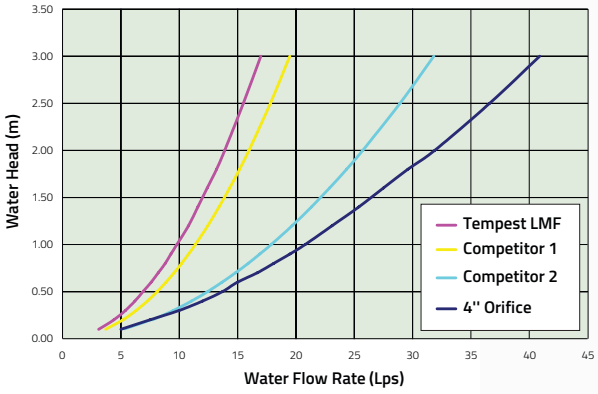
These devices also include a quick release mechanism to allow easy access for service without the need to drain the installation.



Tempest LMF

The system depicted is the Tempest LMF available in 14 pre-set rates and designed specifically for low to moderate flow rates with an engineered inlet design that eliminates the passage of odour and floatables

Tempest Inlet Control Devices restrict flow to a narrower range than traditional methods regardless of head



FEATURES & BENEFITS

1. Restricts flow to a narrow range regardless of head
2. Unit design prevents the passage of floatables and odours
3. Neoprene gasket for air-tight seal*
4. Virtually maintenance free and corrosion free durable PVC construction
5. Features a quick release mechanism that's accessed with reach bar. Unit can then be simply lifted out for easy maintenance*
6. Universal back plates available for both square and round catch basins*

* Excluding Tempest HF Sump

THE TEMPEST FAMILY OF SYSTEMS

TEMPEST LMF

Restricts:
- ✓ Flow
- ✓ Odours
- ✓ Floatables

LOW to MODERATE FLOW RATES
32 GPM (2 L/s) – 270 GPM (17 L/s)
14 pre-set flow rates

The Tempest LMF system features a vortex inlet design that allows a low flow rate to be set and eliminates the passage of odours and floatables and allows for debris and sediment to collect in the structure.

TEMPEST MHF

Restricts:
- ✓ Flow

MEDIUM TO HIGH FLOW RATES
143 GPM (9L/s) or greater
Specified pre-set flow rates

The Tempest MHF is a standard orifice plate or plug device designed to allow a specified flow volume through the outlet pipe at a specified head.

TEMPEST HF & HF SUMP

Restricts:
- ✓ Flow
- ✓ Odours
- ✓ Floatables

HIGH FLOW RATES
240 GPM (15 L/s) or greater
5 pre-set flow rates

The standard Tempest HF system allows a near constant discharge rate to be set and eliminates the passage of odours and floatables and allows for debris and sediment to collect in the structure.

The Tempest HF SUMP system is designed for catch basins & manholes in which there is no sump or the outlet pipe is too low to install standard Tempest device.

UNIVERSAL BACK PLATES

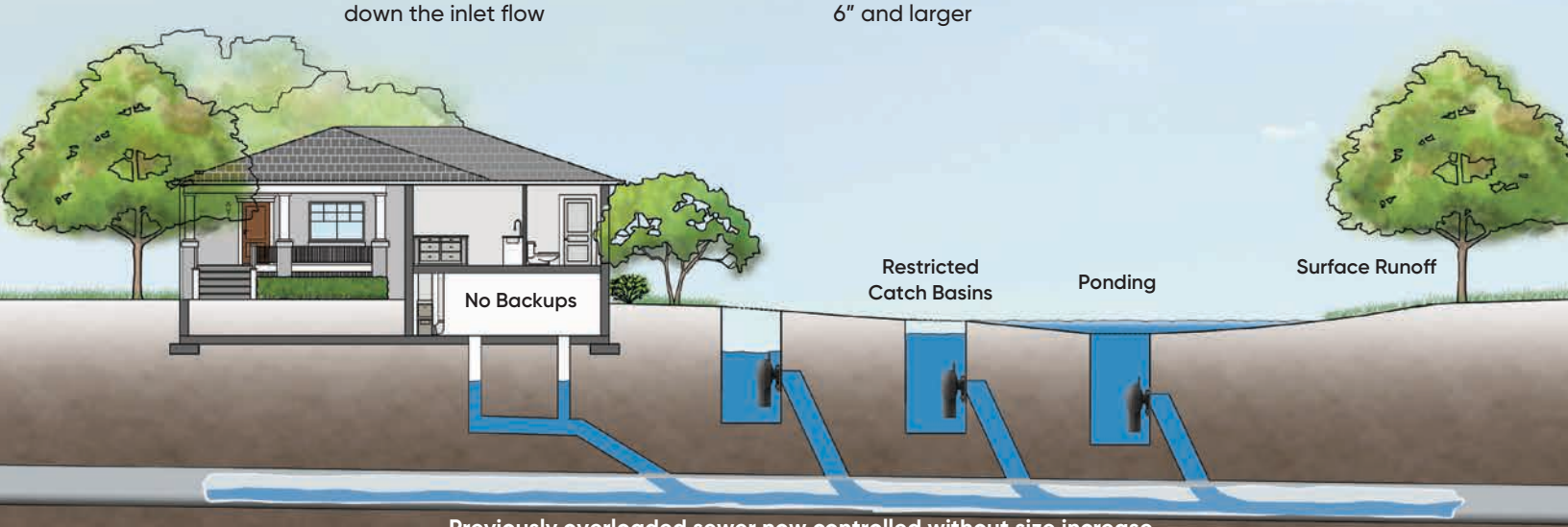
Available for BOTH square and round catch basins.*

For square catch basins

For round catch basins

SOLUTION: TEMPEST INLET CONTROL SYSTEMS

- Provides control by restricting flow into the sewer system
- Provides temporary ponding in catch basins, parking lots & roadways
- Helps preserve sewer capacity, slows down the inlet flow
- Reduces residential flooding and flash flooding
- Water surcharge is controlled and directed as per engineer design
- Can accommodate outlet pipes 6" and larger



Previously overloaded sewer now controlled without size increase

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Markets served by IPEX group products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, PVDF, PE, ABS, and PEX pipe and fittings
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems

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A policy of ongoing product improvement is maintained. This may result in modifications of features and/or specifications without notice.

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Volume III: TEMPEST INLET CONTROL DEVICES

Municipal Technical Manual Series

SECOND EDITION

LMF (Low to Medium Flow) ICD

HF (High Flow) ICD

MHF (Medium to High Flow) ICD

IPEX by aliaxis

IPEX Tempest™ Inlet Control Devices

Municipal Technical Manual Series

Vol. I, 2nd Edition

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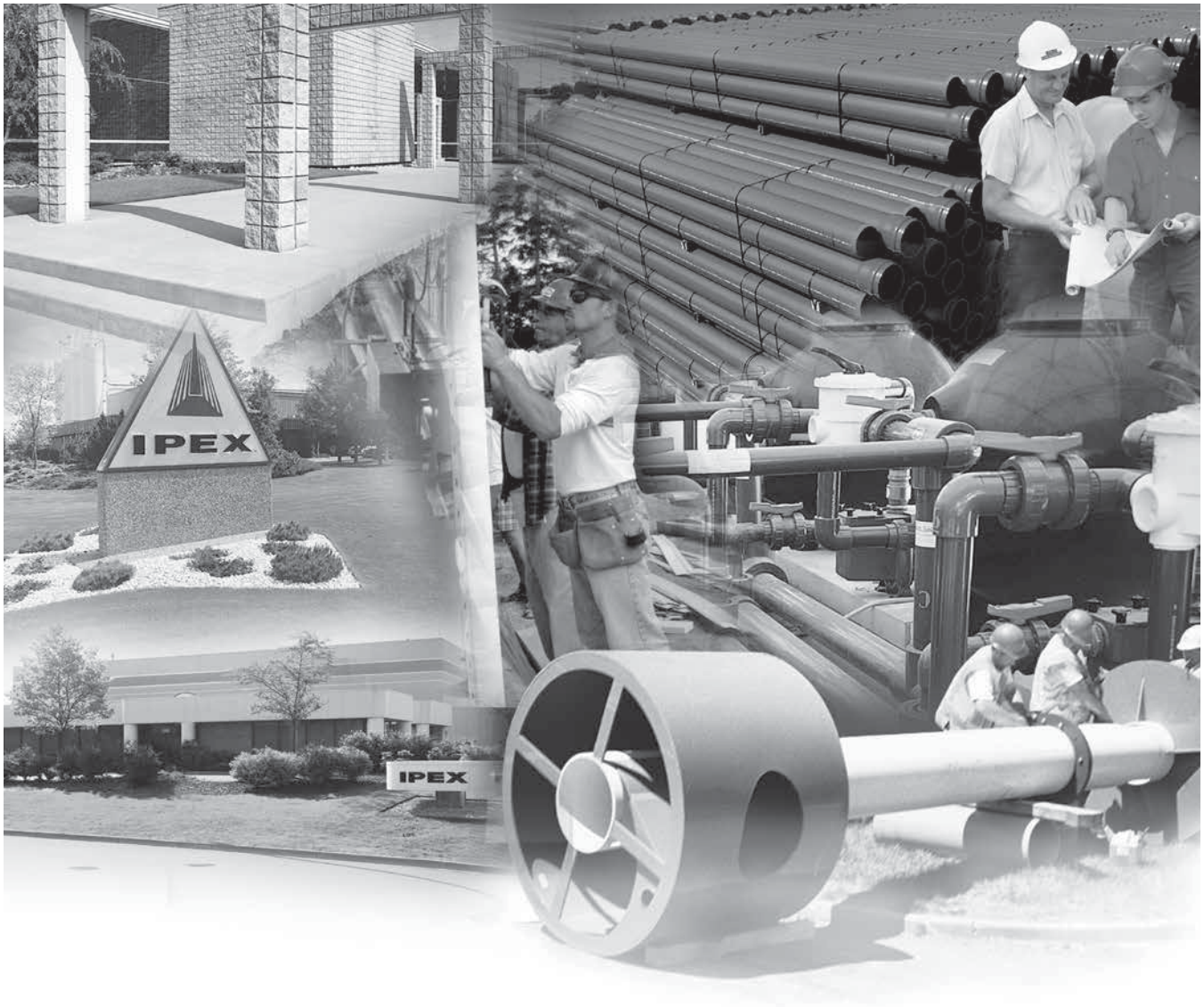

ABOUT IPEX

At IPEX, we have been manufacturing non-metallic pipe and fittings since 1951. We formulate our own compounds and maintain strict quality control during production. Our products are made available for customers thanks to a network of regional stocking locations throughout North America. We offer a wide variety of systems including complete lines of piping, fittings, valves and custom-fabricated items.

More importantly, we are committed to meeting our customers' needs. As a leader in the plastic piping industry, IPEX continually develops new products, modernizes manufacturing facilities and acquires innovative process technology. In addition, our staff take pride in their work, making available to customers their extensive thermoplastic knowledge and field experience. IPEX personnel are committed to improving the safety, reliability and performance of thermoplastic materials. We are involved in several standards committees and are members of and/or comply with the organizations listed on this page.

For specific details about any IPEX product, contact our customer service department.

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NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

PRODUCT INFORMATION: TEMPEST LOW, MEDIUM FLOW (LMF) ICD

Purpose

To control the amount of storm water runoff entering a sewer system by allowing a specified flow volume out of a catch basin or manhole at a specified head. This approach conserves pipe capacity so that catch basins downstream do not become uncontrollably surcharged, which can lead to basement floods, flash floods and combined sewer overflows.

Product Description

Our LMF ICD is designed to accommodate catch basins or manholes with sewer outlet pipes 6" in diameter and larger. Any storm sewer larger than 12" may require custom modification. However, IPEX can custom build a TEMPEST device to accommodate virtually any storm sewer size.

Available in 14 preset flow curves, the LMF ICD has the ability to provide flow rates: 2lps – 17lps (31gpm – 270gpm)

Product Function

The LMF ICD vortex flow action allows the LMF ICD to provide a narrower flow curve using a larger orifice than a conventional orifice plate ICD, making it less likely to clog. When comparing flows at the same head level, the LMF ICD has the ability to restrict more flow than a conventional ICD during a rain event, preserving greater sewer capacity.

Product Construction

Constructed from durable PVC, the LMF ICD is light weight 8.9 Kg (19.7 lbs).

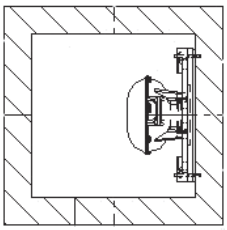
Product Applications

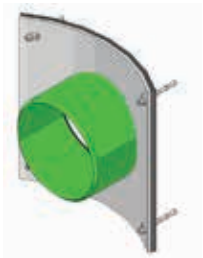
Will accommodate both square and round applications:

Square Application

Round Application

Universal
Mounting Plate





+

Spigot CB
Wall Plate

=

Universal
Mounting
Plate Hub
Adapter

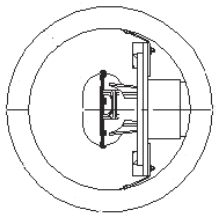


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Chart 1: LMF 14 Preset Flow Curves

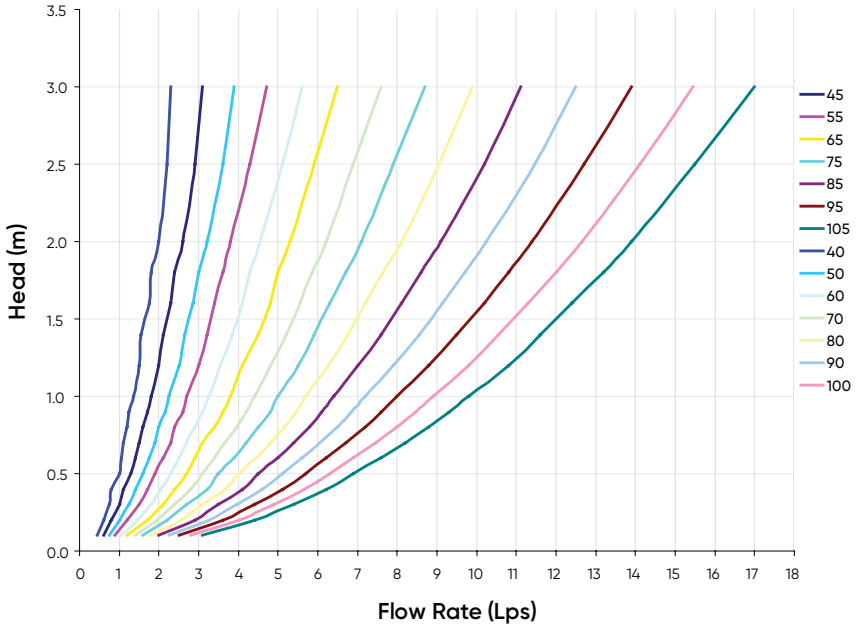
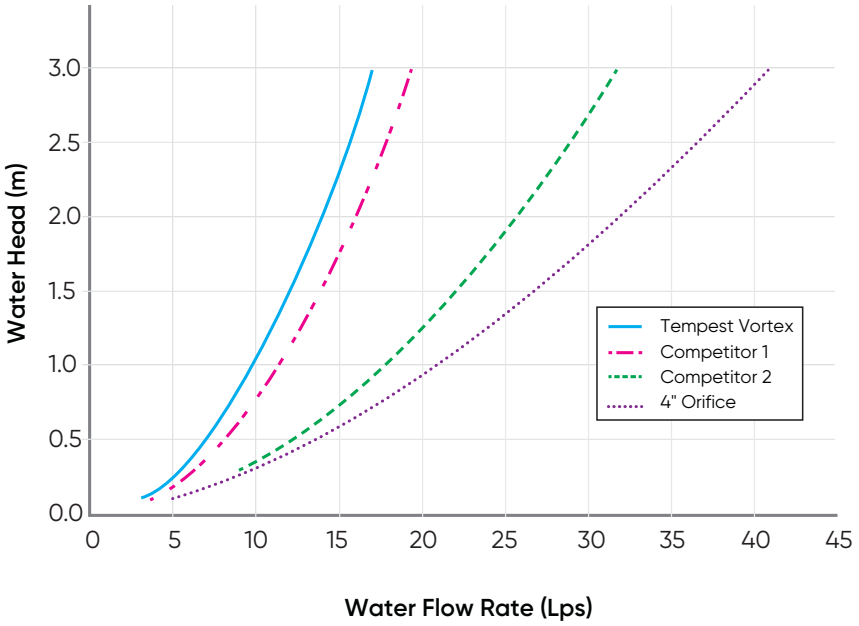


Chart 2: LMF Flow vs. ICD Alternatives



NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

PRODUCT INSTALLATION

Instructions to assemble a TEMPEST LMF ICD into a Square Catch Basin:

STEPS:

1. Materials and tooling verification:
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level, and marker.
   - Material: (4) concrete anchor 3/8 x 3-1/2, (4) washers, (4) nuts, universal mounting plate, ICD device.
2. Use the mounting wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8" concrete bit to make the four holes at a minimum of 1-1/2" depth up to 2-1/2". Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Thread the nuts on the top of the anchors to protect the threads when you hit the anchors with the hammer. Remove the nuts from the ends of the anchors.
5. Install the universal mounting plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the wall mounting plate and the catch basin wall.
6. From the ground above using a reach bar, lower the ICD device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the universal mounting plate and has created a seal.

WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut down the pipe flush to the catch basin wall.
- Call your IPEX representative for more information or if you have any questions about our products.

Instructions to assemble a TEMPEST LMF ICD into a Round Catch Basin:

STEPS:

1. Materials and tooling verification.
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level and marker.
   - Material: (4) concrete anchor 3/8 x 3-1/2, (4) washers and (4) nuts, spigot CB wall plate, universal mounting plate hub adapter, ICD device.
2. Use the spigot catch basin wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8" concrete bit to make the four holes at a depth between 1-1/2" to 2-1/2". Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Thread the nuts on the top of the anchors to protect the threads when you hit the anchors with the hammer. Remove the nuts from the ends of the anchors.
5. Install the CB spigot wall plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the spigot wall plate and the catch basin wall.
6. Apply solvent cement on the hub of the universal mounting plate, hub adapter and the spigot of the CB wall plate, then slide the hub over the spigot. Make sure the universal mounting plate is at the horizontal and its hub is completely inserted onto the spigot. Normally, the corners of the universal mounting plate hub adapter should touch the catch basin wall.
7. From ground above using a reach bar, lower the ICD device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the mounting plate and has created a seal.

WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut back the pipe flush to the catch basin wall.
- The solvent cement which is used in this installation is to be approved for PVC.
- The solvent cement should not be used below 0°C (32°F) or in a high humidity environment. Refer to the IPEX solvent cement guide to confirm the required curing time or visit the IPEX Online Solvent Cement Training Course available at ipexna.com.
- Call your IPEX representative for more information or if you have any questions about our products.

NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

PRODUCT TECHNICAL SPECIFICATION

General

Inlet control devices (ICD's) are designed to provide flow control at a specified rate for a given water head level and also provide odour and floatable control. All ICD's will be IPEX Tempest or approved equal.

All devices shall be removable from a universal mounting plate. An operator from street level using only a T-bar with a hook will be able to retrieve the device while leaving the universal mounting plate secured to the catch basin wall face. The removal of the TEMPEST devices listed above must not require any unbolting or special manipulation or any special tools.

High Flow (HF) Sump devices will consist of a removable threaded cap which can be accessible from street level with out entry into the catchbasin (CB). The removal of the threaded cap shall not require any special tools other than the operator's hand.

ICD's shall have no moving parts.

Materials

ICD's are to be manufactured from Polyvinyl Chloride (PVC) or Polyurethane material, designed to be durable enough to withstand multiple freeze-thaw cycles and exposure to harsh elements.

The inner ring seal will be manufactured using a Buna or Nitrile material with hardness between Duro 50 and Duro 70.

The wall seal is to be comprised of a 3/8" thick Neoprene Closed Cell Sponge gasket which is attached to the back of the wall plate.

All hardware will be made from 304 stainless steel.

Dimensioning

The Low Medium Flow (LMF), High Flow (HF) and the High Flow (HF) Sump shall allow for a minimum outlet pipe diameter of 200mm with a 600mm deep Catch Basin sump.

Installation

Contractor shall be responsible for securing, supporting and connecting the ICD's to the existing influent pipe and catchbasin/manhole structure as specified and designed by the Engineer.

NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

PRODUCT INFORMATION: TEMPEST HF & MHF ICD

Product Description

Our HF, HF Sump and MHF ICD's are designed to accommodate catch basins or manholes with sewer outlet pipes 6" in diameter or larger. Any storm sewer larger than 12" may require custom modification. However, IPEX can custom build a TEMPEST device to accommodate virtually any storm sewer size.

Available in 5 preset flow curves, these ICDs have the ability to provide constant flow rates: 9lps (143 gpm) and greater

Product Function

TEMPEST HF (High Flow): designed to manage moderate to higher flows 15 L/s (240 gpm) or greater and prevent the propagation of odour and floatables. With this device, the cross-sectional area of the device is larger than the orifice diameter and has been designed to limit head losses. The HF ICD can also be ordered without flow control when only odour and floatable control is required.

TEMPEST HF (High Flow) Sump: The height of a sewer outlet pipe in a catch basin is not always conveniently located. At times it may be located very close to the catch basin floor, not providing enough sump for one of the other TEMPEST ICDs with universal back plate to be installed. In these applications, the HF Sump is offered. The HF Sump offers the same features and benefits as the HF ICD; however, is designed to raise the outlet in a square or round catch basin structure. When installed, the HF sump is fixed in place and not easily removed. Any required service to the device is performed through a clean-out located in the top of the device which can be often accessed from ground level.

TEMPEST MHF (Medium to High Flow): The MHF plate or plug is designed to control flow rates 9 L/s (143 gpm) or greater. It is not designed to prevent the propagation of odour and floatables.

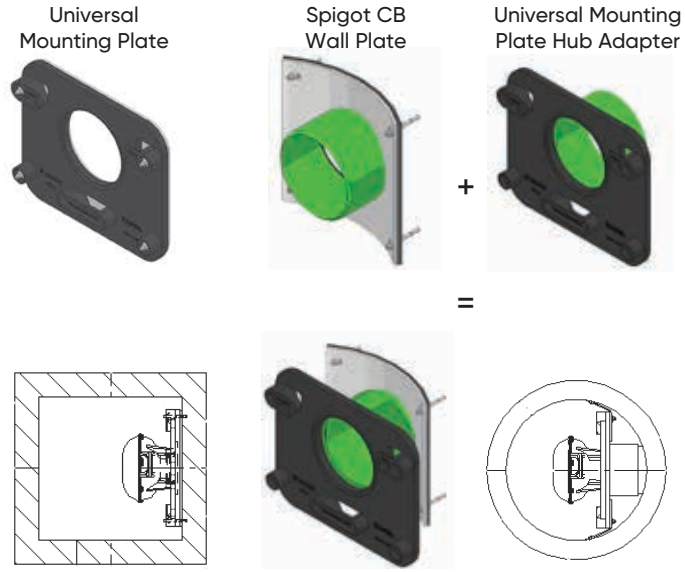
Product Construction

The HF, HF Sump and MHF ICDs are built to be light weight at a maximum weight of 6.8 Kg (14.6 lbs).

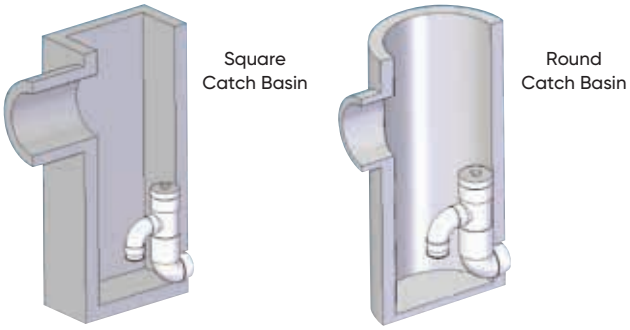
Product Applications

The HF and MHF ICD's are available to accommodate both square and round applications:

Square Application **Round Application**

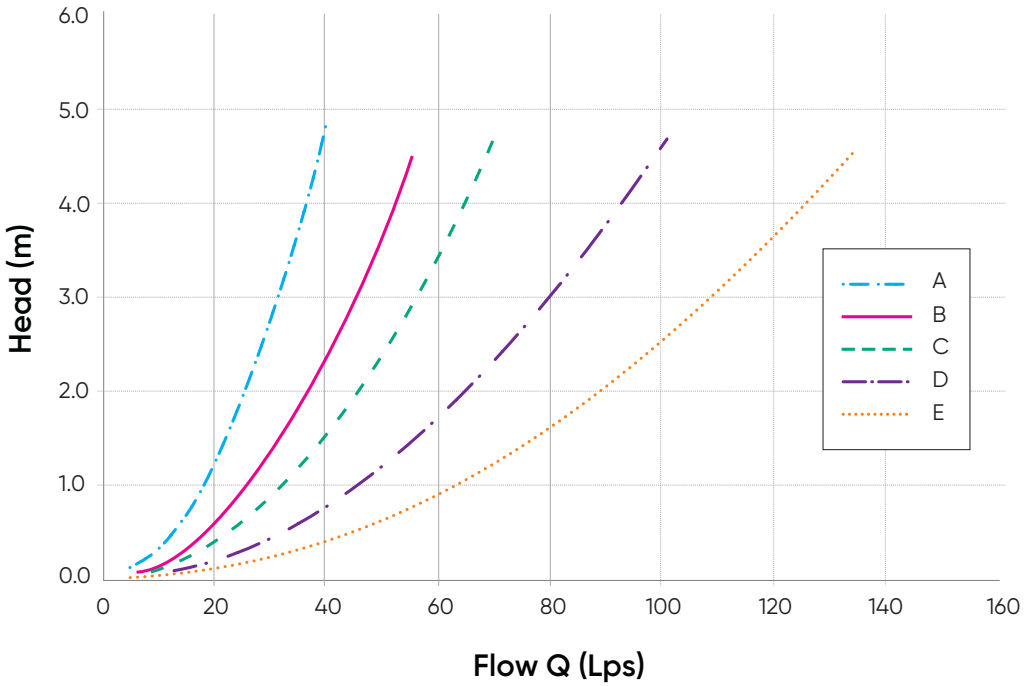


The HF Sump is available to accommodate low to no sump applications in both square and round catch basins:



NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

Chart 3: HF & MHF Preset Flow Curves



NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

PRODUCT INSTALLATION

Instructions to assemble a TEMPEST HF or MHF ICD into a Square Catch Basin:

1. Materials and tooling verification:
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level, and marker.
   - Material: (4) concrete anchor 3/8 x 3-1/2, (4) washers, (4) nuts, universal mounting plate, ICD device
2. Use the mounting wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8" concrete bit to make the four holes at a minimum of 1-1/2" depth up to 2-1/2". Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Thread the nuts on the top of the anchors to protect the threads when you hit the anchors with the hammer. Remove the nuts from the ends of the anchors.
5. Install the universal wall mounting plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the wall mounting plate and the catch basin wall.
6. From the ground above using a reach bar, lower the device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the universal wall mounting plate and has created a seal.

WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut down the pipe flush to the catch basin wall.
- Call your IPEX representative for more information or if you have any questions about our products.

Instructions to assemble a TEMPEST HF or MHF ICD into a Round Catch Basin:

STEPS:

1. Materials and tooling verification.
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level and marker.
   - Material: (4) concrete anchor 3/8 x 3-1/2, (4) washers and (4) nuts, spigot CB wall plate, universal mounting plate hub adapter, ICD device.
2. Use the round catch basin spigot adaptor to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8" concrete bit to make the four holes at a depth between 1-1/2" to 2-1/2". Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Thread the nuts on the top of the anchors to protect the threads when you hit the anchors with the hammer. Remove the nuts from the ends of the anchors.
5. Install the spigot CB wall plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the spigot CB wall plate and the catch basin wall.
6. Put solvent cement on the hub of the universal mounting plate, hub adapter and the spigot of the CB wall plate, then slide the hub over the spigot. Make sure the universal mounting plate is at the horizontal and its hub is completely inserted onto the spigot. Normally, the corners of the hub adapter should touch the catch basin wall.
7. From ground above using a reach bar, lower the device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the wall mounting plate and has created a seal.

WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut down the pipe flush to the catch basin wall.
- The solvent cement which is used in this installation is to be approved for PVC.
- The solvent cement should not be used below 0°C (32°F) or in a high humidity environment. Refer to the IPEX solvent cement guide to confirm the required curing time or visit the IPEX Online Solvent Cement Training Course available at www.ipexinc.com.
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Instructions to assemble a TEMPEST HF Sump into a Square or Round Catch Basin:

STEPS:

1. Materials and tooling verification:
   - Tooling: impact drill, 3/8" concrete bit, torque wrench for 9/16" nut, hand hammer, level, mastic tape and metal strapping
   - Material: (2) concrete anchor 3/8 x 3-1/2, (2) washers, (2) nuts, HF Sump pieces (2).
2. Apply solvent cement to the spigot end of the top half of the sump. Apply solvent cement to the hub of the bottom half of the sump. Insert the spigot of the top half of the sump into the hub of the bottom half of the sump.
3. Install the 8" spigot of the device into the outlet pipe. Use the mastic tape to seal the device spigot into the outlet pipe. You should use a level to be sure that the fitting is standing at the vertical.
4. Use an impact drill with a 3/8" concrete bit to make a series of 2 holes along each side of the body throat. The depth of the hole should be between 1-1/2" to 2-1/2". Clean the concrete dust from the 2 holes.
5. Install the anchors (2) in the holes by using a hammer. Put the nuts on the top of the anchors to protect the threads when you hit the anchors. Remove the nuts from the ends of the anchors.
6. Cut the metal strapping to length and connect each end of the strapping to the anchors. Screw the nuts in place with a maximum torque of 40 N.m (30 lbf-ft). The device should be completely flush with the catch basin wall.

⚠ WARNING

- Verify that the outlet pipe doesn't protrude into the catch basin. If it does, cut down the pipe flush to the catch basin wall.
- The solvent cement which is used in this installation is to be approved for PVC.
- The solvent cement should not be used below 0°C (32°F) or in a high humidity environment. Refer to the IPEX solvent cement guide to confirm the required curing time or visit the IPEX Online Solvent Cement Training Course available at www.ipexinc.com.
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PRODUCT TECHNICAL SPECIFICATION

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All devices shall be removable from a universal mounting plate. An operator from street level using only a T-bar with a hook shall be able to retrieve the device while leaving the universal mounting plate secured to the catch basin wall face. The removal of the TEMPEST devices listed above shall not require any unbolting or special manipulation or any special tools.

High Flow (HF) Sump devices shall consist of a removable threaded cap which can be accessible from street level with out entry into the catchbasin (CB). The removal of the threaded cap shall not require any special tools other than the operator's hand.

ICD's shall have no moving parts.

Materials

ICD's are to be manufactured from Polyvinyl Chloride (PVC) or Polyurethane material, designed to be durable enough to withstand multiple freeze-thaw cycles and exposure to harsh elements.

The inner ring seal will be manufactured using a Buna or Nitrile material with hardness between Duro 50 and Duro 70.

The wall seal is to be comprised of a 3/8" thick Neoprene Closed Cell Sponge gasket which is attached to the back of the wall plate.

All hardware will be made from 304 stainless steel.

Dimensioning

The Low Medium Flow (LMF), High Flow (HF) and the High Flow (HF) Sump shall allow for a minimum outlet pipe diameter of 200mm with a 600mm deep Catch Basin sump.

Installation

Contractor shall be responsible for securing, supporting and connecting the ICD's to the existing influent pipe and catchbasin/manhole structure as specified and designed by the Engineer.

NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

NOTES

NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

SALES AND CUSTOMER SERVICE

IPEX Inc.
Toll Free: (866) 473-9462
ipexna.com

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As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have established a reputation for product innovation, quality, end-user focus and performance.

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- Electrical systems
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- PVC, CPVC, PP, ABS, PEX, FR-PVDF and PE pipe and fittings (1/4" to 48")
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- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- PE Electrofusion systems for gas and water
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A policy of ongoing product improvement is maintained. This may result in modifications of features and/or specifications without notice.

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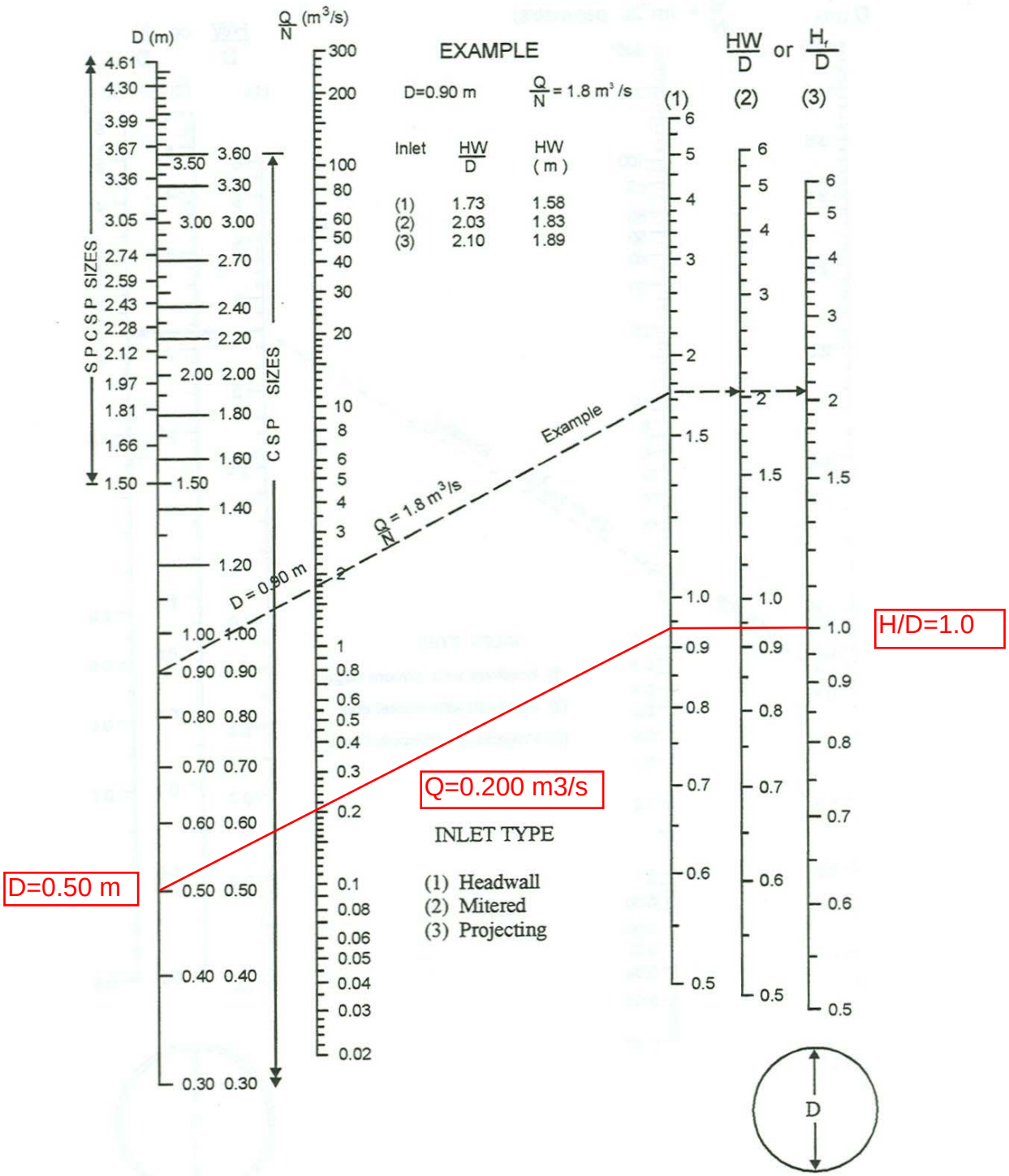
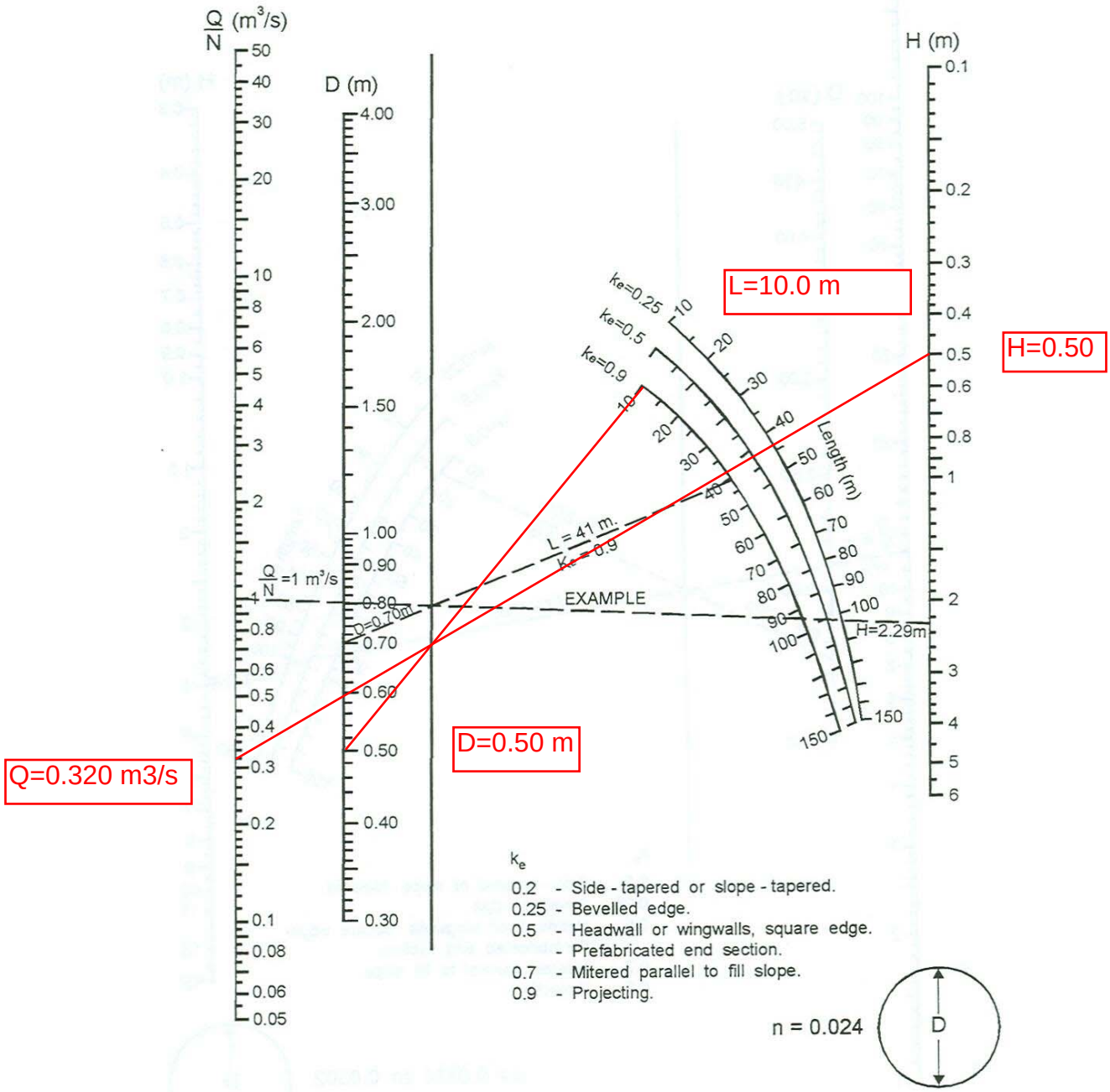
CULV-1
Full Flow Capacity

Design Chart 2.32: Inlet Control: Circular CSP and SPCSP Culverts



Source: Herr (1977)

Design Chart 2.35: Outlet Control: CSP Culvert - Flowing Full



Source: Herr (1977)

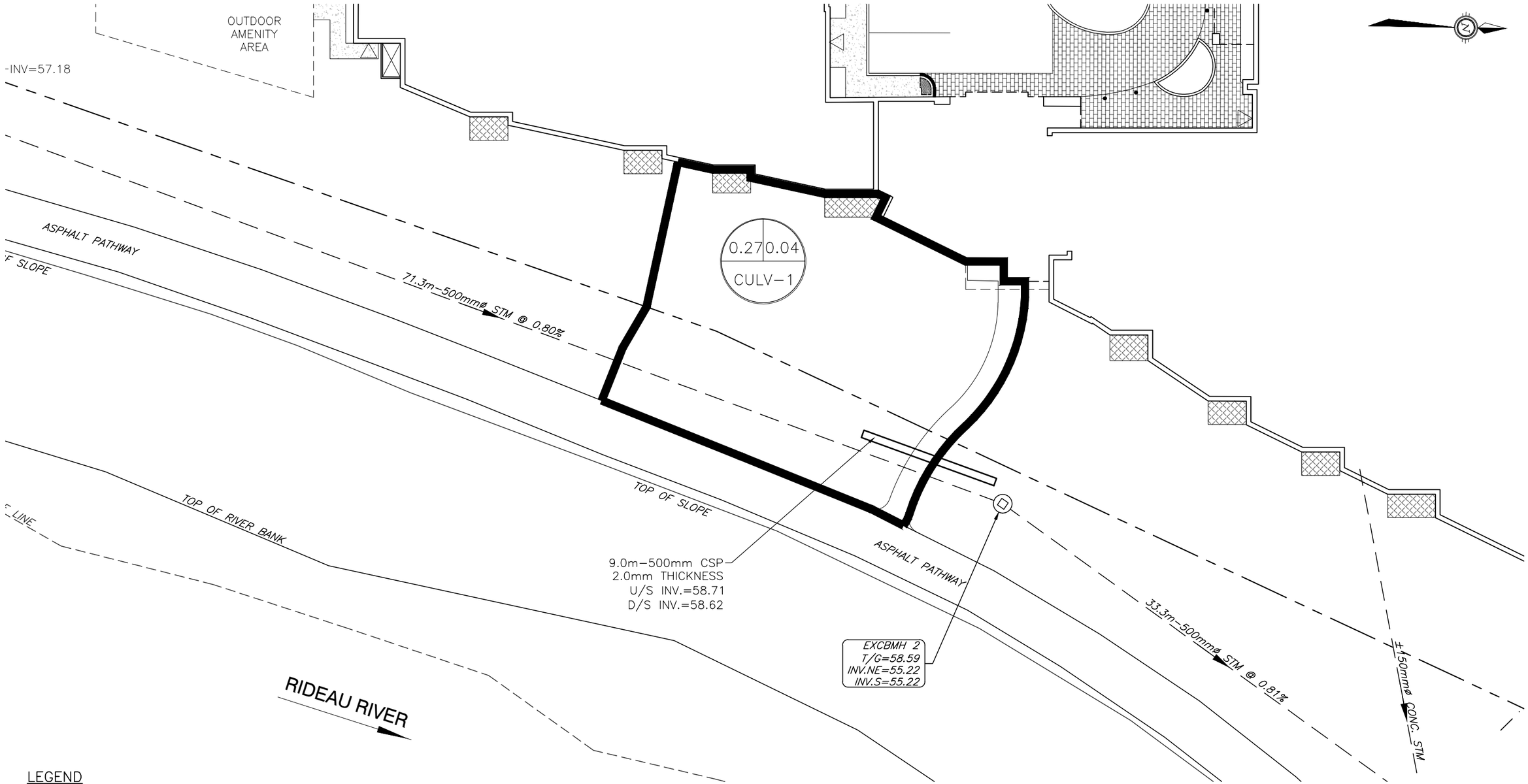
Peak Flow Calculations - Area CULV-1

Area ID =	CULV-1
Area (ha) =	0.04
C =	0.27
C (100 YR) =	0.34

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)
2 Year	10	76.8	2.3
5 Year	10	104.2	3.1
100 Year	10	178.6	6.6

Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Flow calculated using the Rational Method. Q=2.78CiA
3. C (100 YR) = C + 25% (Max. 1.0)



LEGEND

PROPERTY BOUNDARY

SUBDRAIN DRAINAGE AREA BOUNDARY

RUNOFF COEFFICIENT

0.85 | 0.10 — AREA (ha)

STM1

DRAINAGE AREA ID

Robinson
Land Development

scale 1:250	551 RIVERDALE AVENUE, OTTAWA	project no. 25042
date 13/07/26		
drawn by BLM	CULVERT DRAINAGE AREA PLAN	FIG 8.0