Stormwater Management Report and Servicing Brief

Apartment Building
700 Coronation Avenue
Ottawa, Ontario

Prepared for:

MJ Asset Management Ltd
533 Gilmour St
Ottawa, ON, K1R 5L3

Attention: Mr. Mark Farrell

LRL File No.: 200463

October 2nd, 2020
Rev 1 October 30th, 2020
Rev 2 November 13th, 2020
Rev 3 October 29th, 2021
Rev 4 November 19th, 2021

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by MJ Asset Management Ltd to complete a Stormwater Management Analysis and Servicing Brief for a proposed four (4) storey residential building addition located at 700 Coronation Avenue in Ottawa, Ontario. The legal description of the property is Part Block F (part 1 and 4 Plan 5R-7688) registered plan **605,** City of Ottawa. Under the Zoning By-law 2008-250 the site is zoned R4N (Residential Fourth Density Zone).

Figure 1: Aerial View of Proposed Development

The subject site at 700 Coronation Avenue has approximately 56 metres of frontage along Coronation Avenue and a maximum depth of approximately 67 metres. The west property line has greater depth than east property line (measured at 51 metres) and the overall lot area is **0.34 ha.**

The topographic survey of the subject property was completed by Farley, Smith & Denis Surveying Ltd. (Ontario Land Surveyors). The established site benchmark with elevation 75.18 is located at the northeastern corner of the site at the bottom lid of the light standard, refer to the ***Legal Survey*** included in ***Drawings/Figures***.

The development proposes a new four (4) storey residential building addition on the west side of the subject site consisting of (34) units. Underground parking is also proposed to accommodate total parking demand for the proposed and existing building.

This report has been prepared in consideration of the terms and conditions noted above and with the civil drawings prepared for the new development. Should there be any changes in the design

features, which may relate to the stormwater considerations, LRL Associates Ltd. should be advised to review the report recommendations.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures **0.34 ha** and currently consists of a three (3) storey residential rental apartment building composed of 30 units on the east side of subject site. The west side of the subject site consists of a paved surface parking lot, with access provided from Coronation Avenue, and landscaping around the perimeter of the site. Elevations of existing site range between 74.12 m at north to 75.20 m at the south side of the site.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent right-of-way:

Coronation Avenue:

- 305 mm diameter PVC watermain
- 229 mm diameter concrete sanitary sewer
- 675 mm diameter concrete storm sewer

There are no storm sewers currently existing across the subject site's frontage along Coronation Avenue right-of-way.

3 SCOPE OF WORK

As per applicable guidelines, the scope of work includes the following:

Stormwater management

- Calculate the allowable stormwater release rate.
- Calculate the anticipated post-development stormwater release rates.
- Demonstrate how the target quantity objectives will be achieved.

Water services

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the required fire flow as per the Fire Underwriters Survey (FUS) method.
- Confirm the adequacy of water supply and pressure during peak flow and fire flow.
- Describe the proposed water distribution network and connection to the existing system.

Sanitary services

- Describe the existing sanitary sewers available to receive wastewater from the building.
- Calculate peak flow rates from the development.
- Describe the proposed sanitary sewer system.
- Review impact of increased sanitary flow on downstream sanitary sewer.

4 REGULATORY APPROVALS

An MECP Environmental Compliance Approval is expected to be required for extension of the existing storm sewer within Coronation Avenue right-of-way. A Permit to Take Water is not anticipated to be required for pumping requirements for sewer installation. The Rideau Valley Conservation Authority will need to be consulted in order to obtain municipal approval for site development. No other approval requirements from other regulatory agencies are anticipated.

5 WATER SUPPLY AND FIRE PROTECTION

5.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa 1E water distribution network pressure zone. An existing 305 mm dia. watermain exists across the subject site within the Coronation Avenue right-of-way.

5.2 Water Supply Servicing Design

The subject property is proposed to be serviced via 150 mm diameter service lateral connected to the 305 mm watermain located within Coronation Avenue. Refer to Site Servicing Plan C.401 in ***Appendix E*** for servicing layout.

Table 1 below summarizes the City of Ottawa Design Guidelines design parameters employed in the preparation of the water demand estimate.

Table 1: City of Ottawa Design Guidelines Design Parameters

Design Parameter	Value
Residential Bachelor / 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Average Daily Demand	280 L/d/per
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure range during normal operating conditions	350 kPa and 480 kPa
During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure shall not exceed	552 kPa
During fire flow operating conditions pressure must not drop below	140 kPa
**Table updated to reflect technical Bulletin ISDTB-2018-02*	

Based on the interior layout and architectural floor plans, it was determined that the building will house twenty (20) studio/1-bedroom apartments, and fifteen (15) 2-bedroom units. Based on the City of Ottawa Design guidelines for population projection, this translates to approximately 59.5 residents. **Table 2** below summarizes the proposed development as interpreted using Table 4.1 of the City of Ottawa Design Guidelines.

Table 2: ***Development Residential Population Estimate***

Proposed Unit type	Persons Per Unit	Number of Units	Population
Studio/1 Bedroom	1.4	19	26.6
2 Bedroom Apartment	2.1	15	31.5
		Total Residential Population	58.1

The required water supply requirements for the residential units in proposed building have been calculated using the following formula:

Where:

$$Q = (q \times P \times M)$$

q = average water consumption (L/capita/day)
P = design population (capita)
M = Peak factor
Using a calculated Maximum Day Factor and Peak Hour factor of 7.2 and 10.9 respectively as per Table 3-3 in the *MOE Design Guidelines*, anticipated demands were calculated as follows:

- Average daily domestic water demand is **0.19** L/s,
- Maximum daily demand is **1.36** L/s, and
- Maximum hourly is **14.78** L/s.

Refer to ***Appendix B*** for water demand calculations.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand, as indicated in the boundary request correspondence included in ***Appendix B***. **Table 3** below summarizes boundary conditions for the total proposed development.

Table 3: ***Summary of Anticipated Demands and Boundary Conditions***

Design Parameter	Anticipated Demand (proposed bldg.+ existing bldg.) (L/min)	Boundary Conditions @ Coronation Avenue* (m H2O / kPa)
Average Daily Demand	21.8	118.9 / 441.0
Max Day + Fire Flow (per FUS)	119.2 + 7,000	105.9 / 313.4
Peak Hour	977.6	107.5 / 329.1
**Assumed Ground elevation at connection point = 73.95 m.*		
Water demand calculation per City of Ottawa Water Design guidelines. ***See Appendix B*** *for details.*		

Anticipated demand has reduced by approximately 1.8% since boundary conditions were requested.

As indicated in Table 3, pressures in all scenarios exceed the minimum required pressure thresholds stated in Table 1 as per City of Ottawa Design Guidelines. Refer to ***Appendix B*** for Boundary Conditions.

The estimated fire flow for the proposed buildings was calculated in accordance with *ISTB-2018-02*. The following parameters were provided by the Architect, see ***Appendix A*** for collaborating correspondence:

- Type of construction – Ordinary Construction;
- Occupancy type – Limited Combustibility; and
- Sprinkler Protection – Fully Supervised Sprinkler System.

The estimated fire flow demand was estimated to be **7,000 L/min**, see ***Appendix B*** for details.

There are three (3) existing fire hydrants, and (1) proposed fire hydrant within 75m radius from the proposed building that will be available to meet the required fire flow demands of 7,000 L/min. Refer to ***Appendix B*** for fire hydrant locations. **Table 4** below summarizes the aggregate fire flow of the contributing hydrants in close proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 4: ***Fire Protection Summary Table***

Building	Fire Flow Demand (L/min)	Fire Hydrants(s) within 75m	Available Combined Fire Flow (L/min)
Proposed 4 Storey Building	7,000	4	(4 x 5678) = 22,712

The total available fire flow from contributing hydrants is equal to **22,712 L/min** which is sufficient to provide adequate fire flow for the proposed development. A certified fire protection system specialist will need to be employed to design the building's fire suppression system and confirm the actual fire flow demand.

The proposed water supply design conforms to all relevant City Guidelines and Policies.

6 SANITARY SERVICE

6.1 Existing Sanitary Sewer Services

There is an existing 229 mm dia. sanitary sewer within Coronation Avenue across the subject site. The wastewater flow is ultimately conveyed to the Rideau River Collector trunk sewer. The post development total flow from the proposed development was calculated to be **0.86 L/s**; **0.75 L/s** of which is a result of proposed residential population and the remaining **0.11 L/s** represents contributing infiltration flow from the site. Refer to ***Appendix C*** for further information on the calculated sanitary flows.

Based on existing as-built, refer to ***Drawings/Figures*** for as-built information, the existing 229 mm dia. sanitary sewer within Coronation Avenue is sloped at 0.40% and is calculated to have a maximum capacity of **29.76 L/s**. The proposed increase in total wastewater flow of **0.75 L/s** represents approximately 2.5% of existing maximum capacity. Therefore, it is anticipated that the existing local sewer network has sufficient capacity to accommodate the proposed development.

6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via a 150 mm dia. sanitary service lateral which will connect to the existing 229 mm dia. sanitary sewer located within Coronation Avenue. Refer to LRL drawing C.401 for the proposed sanitary servicing.

The parameters used to calculate the anticipated sanitary flows are:; residential average population per unit of 1.4 person for single units and 2.1 persons for two-bedroom units, a residential daily demand of 280 L/p/day, a residential peaking factor of 4.0 and a total infiltration rate of 0.33 L/s/ha. Based on these parameters and the total site area of 0.34 ha, the total anticipated sanitary flow was estimated to be **0.86 L/s,** resulting in an increase of **0.75 L/s** in total wastewater flow. Refer to ***Appendix C*** for the site sanitary sewer design sheet.

7 STORMWATER MANAGEMENT

7.1 Existing Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system as such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa.

In pre-development conditions, the stormwater runoff would flow uncontrolled overland to the north side of the site towards Coronation Avenue right-of-way. There is an existing 675 mm diameter storm sewer within Coronation Avenue that terminates 80 m west of the site at the intersection of Coronation Avenue and Botsford Street. Refer to ***Appendix D*** for pre- and post-development watershed information.

7.2 Design Criteria

The stormwater management criteria for this development are based on the pre-consultation with City of Ottawa officials, the City of Ottawa Sewer Design Guidelines 2012 (City standards), including all succeeding technical bulletins, as well as the Ministry of the Environment's Stormwater Planning and Design Manual, 2003 (SWMP Manual).

7.2.1 Water Quality

The subject property lies within the Lower Rideau River sub-watershed and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). It was determined that no further treatment is required for stormwater runoff from the proposed development. Correspondence with RVCA is included in ***Appendix A***.

7.2.2 Water Quantity

Based on pre-consultation with the City, correspondence included in ***Appendix A***, the following stormwater management requirements were identified for the subject site:

- Meet an allowable release rate based on the existing Rational Method with a runoff coefficient no greater than 0.50, employing the City of Ottawa IDF parameters for a 2-year storm with a calculated time of concentration equal to or greater than 10 minutes; and

- Attenuate all storms up to and including the City of Ottawa 100-year storm event on site.

The allowable release rate for the subject site was calculated to be **20.92 L/s**. Refer to ***Appendix D*** for calculations.

7.3 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site to quantify the detention storage required for quantity control of the development. Refer to ***Appendix D*** for storage calculations.

7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished using a flow restrictor in the storm sewer, as well as roof drains restricting the flow leaving the rooftop. Storage required as a result of quantity control will be accomplished through a combination of rooftop storage and surface storage in the parking lot.

A 300 mm diameter storm sewer extension is proposed along Coronation Avenue right-of way to extend municipal sewer to the subject site. The subject property is proposed to be serviced via a 250 mm diameter storm service lateral that would outlet to the 300 mm diameter municipal storm sewer extension within Coronation Avenue. The proposed site storm sewer and stormwater management system are shown on drawing C.401 and detailed calculations, including the design sheet, can be found in ***Appendix D***.

The existing site is delineated by catchments EWS-01 & EWS-02 which currently drain uncontrolled towards the front of the property. EWS-02 is out of scope of this proposed development and as such only EWS-01 watershed was analyzed. Refer to Pre-Development Watershed Plan C701 included in ***Appendix E***.

The site has been analyzed and post-development watersheds have been allocated. Watershed WS-01 (0.022ha), consisting of grass, paved walkway and a portion of the paved drive aisle, will flow uncontrolled. Runoff will surface drain to the Coronation Avenue right-of-way while the remainder will be collected via a trench drain at the end of the underground garage ramp and conveyed to existing municipal sewers. Refer to grading plan C301 and servicing plan C401.

Overland flow within watershed WS-03 (0.112ha) will be captured by area drains over the underground garage. Runoff would be conveyed through building internal mechanical system to be attenuated at a proposed underground cistern. The cistern is proposed to pump the collected runoff at a constant rate to existing municipal storm sewer via the proposed 250mm dia. storm

service lateral. Grading proposed will provide positive overland drainage to the proposed storm water collection and control systems. Refer to C401 in ***Appendix E*** for location and details on cistern design.

Runoff from the roof, delineated by Watershed WS-02 (0.062ha), will be captured by the proposed roof drains. Stormwater captured on the rooftop will be controlled by the roof drains and conveyed to the proposed 250mm diameter storm service lateral outlet, refer to C401 included in ***Appendix E*** for connection points.

Table 5 below summarizes post-development drainage areas. Calculations are included in ***Appendix D.***

Table 5: ***Drainage Areas***

Drainage Area Name	Area (ha)	Weighted Runoff Coefficient	100 Year Weighted Runoff Coefficient (25% increase)
WS-01 (un-controlled)	0.022	0.90	1.0
WS-02 (controlled)	0.062	0.90	1.0
WS-03 (controlled)	0.112	0.59	0.74

Rooftop detention of stormwater is provided with outlet control through five (5) proposed roof drains. The building's rooftop was analysed and divided into five (5) ponding areas, each of which drains to one (1) roof drain which restricts the discharge rate to **0.63 L/s** at a maximum ponding level of **0.15m**. Therefore, the total proposed release rate from the roof is **3.15 L/s**. Proposed roof drains are to be Watts RD-100-A with a **closed** weir opening. See ***Appendix D*** for more information about the selected roof drain and flow restrictor.

The total available roof storage (m^3) has been calculated using the following formula:

$$V = (\frac{D_{Sl} * A_{Eff}}{3})$$

Where:

V = available (provided) rooftop storage (m^3)
D_{Sl} = ponding depth at roof drain (m)
A_{Eff} = effective roof area (m^2)

Based on the equation above, it was calculated that **25.50 m³** of rooftop storage is available in the 100-year event. For additional details on the calculations for available area of rooftop storage, refer to ***Appendix D***.

All overland stormwater captured will ultimately be conveyed, via an underground storm service lateral, to the proposed City storm sewer extension within Coronation Avenue at a maximum release rate of **20.92 L/s** (calculated controlled and uncontrolled flow).

Table 6 below summarize the release rates and storage volumes required to meet the allowable release rate of **20.92 L/s** for 100-year flow rates.

Table 6: ***Stormwater Release Rate & Storage Volume Summary (100 Year)***

Catchment Area	Drainage Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m^3)	Total Available Storage (m^3)
WS-01 (Un-controlled)	0.022	11.02	0	0
WS-02 (Roof Controlled)	0.062	3.15	23.67	25.50
WS-03 (Cistern -Controlled)	0.112	6.75	25.87	30.00
TOTAL	**0.196**	**20.92**	**49.54**	**55.50**

It is calculated that a total of **23.67 m^3** of rooftop storage and **25.87 m^3** of underground cistern storage, pumped at a constant flow rate of **6.75 L/s**, will be required to attenuate flows to the allowable release rate of **20.92 L/s**. The 100-year maximum ponding extents can be found on drawing "C601 – Stormwater Management Plan" of ***Appendix E***.

8 Erosion and Sediment Control

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes in and around the site that may be impacted by the site construction. Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS 577. Refer to LRL Associates drawing C.101 for erosion and sediment control details.

9 Conclusion

This Stormwater Management and Servicing Report for the development proposed at 700 Coronation Avenue presents the rationale and details for the servicing requirements for the subject property.

In accordance with the report objectives, the servicing requirements for the development are summarized below:

Water Service

- The maximum required fire flow was calculated at **7,000.0 L/min** using the FUS method.
- There are three (3) existing hydrants and (1) proposed fire hydrant available to service the proposed development which will provide a combined fire flow of **22,712 L/min** to the site.
- The new development/expansion will be serviced with a new 150 mm dia. water service to be connected to the existing 305 mm dia. watermain within Coronation Avenue.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

Sanitary Service

- The anticipated total sanitary flow from the proposed development is **0.86 L/s.**
- The proposed development will be serviced by a 150 mm dia. sanitary service that connects to the existing 230 mm dia. sanitary sewer within Coronation Avenue.

Stormwater Management

- Stormwater quality control are not required as per consultation with RVCA.
- The storm water release rates from the proposed development will meet calculated allowable release rate of **20.92 L/s.**
- Stormwater quantity control objectives will be met through on-site rooftop storage and underground cistern storage below the parking garage.

10 Report Conditions and Limitations

The report conclusions are applicable only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure the compatibility with the recommendations contained in this document. If you have any questions or comments, please contact the undersigned.

Prepared by:
LRL Associates Ltd.

Amr Salem
Civil Designer

Mohan Basnet, P.Eng.
Civil Engineer

APPENDIX A

Pre-consultation / Correspondence

DEVELOPMENT SERVICING STUDY CHECKLIST	
Project #: 200463	
2020-10-01	
4.1 General Content	
Executive Summary (for larger reports only).	N/A
Date and revision number of the report.	Report Cover Hseet
Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
Plan showing the site and location of all existing services.	Figure 1
Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 1.0
Summary of Pre-consultation Meetings with City and other approval agencies.	Section 4.0 & Appendix A
Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	Section 5.1, 6.1, 7.1
Statement of objectives and servicing criteria.	Section 1.0
Identification of existing and proposed infrastructure available in the immediate area.	Section 5.1, 6.1, 7.1
Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	Section 7.0
Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	C301

Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
Proposed phasing of the development, if applicable.	N/A
Reference to geotechnical studies and recommendations concerning servicing.	C401
All preliminary and formal site plan submissions should have the following information: ◦Metric scale ◦North arrow (including construction North) ◦Key plan ◦Name and contact information of applicant and property owner ◦Property limits including bearings and dimensions ◦Existing and proposed structures and parking areas ◦Easements, road widening and rights-of-way ◦Adjacent street names	C401

4.2 Development Servicing Report: Water

Confirm consistency with Master Servicing Study, if available	N/A
Availability of public infrastructure to service proposed development	Section 5.1
Identification of system constraints	Section 5.1
Identify boundary conditions	Section 5.2
Confirmation of adequate domestic supply and pressure	Section 5.2
Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Section 5.2

Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Section 5.2
Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
Address reliability requirements such as appropriate location of shut-off valves	N/A
Check on the necessity of a pressure zone boundary modification.	N/A
Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	Section 5.2
Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Section 5.2
Description of off -site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 5.2
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Section 6.2
Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A

Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N.A
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 6.1
Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 6.2
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Section 6.2 Appendix C
Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 6.2
Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	Section 6.1
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 7.1

Analysis of available capacity in existing public infrastructure.	N/A
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	N/A
Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 7.2.2
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 7.2.1
Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 7.4
Set-back from private sewage disposal systems.	N/A
Watercourse and hazard lands setbacks.	N/A
Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Section 7.4
Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Section 7.4 Appendix D

Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Appendix D
If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event.	N/A
Identification of potential impacts to receiving watercourses Identification of municipal drains and related approval requirements.	N/A
Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 7.4
100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	NA
Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 8.0
Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
Identification of fill constraints related to floodplain and geotechnical investigation	N/A

4.5 Approval and Permit Requirements: Checklist

Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/A
Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
Changes to Municipal Drains.	N/A
Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

Clearly stated conclusions and recommendations	Section 9.0
Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	Noted
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	Noted

Amr Salem

From: Laurie Bouchard <bouchard@project1studio.ca>
Sent: September 8, 2020 12:10 PM
To: Amr Salem; Maxime Longtin
Cc: Ryan Koolwine
Subject: FW: 2004 - 700 Coronation Plans
Attachments: 700 Coronation Ave (proj#200463) - Boundary Conditions

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Amr,

- Unit count:
  - Studio: 4 units
  - 1-bed: 16 units
  - 2-bed: 15 units
- Total gross floor area:

LEVEL	AREA (m2)
P1	1536.19
01	598.34
02	602.31
03	600.10
04	575.10
TOTAL	3912.04

- prinklers are automatic. I'm not sure what you mean by "fully supervised". Sprinklers will be electrically supervised as per OBC 3.2.4.10.(3).

3.2.4.10. Electrical Supervision

(1) Electrical supervision shall be provided for a fire alarm system.

(2) If a fire alarm system in a *building* is required by Sentence 3.2.4.9.(1) to have an annunciator, each valve controlling water supplies in a standpipe system, except for hose valves, shall be equipped with an electrically supervised switch for transmitting a trouble signal to the annunciator in the event of movement of the valve handle.

(3) If a fire alarm system is installed in a *building*, an automatic sprinkler system shall be electrically supervised to indicate a supervisory signal on the *building* fire alarm system annunciator for each of the following,

(a) movement of a valve handle that controls the supply of water to sprinklers,

(b) loss of excess water pressure required to prevent false alarms in a wet pipe system,

(c) loss of air pressure in a dry pipe system,

(d) loss of air pressure in a pressure tank,

(e) a significant change in water level in any water storage container used for firefighting purposes,

(f) loss of power to any automatically starting fire pump, and

(g) a temperature approaching the freezing point in any dry pipe valve enclosure or water storage container used for firefighting purposes.

- Based on the provided fire flow guide, the building will be Class 2 ordinary construction with 1-hour rated exterior walls.

Amr Salem

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: September 11, 2020 1:43 PM
To: Amr Salem
Cc: Maxime Longtin; Mohan Basnet
Subject: RE: (LRL#200463) - 700 Coronation Ave - SWM Quality Objectives

Follow Up Flag: Follow up
Flag Status: Flagged

Good Afternoon Amr,

Based on the distance from the downstream outlet and the reduction of surface parking spaces to 6 surface parking spaces, we would accept that no additional onsite water quality treatment is required.

Jamie Batchelor, MCIP, RPP
Planner, ext. 1191
Jamie.batchelor@rvca.ca

3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504 F 613-692-0831 | www.rvca.ca

From: Amr Salem <asalem@lrl.ca>
Sent: Thursday, September 10, 2020 4:09 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Maxime Longtin <mlongtin@lrl.ca>; Mohan Basnet <mbasnet@lrl.ca>
Subject: (LRL#200463) - 700 Coronation Ave - SWM Quality Objectives

Hello Jamie,

I wanted to consult with you regarding a residential development we are working on located at 700 coronation Ave.

Existing runoff from the site drains into municipal sewer along Coronation Avenue and travels approx. 2.3 km before discharging into the Rideau River.

Site area currently consists of an existing residential building and a large paved area for surface parking (approx. 32 surface parking spaces).

The development proposes a residential 4-storey building along side the existing apartment building. It is proposed to reduce existing surface parking lot to *6 surface parking spots only*, with underground parking garage to accommodate both buildings. The site will be landscape with stormwater coming primarily from rooftop and landscaped rear yard and paved area in between buildings. *Refer to draft site plan attached for reference.*

Please provide your input about quality controls that may be required for this site.

Thank you,

Amr Salem
Civil Designer
LRL Associates Ltd.
5430 Canotek Road
Ottawa, Ontario K1J 9G2
T (613) 842-3434 or (877) 632-5664 ext 248
F (613) 842-4338
E asalem@lrl.ca
W www.lrl.ca

We care deeply, so let us know how we did by completing our Customer Satisfaction Survey.
Nous nous soucions profondément de votre opinion, nous vous invitons donc à nous faire savoir si nous avons satisfait vos attentes en remplissant notre sondage sur la satisfaction de la clientèle

Amr Salem

From: Sharif, Golam <sharif.sharif@ottawa.ca>
Sent: September 11, 2020 10:29 AM
To: Amr Salem
Cc: Maxime Longtin; Mohan Basnet
Subject: RE: (LRL#200463) - 700 Coronation Ave SPC - SWM Targets

Follow Up Flag: Follow up
Flag Status: Flagged

Good Morning Amr,

The SWM sewer on Botsford street is build 1954, therefore as per the guideline it will be control to 2 year storm. I do not have any record of that report being approved. Thanks.

sharif

From: Amr Salem <asalem@lrl.ca>
Sent: September 10, 2020 3:44 PM
To: Sharif, Golam <sharif.sharif@ottawa.ca>
Cc: Maxime Longtin <mlongtin@lrl.ca>; Mohan Basnet <mbasnet@lrl.ca>
Subject: (LRL#200463) - 700 Coronation Ave SPC - SWM Targets

I'm looking to confirm the required SWM objectives for the proposed development at 700 Coronation Avenue.

Based on the pre consult notes attached, it states that

- Estimate allowable release rate based on a C=0.5, with a Tc greater than or equal to 10 minutes, employing the City of Ottawa IDF parameters for a **2-year storm**.

However, the previous SWM report prepared by *RV Anderson* for the subject site on *Nov 2012,* see attached, states that peak flow is to be controlled to the **5-year storm**.

Can you please confirm SWM objectives and if previous SWM report/design was approved for this site?

Thank you,

Amr Salem
Civil Designer

LRL Associates Ltd.
5430 Canotek Road
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ENGINEERING | INGÉNIERIE

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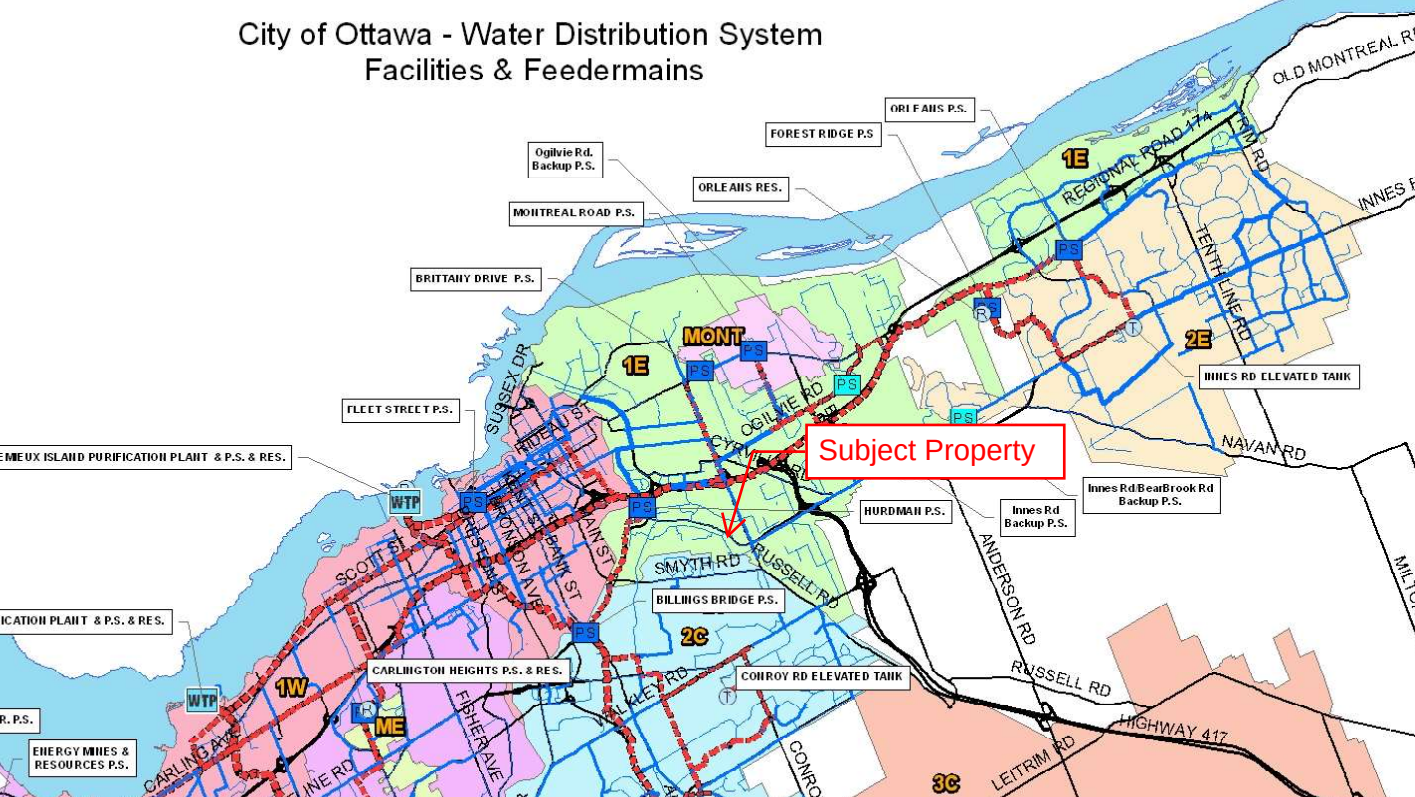
APPENDIX B

Water Supply Calculations


City of Ottawa - Water Distribution System
Facilities & Feedermains
Subject Property
ORLEANS P.S.
FOREST RIDGE P.S
Ogilvie Rd. Backup P.S.
ORLEANS RES.
MONTREAL ROAD P.S.
BRITTANY DRIVE P.S.
FLEET STREET P.S.
EMIEUX ISLAND PURIFICATION PLANT & P.S. & RES.
ICATION PLANT & P.S. & RES.
R. P.S.
ENERGY MINES & RESOURCES P.S.
CARLINGTON HEIGHTS P.S. & RES.
CONROY RD ELEVATED TANK
INNES RD ELEVATED TANK
Innes Rd/BearBrook Rd Backup P.S.
Innes Rd Backup P.S.
HURDMAN P.S.
BILLINGS BRIDGE P.S.
1E
2E
2C
1W
ME
3C
MONT
WTP
PS
R
T
REGIONAL ROAD 174
OLD MONTREAL RD
TENTH LINE RD
NAVAN RD
SUSSEX DR
RIDEAU ST
OGILVIE RD
CYRVILLE RD
RUSSELL RD
SMYTH RD
BANK ST
MAIN ST
RONSON AVE
SCOTT ST
ANDERSON RD
WALKLEY RD
FISHER AVE
CARLING AVE
LEITRIM RD
HIGHWAY 417
INNES R
MILTO

Water Supply Calculations for Proposed Building

LRL File No. 200463
Date November 19, 2021
Prepared by Amr Salem

Residential Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Unit Type	Persons Per Unit	Number of Units	Population
Studio / 1 Bedroom Apartment	1.4	19	26.6
2 Bedroom Apartment	2.1	15	31.5
	Total	**34**	**58.1**

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**16,268**	**L/d**	**0.19**	**L/s**
Maximum Day Factor	7.2		(MOE Table 3-3)	
Maximum Daily Demand	**117,549**	**L/d**	**1.36**	**L/s**
Peak Hour Factor	10.9		(MOE Table 3-3)	
Maximum Hour Demand	**1,277,268**	**L/d**	**14.78**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity
A = area of pipe
Q = flow rate

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$	
=	0.102	m
=	102	mm
Proposed pipe diameter (d) =	**150**	mm
=	**6**	Inches

TOTAL Water Supply Calculations for Proposed Building + Existing Buillding

LRL File No. 200463
Date November 19, 2021
Prepared by Amr Salem

Residential Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Unit Type	Persons Per Unit	Number of Units	Population
Average Apartment Unit *(Existing BLDG)*	1.8	30	54.0
Studio / 1 Bedroom Apartment	1.4	19	26.6
2 Bedroom Apartment	2.1	15	31.5
	Total	**64**	**112.1**

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**31,388**	**L/d**	**0.36**	**L/s**
Maximum Day Factor	5.5		(MOE Table 3-3)	
Maximum Daily Demand	**171,644**	**L/d**	**1.99**	**L/s**
Peak Hour Factor	8.2		(MOE Table 3-3)	
Maximum Hour Demand	**1,407,751**	**L/d**	**16.29**	**L/s**

Fire Flow Calculations

LRL File No. 200463
Date September 9, 2020
Method Fire Underwriters Survey (FUS)
Prepared by Amr Salem

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Ordinary Construction	1		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area (A)								
2	Total area					**2,376**	m^2	
3	Obtain fire flow before reductions	Required fire flow	Fire Flow = 220 x C x $A^{0.5}$				L/min	**10,723**
Reductions or surcharge due to factors affecting burning								
4	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-25%	Limited combustible	**-15%**	L/min	**9,115**
			Limited combustible	-15%				
			Combustible	0%				
			Free burning	15%				
			Rapid burning	25%				
5	Choose reduction for sprinklers	Sprinkler reduction	Full automatic sprinklers	-30%	True	**-30%**	L/min	**4,557**
			Water supply is standard for both the system and fire department hose lines	-10%	True	**-10%**		
			Fully supervised system	-10%	True	**-10%**		
6	Choose separation	Exposure distance between units	North side	>30m	0%		L/min	**6,836**
			East side	3.1 to 10m	20%			
			South side	10.1 to 20m	15%			
			West side	10.1 to 20m	15%	**50%**		
Net required fire flow								
7	Obtain fire flow, duration, and volume				Minimum required fire flow rate (rounded to nearest 1000)		L/min	**7,000**
					Minimum required fire flow rate		L/s	**116.7**
					Required duration of fire flow		hr	**2**

Amr Salem

From: Sharif, Golam <sharif.sharif@ottawa.ca>
Sent: September 11, 2020 10:36 AM
To: Amr Salem
Subject: RE: (LRL# 200463) 700 Coronation Avenue - Boundary Conditions Request
Attachments: 700 Coronation September 2020.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Amr,

Here are the BC condition:

The following are boundary conditions, HGL, for hydraulic analysis at 700 Coronation Avenue (zone 1E) assumed to be connected to the 305mm on Coronation (see attached PDF for location).

Minimum HGL = 107.5m

Maximum HGL = 118.9m

MaxDay + Fire Flow (116.7 L/s) = 105.9m

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.

Thanks,

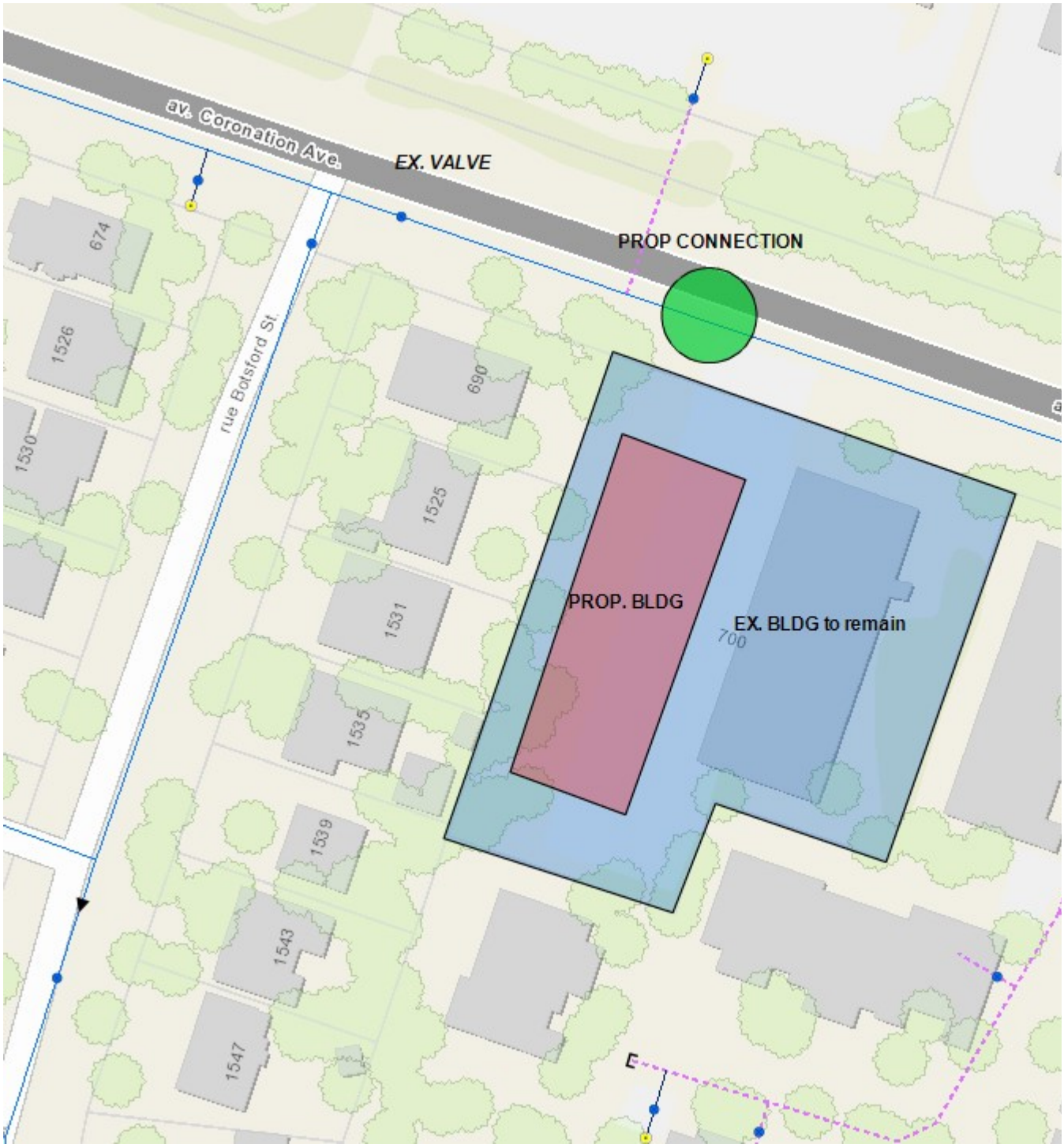
Sharif

From: Amr Salem <asalem@lrl.ca>
Sent: September 09, 2020 10:58 AM
To: sharif.golam@ottawa.ca; Sharif, Golam <sharif.sharif@ottawa.ca>
Cc: Mohan Basnet <mbasnet@lrl.ca>; Maxime Longtin <mlongtin@lrl.ca>
Subject: (LRL# 200463) 700 Coronation Avenue - Boundary Conditions Request

Good afternoon Sharif,

We would like to kindly request boundary conditions for the proposed development at *700 Coronation Ave* using the following proposed development demands:

- Location of Service / Street Number: **700 Coronation Ave**
- Type of development: **a <u>additional</u> single 4-storey residential building consisting of a total of 35 units with underground parking.** *Find Site Plan attached for reference.*
- Proposed Connection Point: **a single connection the 300mm watermain along Coronation Ave ROW.**



- Please provide pressures for the following water demand scenarios required for the subject site (proposed bldg + existing bldg.):

	L/min	L/s
TOTAL Avg. Daily	22.2	0.37
TOTAL Max Day + FUS	120.0 + 7,000	2.00 + 116.7
TOTAL Peak Hour	979.2	16.32

Please feel free to contact me if you have any questions.

Thank you,

Amr Salem
Civil Designer
LRL Associates Ltd.
5430 Canotek Road
Ottawa, Ontario K1J 9G2
T (613) 842-3434 or (877) 632-5664 ext 248
F (613) 842-4338
E asalem@lrl.ca
W www.lrl.ca

*We care deeply, so let us know how we did by completing our **Customer Satisfaction Survey**.*
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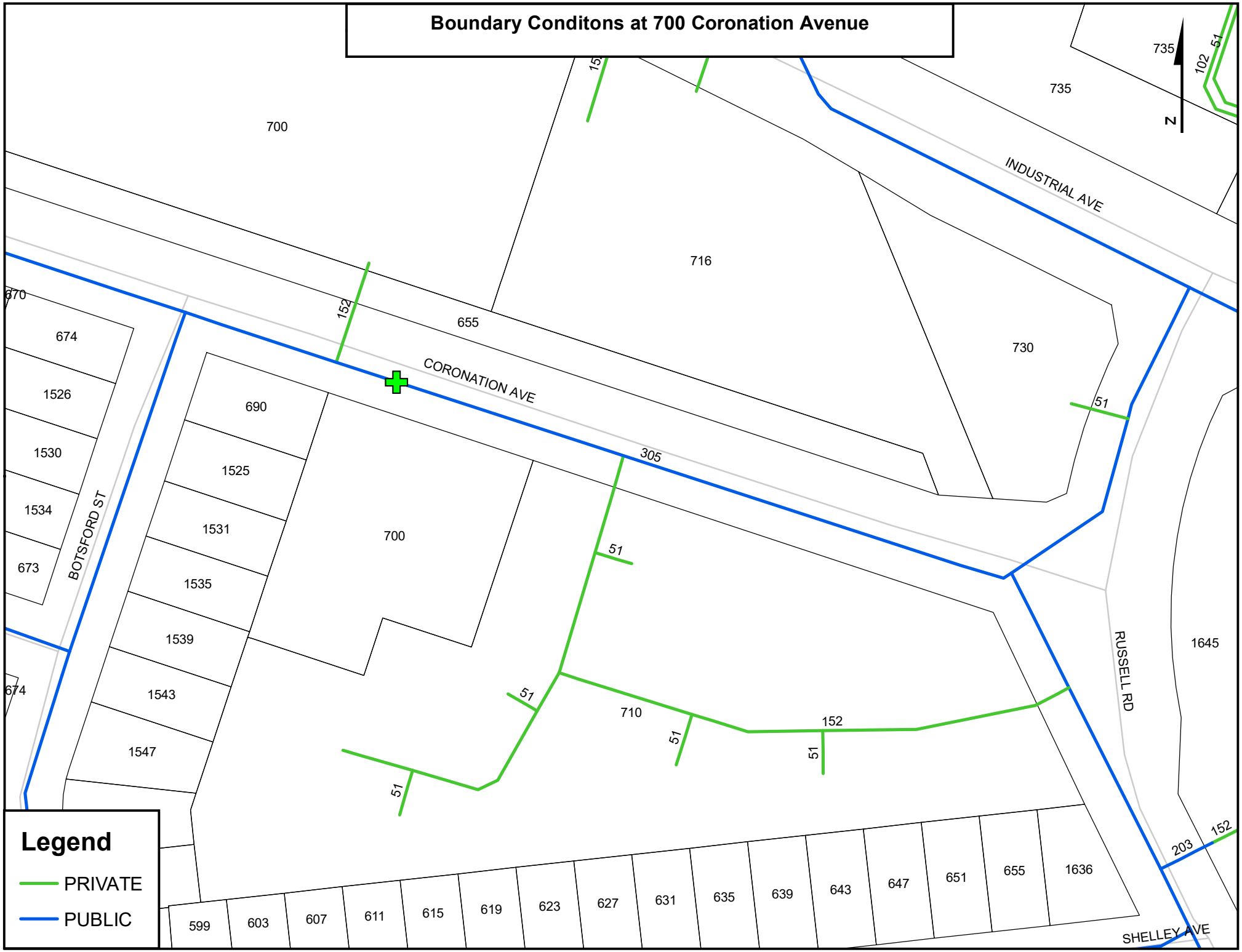
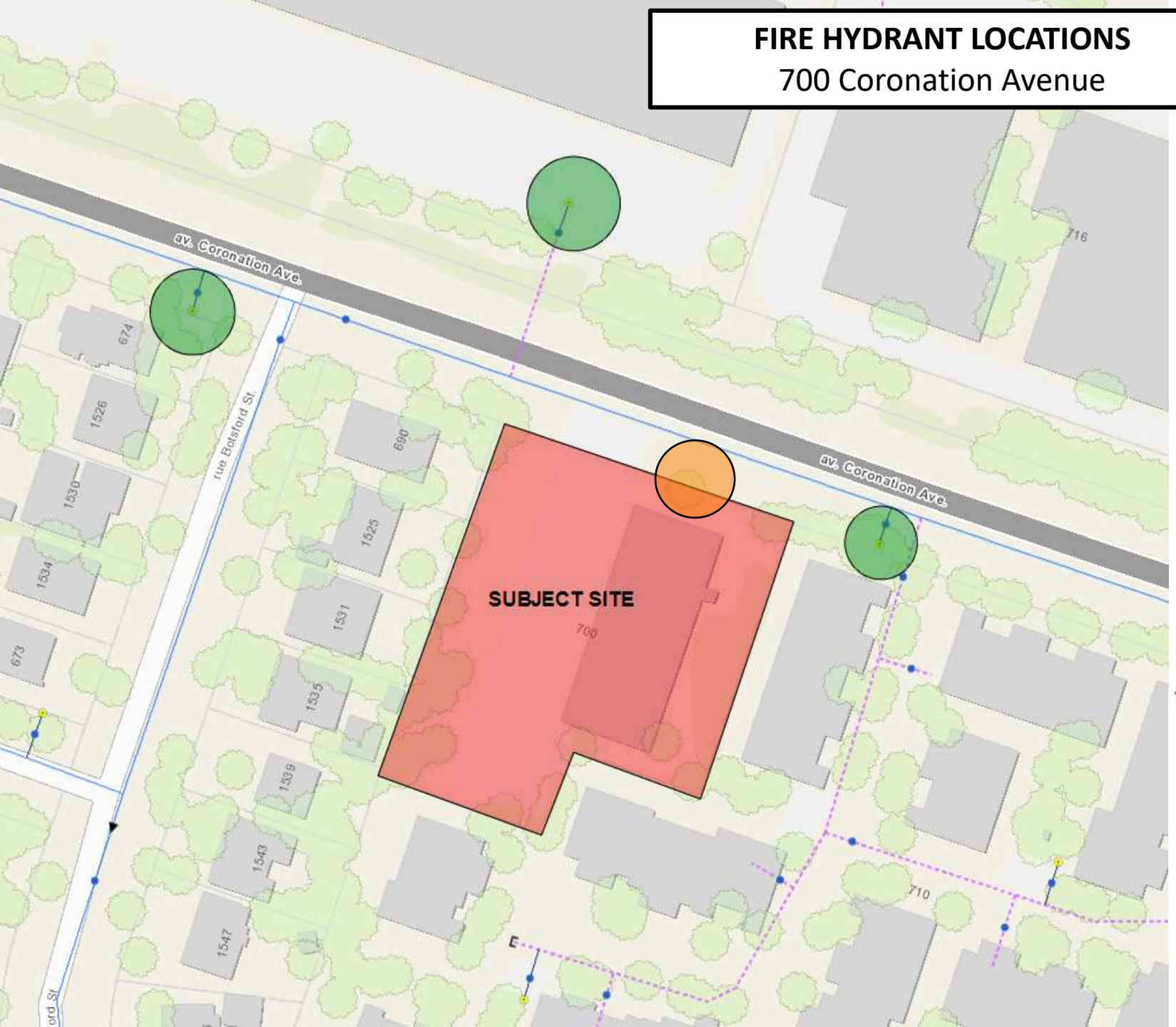

Boundary Conditons at 700 Coronation Avenue
700
735
735
716
730
655
INDUSTRIAL AVE
CORONATION AVE
BOTSFORD ST
RUSSELL RD
SHELLEY AVE
670
674
1526
1530
1534
673
674
690
1525
1531
1535
1539
1543
1547
700
710
1645
599
603
607
611
615
619
623
627
631
635
639
643
647
651
655
1636
152
51
305
203
102
N
Legend
PRIVATE
PUBLIC

FIRE HYDRANT LOCATIONS
700 Coronation Avenue



LEGEND

Existing
Fire Hydrants within 75 m

Proposed
Fire Hydrant within 75m

Table 18.5.4.3 Maximum fire flow hydrant capacity

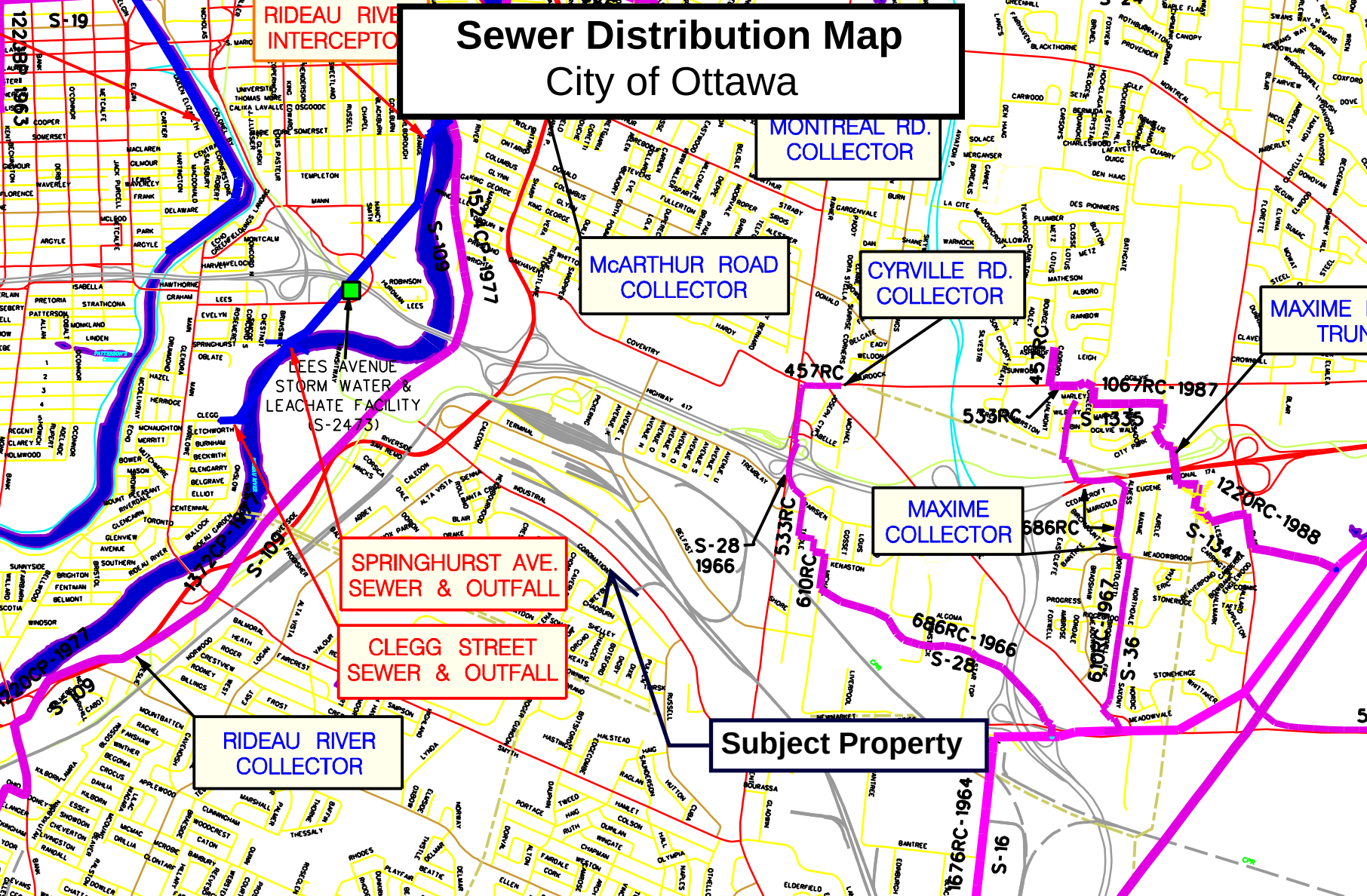
Distance to buildings[a]		Maximum capacity[b]	
(ft)	(m)	(gpm)	(L/min)
≤ 250	≤ 76	1500	5678
> 250 and ≤ 500	> 76 and ≤ 152	1000	3785
> 500 and ≤ 1000	> 152 and ≤ 305	750	2839

[a] Measured in accordance with 18.5.1.4 and 18.5.1.5.

[b] Minimum 20 psi (139.9 kPa) residual pressure.

APPENDIX C

Wastewater Collection Calculations


Sewer Distribution Map
City of Ottawa
RIDEAU RIVER INTERCEPTOR
MONTREAL RD. COLLECTOR
McARTHUR ROAD COLLECTOR
CYRVILLE RD. COLLECTOR
MAXIME TRUNK
MAXIME COLLECTOR
LEES AVENUE STORM WATER & LEACHATE FACILITY (S-2473)
SPRINGHURST AVE. SEWER & OUTFALL
CLEGG STREET SEWER & OUTFALL
RIDEAU RIVER COLLECTOR
Subject Property
S-19
S-109
S-28
S-134
S-36
S-16
122BP-1963
152CP-1977
172CP-1977
120CP-1977
457RC
533RC
610RC
686RC
1067RC-1987
1220RC-1988
676RC-1964
S-28 1966
686RC-1966
610RC-1967

LRL File No. 200463
Project: Apartment Building
Location: 700 Coronation Avenue
Date: November 19, 2021

Sanitary Design Parameters

Average Daily Flow = 280 L/p/day
Commercial & Institutional Flow = 50000 L/ha/day
Light Industrial Flow = 35000 L/ha/day
Heavy Industrial Flow = 55000 L/ha/day
Maximum Residential Peak Factor = 4.0
Commercial & Institutional Peak Factor = 1.5
Industrial Peak Factor = as per Appendix 4-B = 7
Extraneous Flow = 0.33L/s/gross ha

Pipe Design Parameters

Minimum Velocity = 0.60 m/s
Manning's n = 0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW (l/s)	PIPE					
STREET	FROM MH	TO MH	AREA (Ha)	POP.	CUMMULATIVE AREA (Ha)	CUMMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FACT.	AREA (Ha)	ACCU. AREA (Ha)	PEAK FLOW (l/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (l/s)		LENGTH (m)	DIA. (mm)	SLOPE (%)	MATERIAL	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)
SITE	PROP. BLDG	EX. SAN	0.341	59.5	0.34	58.1	4.0	0.75	0.000	0.000	0.00	0.00	7.0	0.0	0.0	0.00	0.34	0.34	0.11	0.86	12.0	150	1.00%	PVC	15.23	0.86

NOTES: Existing inverts and slopes are estimated. They are to be confirmed on-site.

Designed: A.S.	PROJECT: Apartment Building		
Checked: M.B.	LOCATION: 700 Coronation Avenue		
Dwg. Reference: C.401	File Ref.: 200463	Date: 2020-10-01	Sheet No. 1 of 1

APPENDIX D

Stormwater Management Calculations
Watts Roof Drain Specification

LRL Associates Ltd.
Storm Watershed Summary

LRL File No.	200463
Project:	Apartment Building
Location:	700 Coronation Avenue
Date:	November 17, 2021
Designed:	Amr Salem
Drawing Reference:	C701/C702

Pre-Development Catchments

WATERSHED	C = 0.2	C = 0.80	C = 0.90	Total Area (m^2)	Total Area (ha)	Combined C
EWS-01	884.0	0.0	1080.0	1964.0	0.196	0.58
TOTAL	**884.0**	**0.0**	**1080.0**	**1964.0**	**0.196**	**0.58**

Post-Development Catchments

WATERSHED	C = 0.20	C = 0.80	C = 0.90	Total Area (m^2)	Total Area (ha)	Combined C
WS-01(UNCONTROLLED)	0.0	0.0	222.0	222.0	0.022	0.90
WS-02 (CONTROLLED)	0.0	0.0	621.0	621.0	0.062	0.90
WS-03 (CONTROLLED)	496.0	0.0	625.0	1121.0	0.112	0.59
TOTAL	**496.0**	**0.0**	**1468.0**	**1964.0**	**0.196**	**0.72**

LRL File No. 200463
Project: New 4-Storey Building
Location: 700 Coronation Ave
Date: November 17, 2021
Designed: Amr Salem
Drawing Ref.: C.601

Stormwater Management Design Sheet

Runoff Equation

$Q = 2.78CIA$ (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) $= A / (Td + C)^B$
A = Area (ha)
T_c = Time of concentration (min)

Pre-development Stormwater Management

$i_{5} = 732.95 / (Td + 6.199)^{0.81}$ a = 732.951 b = 0.81 C = 6.199

C =	0.50	max of 0.5 as per City of Ottawa
I =	76.8	mm/hr
Tc =	10	min
Total Area =	0.196	ha

Allowable Release Rate= 20.92 L/s

Post-development Stormwater Management

					ΣR_{5yr}	ΣR_{100yr}
Controlled	Total Site Area =	0.1964	ha	ΣR_C	0.72	0.90
	WS-02 (Roof)	0.060	ha	R_C	0.90	1.00
	WS-03 (Cistern)	0.112	ha	R_C	0.59	0.74
	Total Controlled =	0.174	ha	ΣR_C	0.70	0.88
Un-controlled	WS-01	0.022	ha	R_C	0.90	1.00
	Total Un-Controlled =	0.022	ha	ΣR_C	0.90	1.00

Post-development Stormwater Management (Uncontrolled Catchment WS-01)

100 Year Storm Event:

$i_{100} = 1735.688 / (Td + 6.014)^{0.820}$ a = 1735.688 b = 0.820 C = 6.014

Time (min)	Intensity (mm/hr)	Uncontrolled Runoff (L/s)	Controlled Release Rate Constant (L/s)	Total Release Rate (L/s)
10	178.6	11.02	0.00	11.02

Post-development Stormwater Management (WS-03 - Cistern)

100 Year Storm Event:

$i_{100} = 1735.688 / (Td + 6.014)^{0.820}$ a = 1735.688 b = 0.820 C = 6.014

		Storage Required				
Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.6	41.06	20.58	6.75	0.00	6.75
15	142.9	32.86	23.50	6.75	0.00	6.75
20	120.0	27.58	25.00	6.75	0.00	6.75
25	103.8	23.88	25.69	6.75	0.00	6.75
30	91.9	21.12	25.87	6.75	0.00	6.75
35	82.6	18.99	25.70	6.75	0.00	6.75
40	75.1	17.28	25.27	6.75	0.00	6.75
45	69.1	15.88	24.64	6.75	0.00	6.75
50	64.0	14.71	23.87	6.75	0.00	6.75
60	55.9	12.85	21.97	6.75	0.00	6.75
70	49.8	11.45	19.73	6.75	0.00	6.75
90	41.1	9.45	14.60	6.75	0.00	6.75
110	35.2	8.09	8.87	6.75	0.00	6.75
130	30.9	7.10	2.76	6.75	0.00	6.75
150	27.6	6.35	0.00	6.75	0.00	6.75
170	25.0	5.75	0.00	6.75	0.00	6.75

Total Storage Required = 25.87 m^3 refer to LRL Plan C.601
Available Cistern Storage = 30.00 m^3

Post-development Stormwater Management (WS-02 On Roof)

100 Year Storm Event:

$i_{100} = 1735.688 / (Td + 6.014)^{0.820}$ a = 1735.688 b = 0.820 C = 6.014

		Storage Required				
Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.6	30.83	16.60	3.15	0.00	3.15
15	142.9	24.67	19.36	3.15	0.00	3.15
20	120.0	20.71	21.06	3.15	0.00	3.15
25	103.8	17.93	22.16	3.15	0.00	3.15
30	91.9	15.86	22.87	3.15	0.00	3.15
35	82.6	14.26	23.31	3.15	0.00	3.15
40	75.1	12.97	23.56	3.15	0.00	3.15
45	69.1	11.92	23.67	3.15	0.00	3.15
50	64.0	11.04	23.66	3.15	0.00	3.15
60	55.9	9.65	23.38	3.15	0.00	3.15
70	49.8	8.60	22.85	3.15	0.00	3.15
80	45.0	7.77	22.14	3.15	0.00	3.15
90	41.1	7.10	21.29	3.15	0.00	3.15
100	37.9	6.54	20.33	3.15	0.00	3.15
110	35.2	6.08	19.29	3.15	0.00	3.15
120	32.9	5.68	18.18	3.15	0.00	3.15

V = (1*w)*h/3 + Ah/3

Summary of Roof Storage

Maximum Required Roof Storage (100 Year) =	23.67	m^3	
Proposed Head =	150	mm	*An Emergency overflow scupper is provided above this height.
Control Flow/Drain =	0.63	L/s	
Number of Roof Drains =	5		
Total Flow from Roof Drain =	3.15	L/s	
Available Roof Surface =	605	m^2	
Effective Roof Surface =	518	m^2	86 /% of total roof surface#
Available Roof Storage =	**25.50**	m^3	
Roof Drain Model =	Watts Roof Drain with Adjustable Flow Setting (Watts RD-100-A-ADJ Weir Opening = Closed)		

Total Storage Required = 23.67 m^3
Available Roof Storage = 25.50 m^3 refer to LRL Plan C.601

Summary of release Rates and Storage Volumes

Catchment Area	Drainage Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m3)	Total Available Storage (m3)
WS-01	0.022	11.02	0	0
WS-02 (Roof Controls)	0.062	3.15	23.67	25.50
WS-03 (Cistern)	0.112	6.75	25.87	30.00
TOTAL	**0.196**	**20.92**	**49.24**	**55.50**

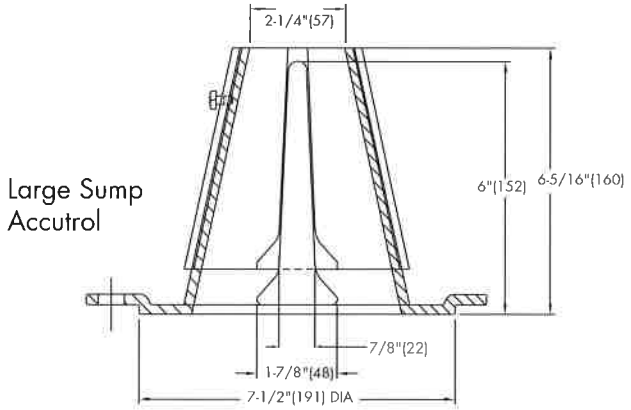
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

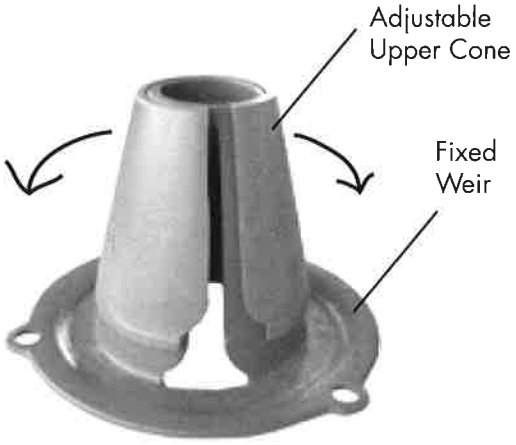
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the 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	Head of Water					
	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	10	10	10	10	10

Job Name _____ **Model No.** _____

Job Location _____ Contractor _____

Engineer _____ Representative _____

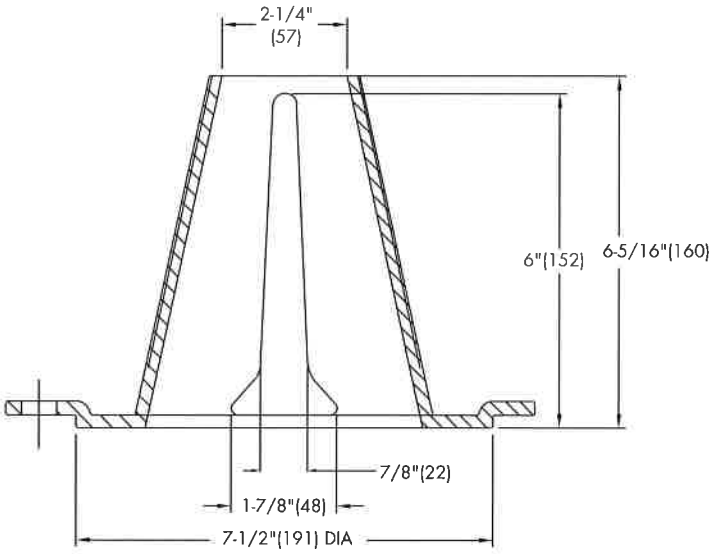
Specification Drainage Products

CANADA: 5435 North Service Road, Burlington, ON, L7L 5H7 TEL: 905-332-6718 TOLL-FREE: 1-888-208-8927 Website: www.wattscanada.ca

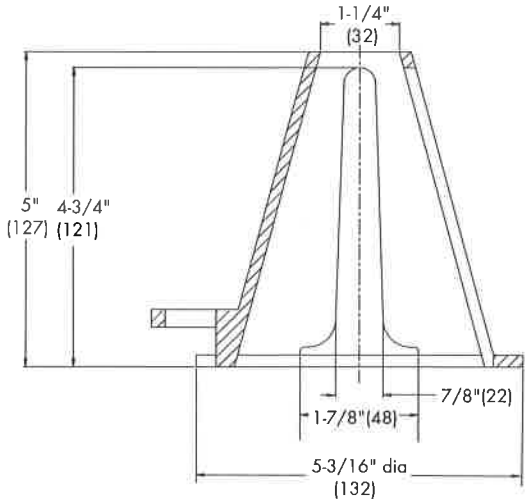
ACCUTROL WEIR FLOW CONTROL

SPECIFICATION: Watts Drainage Products epoxy coated cast iron Accutrol Weir is designed with parabolic openings which limit the flow of rain water off a roof. Each weir slot controls flow to 5 gpm per inch of head to a maximum of 30 gpm at 6" head(for large sump), 25 gpm at 5" head(for small sump) . The Accutrol Weir is secured to the flashing clamp of the roof drain. The Accutrol Weir is available with 1 to 4 slots for the large sump drain and up to 3 slots for the small sump drain.

For Large Sump Roof Drains Specify the "-A" option and number of slots required. (ie. "RD-100-A2" for two slot weir)
For Small Sump Roof Drains Specify the "-A" option and number of slots required. (ie. "RD-200-A1" for one slot weir)



LARGE SUMP ACCUTROL WEIR



SMALL SUMP ACCUTROL WEIR

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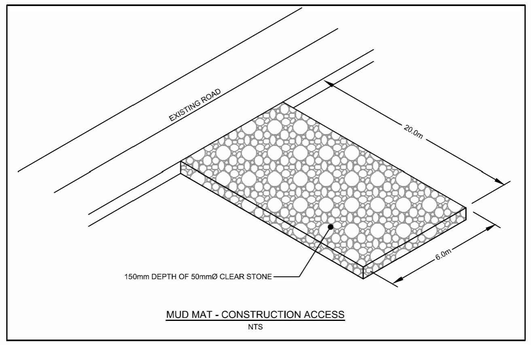
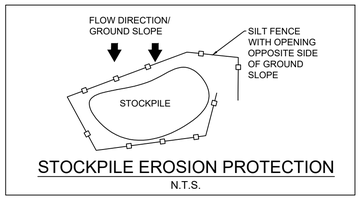
Engineer _____ Representative _____

APPENDIX E

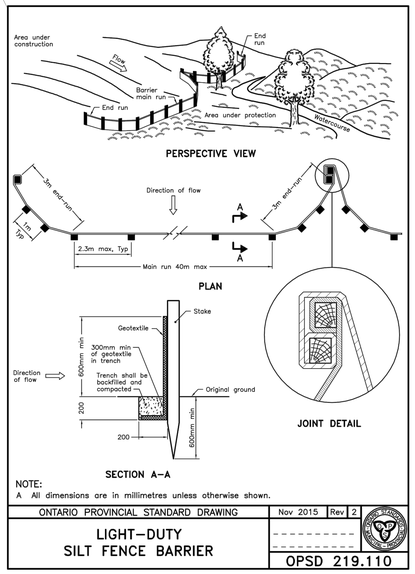
Civil Engineering Drawings



MUD MAT - CONSTRUCTION ACCESS
NTS



STOCKPILE EROSION PROTECTION
N.T.S.



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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev	2
LIGHT–DUTY SILT FENCE BARRIER			
	OPSD 219.110		

EROSION AND SEDIMENT CONTROL MEASURES:

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES **

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE 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.

1. PRIOR TO START OF CONSTRUCTION:

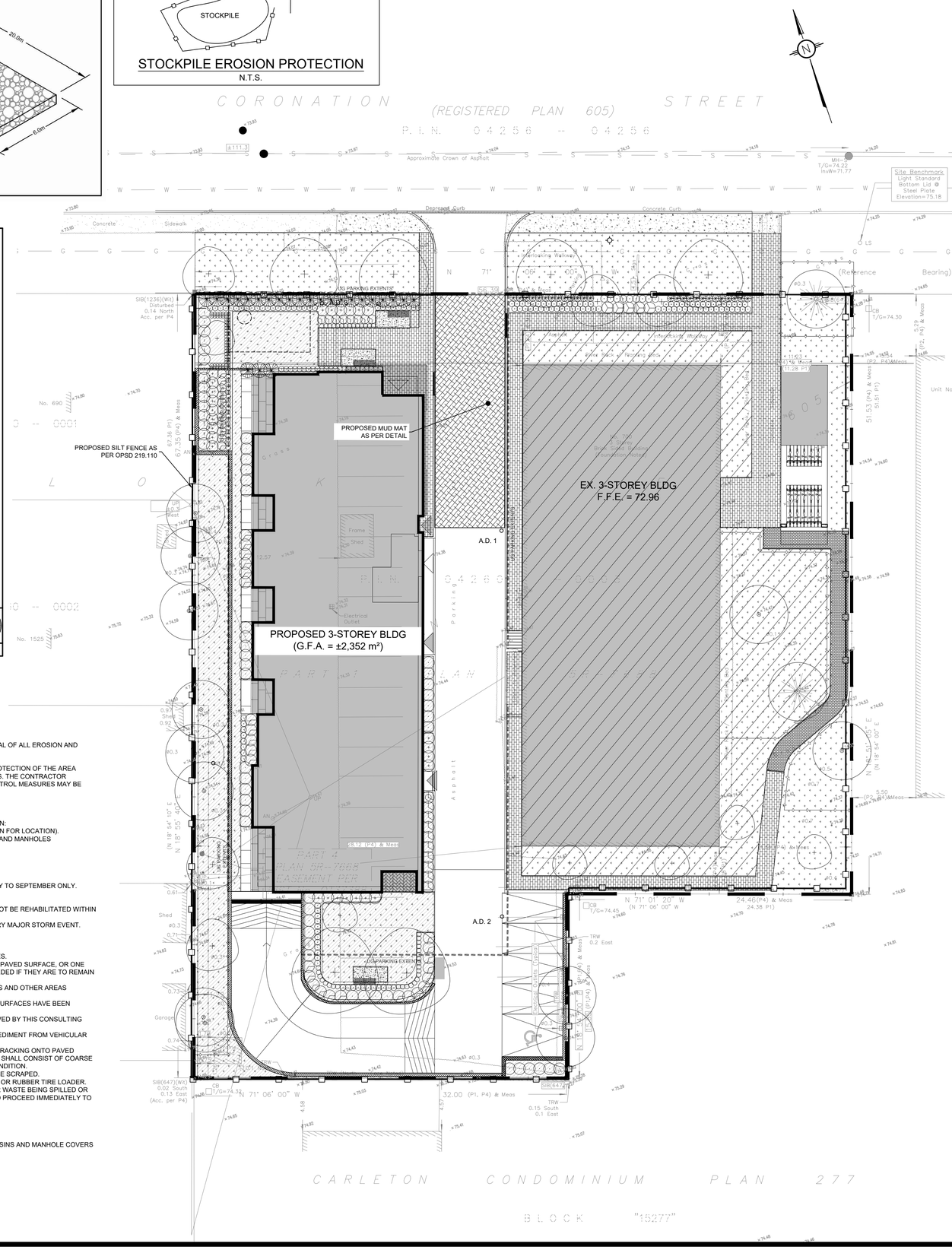
- PRIOR TO THE REMOVAL OF ANY VEGETATIVE COVER, MOVING OF SOIL AND CONSTRUCTION:
- INSTALL SILT FENCE IMMEDIATELY DOWNSTREAM FROM AREAS TO BE DISTURBED (SEE PLAN FOR LOCATION).
- INSTALL GEOSOCK INSERTS WITH AN OVERFLOW IN ALL THE DOWNSTREAM CATCHBASINS AND MANHOLES
- INSTALL SILTSACK FILTERS IN ALL CONCRETE CATCH BASINS STRUCTURES
- INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.

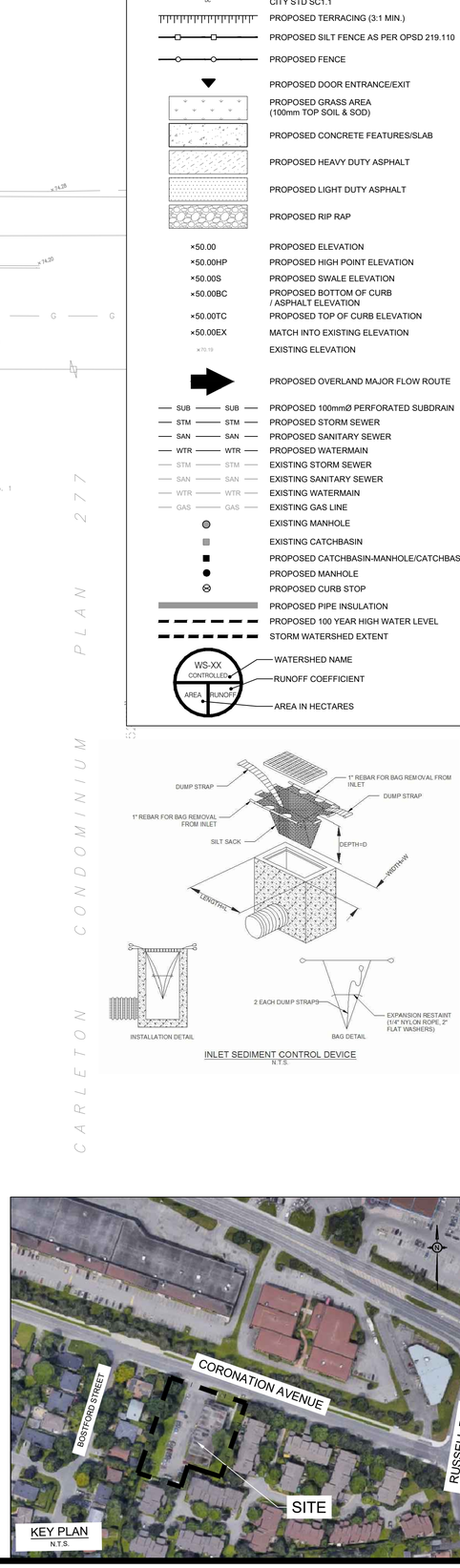
2. DURING CONSTRUCTION:

- WORK TO BE DONE IN THE VICINITY OF MAJOR WATERWAYS TO BE CARRIED OUT FROM JULY TO SEPTEMBER ONLY.
- MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE.
- PROTECT DISTURBED AREAS FROM RUNOFF.
- PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
- INSPECT SILT FENCES, FILTER CLOTHS AND CATCH BASIN SUMPS WEEKLY AND AFTER EVERY MAJOR STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
- CONSTRUCT SWALES AS PER DETAIL.
- PLAN TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION
- EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
- DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
- CONTROL WIND-BLOWN DUST OFF SITE TO ACCEPTABLE LEVELS BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED).
- ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THIS CONSULTING ENGINEER AND THE CITY DEPARTMENT OF PUBLIC WORKS.
- CONTRACTOR RESPONSIBLE FOR CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING ETC. AT THE END OF EACH WORK DAY.
- PROVIDE GRAVEL ENTRANCE WHEREVER EQUIPMENT LEAVES THE SITE TO PREVENT MUD TRACKING ONTO PAVED SURFACES. GRAVEL BED SHALL BE A MINIMUM OF 15m LONG, 4M WIDE AND 0.3m DEEP AND SHALL CONSIST OF COARSE (50mm CRUSHERT-RUN LIMESTONE) MATERIAL. MAINTAIN GRAVEL ENTRANCE IN CLEAN CONDITION.
- DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
- ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
- TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.

3. AFTER CONSTRUCTION:

- PROVIDE PERMANENT COVER CONSISTING OF TOPSOIL AND SEED TO DISTURBED AREAS.
- REMOVE STRAW BALE FLOW CHECK DAMS, SILT FENCES AND FILTER CLOTHS ON CATCH BASINS AND MANHOLE COVERS AFTER DISTURBED AREAS HAVE BEEN REHABILITATED AND STABILIZED.
- INSPECT AND CLEAN CATCH BASIN SUMPS AND STORM SEWERS.





INLET SEDIMENT CONTROL DEVICE
N.T.S.

KEY PLAN
N.T.S.

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB AS PER CITY STD SC1.1
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
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- EXISTING MANHOLE
- EXISTING CATCHBASIN
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- STORM WATERSHED EXTENT
- WS-XX CONTROLLER / AREA / RUNOFF
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

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GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

SCALE : 1:200

3.0m 1.5 0 3.0 6.0m

SCALE: 1:150

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
05	RE-ISSUED FOR MUNICIPAL APPROVAL	A.S.	19 NOV 2021
04	ISSUED FOR MUNICIPAL APPROVAL	A.S.	29 OCT 2021
03	ISSUED FOR MUNICIPAL APPROVAL	A.S.	13 NOV 2020
02	ISSUED FOR MUNICIPAL APPROVAL	A.S.	30 OCT 2020
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	02 OCT 2020

LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2021/11/19 PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRJ
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
MARK FARRELL
533Gilmour Street,
Ottawa ON K1R 5L3

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.S.	M.B.

PROJECT
700 CORONATION AVENUE
PROPOSED 4-STOREY BUILDING ADDITION

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.
200463

DATE
SEPTEMBER 2020

C101

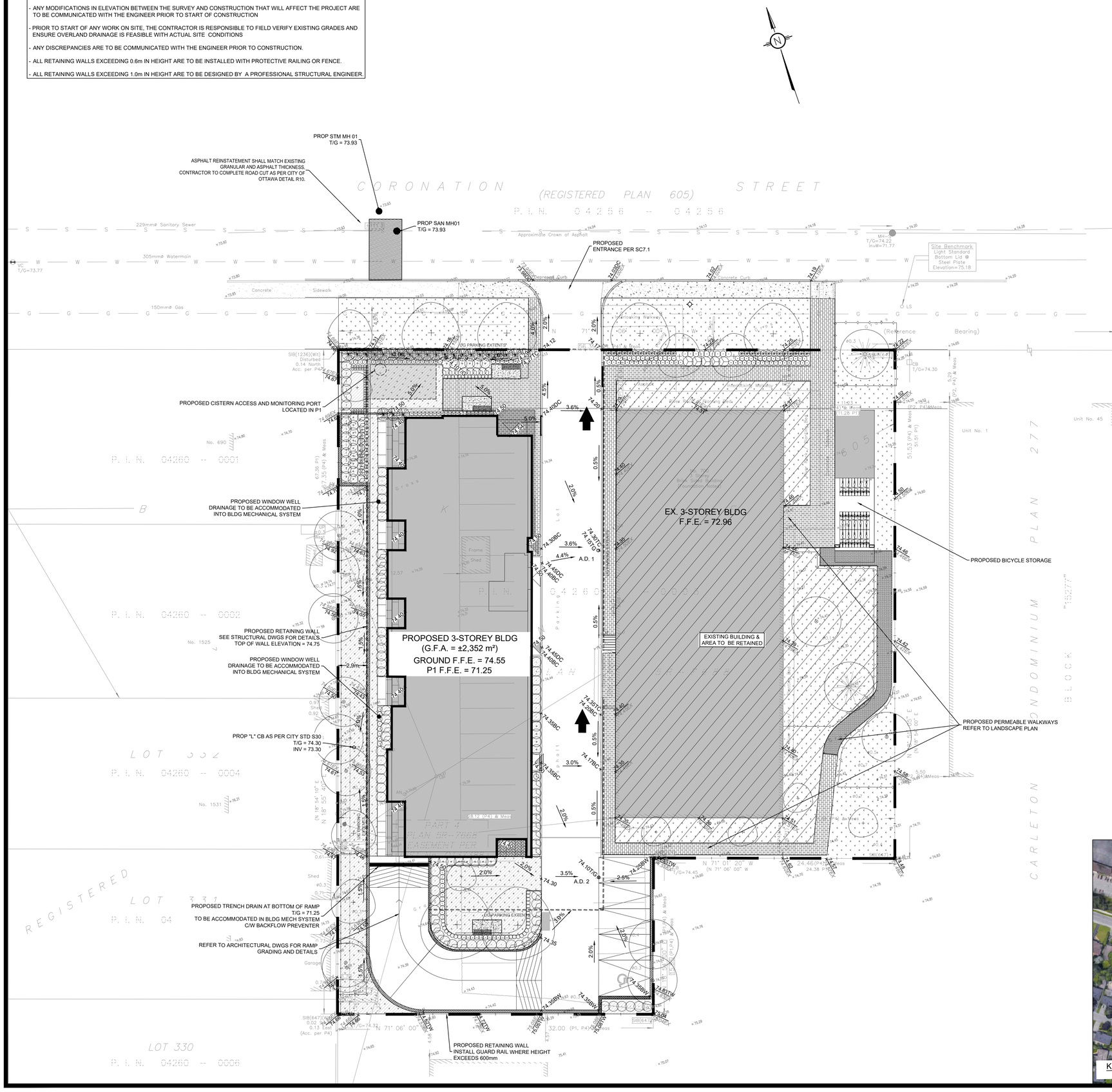
D07-12-20-0152

#18322

LRL–PRL_841X594_A1–EN

GENERAL GRADING NOTES:

- ANY MODIFICATIONS IN ELEVATION BETWEEN THE SURVEY AND CONSTRUCTION THAT WILL AFFECT THE PROJECT ARE TO BE COMMUNICATED WITH THE ENGINEER PRIOR TO START OF CONSTRUCTION
- PRIOR TO START OF ANY WORK ON SITE, THE CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING GRADES AND ENSURE OVERLAND DRAINAGE IS FEASIBLE WITH ACTUAL SITE CONDITIONS
- ANY DISCREPANCIES ARE TO BE COMMUNICATED WITH THE ENGINEER PRIOR TO CONSTRUCTION.
- ALL RETAINING WALLS EXCEEDING 0.6m IN HEIGHT ARE TO BE INSTALLED WITH PROTECTIVE RAILING OR FENCE.
- ALL RETAINING WALLS EXCEEDING 1.0m IN HEIGHT ARE TO BE DESIGNED BY A PROFESSIONAL STRUCTURAL ENGINEER.



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SCALE : 1:200

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LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2021/11/19
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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www.lrl.ca I (613) 842-3434

CLIENT
MARK FARRELL
533Gilmour Street,
Ottawa ON K1R 5L3

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.S.	M.B.

PROJECT
700 CORONATION AVENUE
PROPOSED 4-STOREY BUILDING ADDITION

DRAWING TITLE
GRADING AND DRAINAGE PLAN

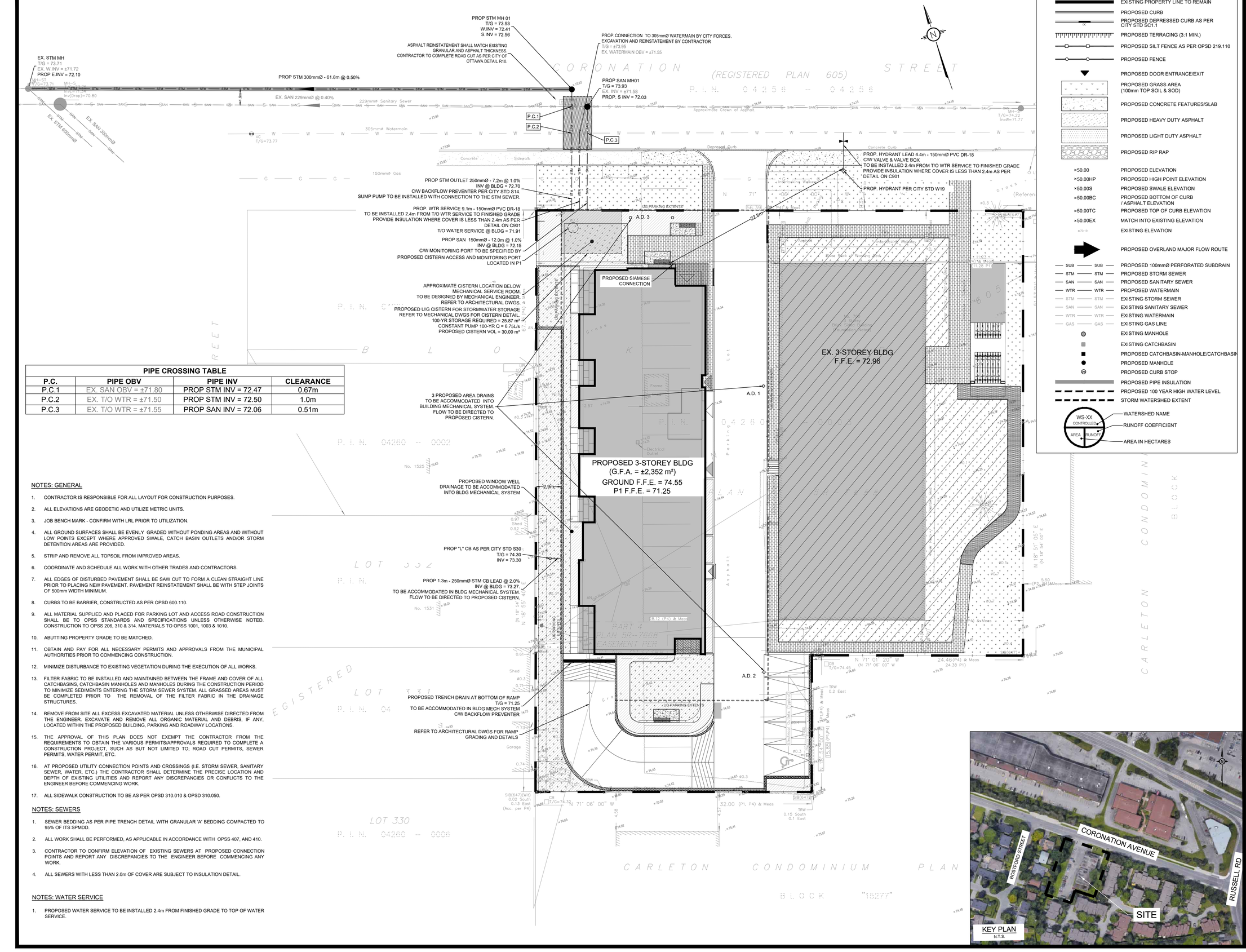
PROJECT NO.
200463

DATE
SEPTEMBER 2020

C301

D07-12-20-0152

#18322



PIPE CROSSING TABLE			
P.C.	PIPE OBV	PIPE INV	CLEARANCE
P.C.1	EX. SAN OBV = ±71.80	PROP STM INV = 72.47	0.67m
P.C.2	EX. T/O WTR = ±71.50	PROP STM INV = 72.50	1.0m
P.C.3	EX. T/O WTR = ±71.55	PROP SAN INV = 72.06	0.51m

NOTES: GENERAL

1. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
2. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
3. JOB BENCH MARK - CONFIRM WITH LRL PRIOR TO UTILIZATION.
4. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE, CATCH BASIN OUTLETS AND/OR STORM DETENTION AREAS ARE PROVIDED.
5. STRIP AND REMOVE ALL TOPSOIL FROM IMPROVED AREAS.
6. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
7. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A CLEAN STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
8. CURBS TO BE BARRIER, CONSTRUCTED AS PER OPSD 600.110.
9. ALL MATERIAL SUPPLIED AND PLACED FOR PARKING LOT AND ACCESS ROAD CONSTRUCTION SHALL BE TO OPSS STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED. CONSTRUCTION TO OPSS 206, 310 & 314. MATERIALS TO OPSS 1001, 1003 & 1010.
10. ABUTTING PROPERTY GRADE TO BE MATCHED.
11. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.
12. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
13. FILTER FABRIC TO BE INSTALLED AND MAINTAINED BETWEEN THE FRAME AND COVER OF ALL CATCHBASINS, CATCHBASIN MANHOLES AND MANHOLES DURING THE CONSTRUCTION PERIOD TO MINIMIZE SEDIMENTS ENTERING THE STORM SEWER SYSTEM. ALL GRASSED AREAS MUST BE COMPLETED PRIOR TO THE REMOVAL OF THE FILTER FABRIC IN THE DRAINAGE STRUCTURES.
14. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS, IF ANY, LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
15. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS REQUIRED TO COMPLETE A CONSTRUCTION PROJECT, SUCH AS BUT NOT LIMITED TO; ROAD CUT PERMITS, SEWER PERMITS, WATER PERMIT, ETC.
16. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
17. ALL SIDEWALK CONSTRUCTION TO BE AS PER OPSD 310.010 & OPSD 310.050.

NOTES: SEWERS

1. SEWER BEDDING AS PER PIPE TRENCH DETAIL WITH GRANULAR 'A' BEDDING COMPACTED TO 95% OF ITS SPMDD.
2. ALL WORK SHALL BE PERFORMED, AS APPLICABLE IN ACCORDANCE WITH OPSS 407, AND 410.
3. CONTRACTOR TO CONFIRM ELEVATION OF EXISTING SEWERS AT PROPOSED CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING ANY WORK.
4. ALL SEWERS WITH LESS THAN 2.0m OF COVER ARE SUBJECT TO INSULATION DETAIL.

NOTES: WATER SERVICE

1. PROPOSED WATER SERVICE TO BE INSTALLED 2.4m FROM FINISHED GRADE TO TOP OF WATER SERVICE.

LEGEND:

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- PROPOSED CURB
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- PROPOSED FENCE
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LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2021/11/19 PROVINCE OF ONTARIO

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MARK FARRELL
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DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.S.	M.B.

PROJECT
700 CORONATION AVENUE
PROPOSED 4-STOREY BUILDING ADDITION

DRAWING TITLE
SERVICING PLAN

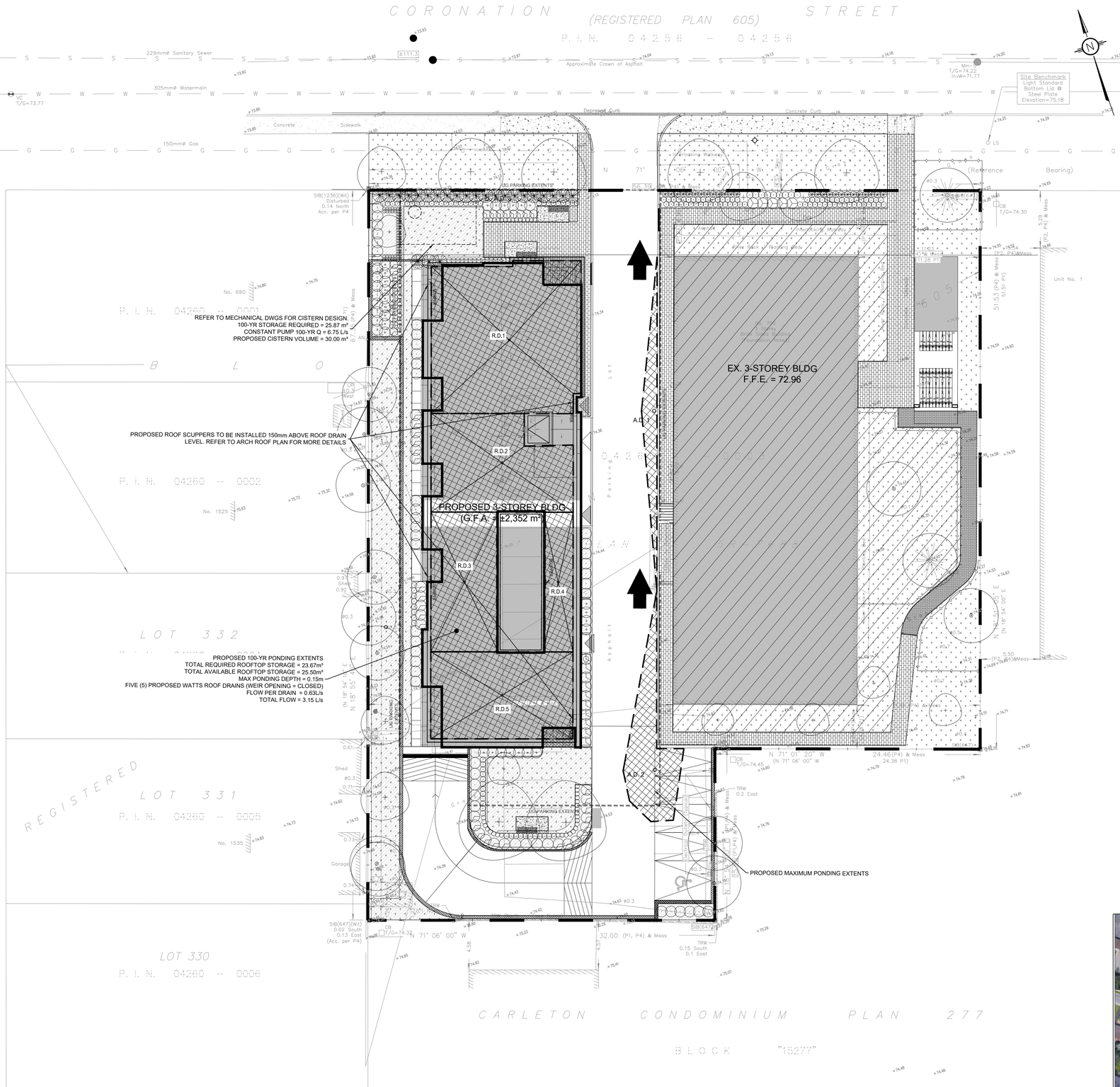
PROJECT NO.
200463

DATE
SEPTEMBER 2020

C401

D07-12- 20-0152

#18322



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LICENSED PROFESSIONAL ENGINEER
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CLIENT
MARK FARRELL
533Gilmour Street,
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DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.S.	M.B.

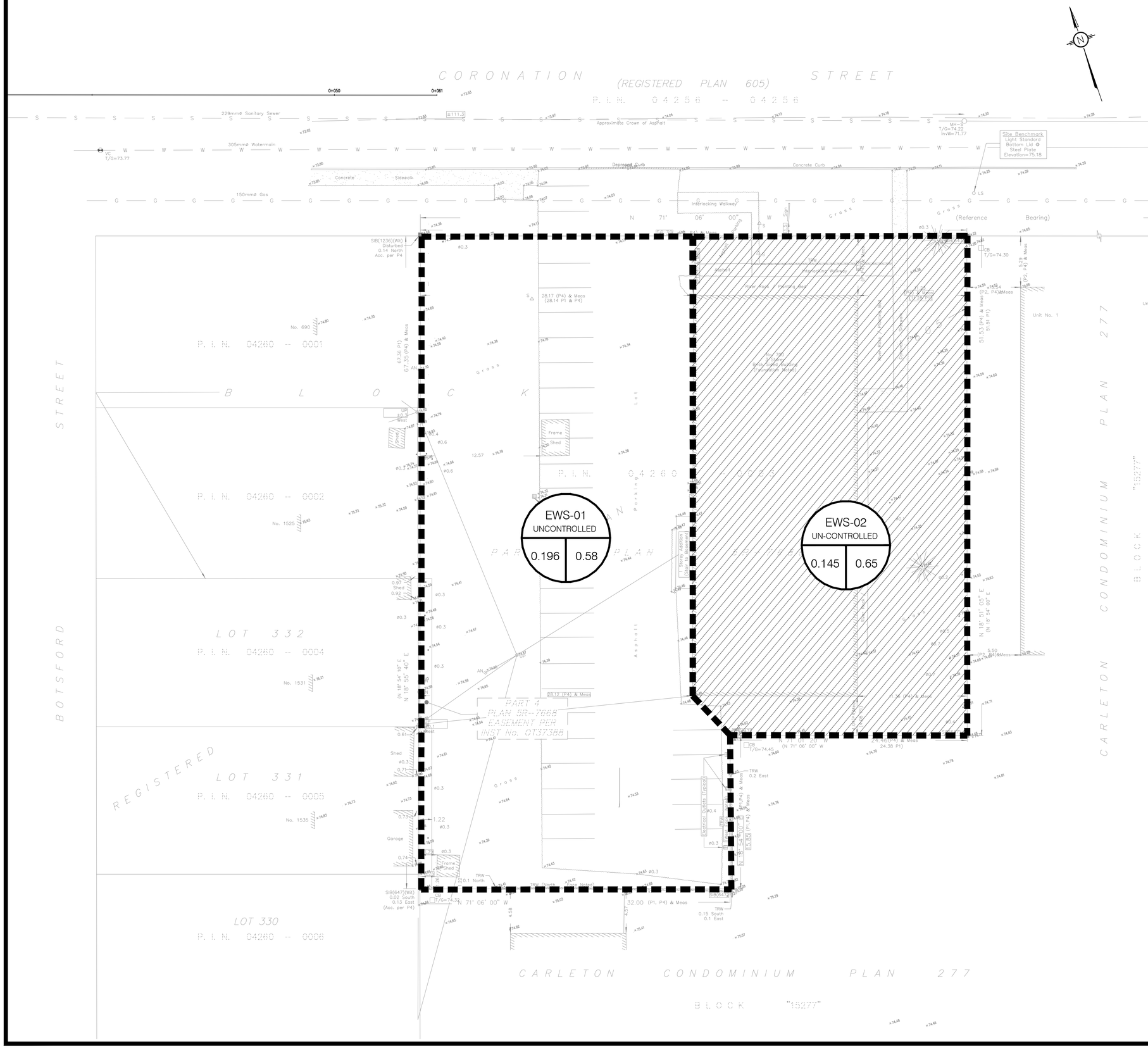
PROJECT
700 CORONATION AVENUE
PROPOSED 4-STOREY BUILDING ADDITION

DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO. 200463
DATE SEPTEMBER 2020
C601

D07-12-20-0152

#18322



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SCALE : 1:200

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LICENSED PROFESSIONAL ENGINEER — M. BASNET — 100501996 — 2021/11/19 — PROVINCE OF ONTARIO

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CLIENT
MARK FARRELL
533Gilmour Street,
Ottawa ON K1R 5L3

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.S.	M.B.

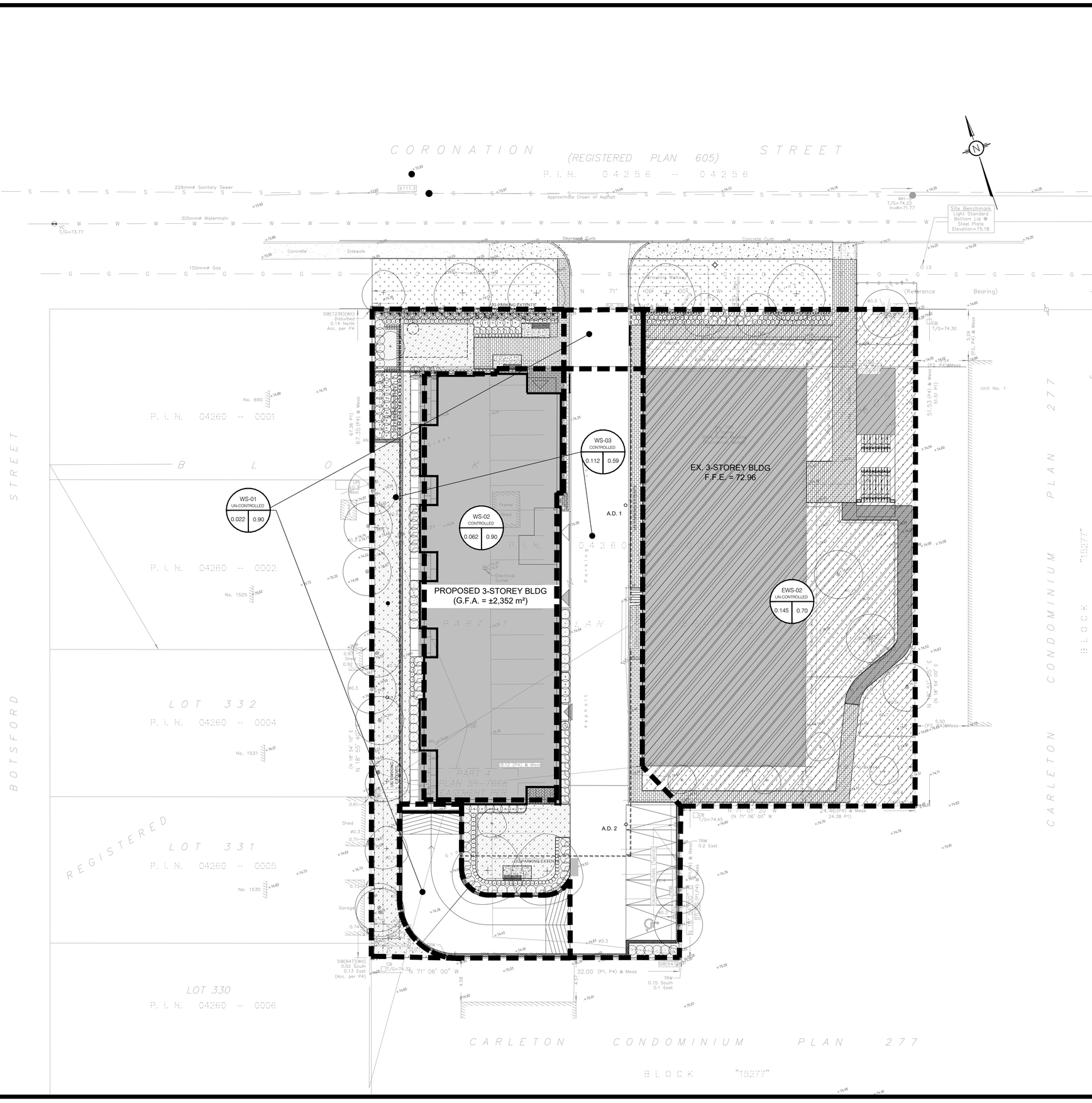
PROJECT
700 CORONATION AVENUE
PROPOSED 4-STOREY BUILDING ADDITION

DRAWING TITLE
PRE-DEVELOPMENT
WATERSHED PLAN

PROJECT NO. 200463
DATE SEPTEMBER 2020
C701

D07-12-20-0152

#18322



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB AS PER CITY STD SC1.1
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00S PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- GAS GAS EXISTING GAS LINE
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

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DRAWING TITLE
POST-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.
200463

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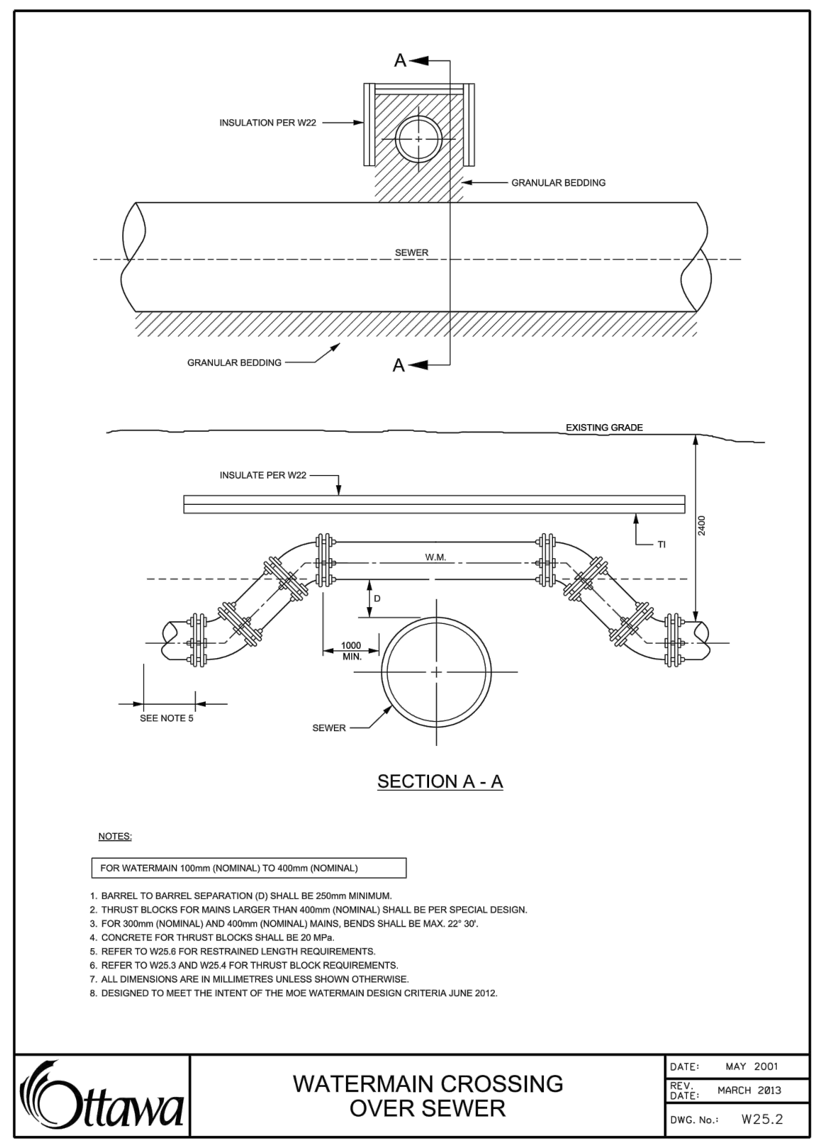
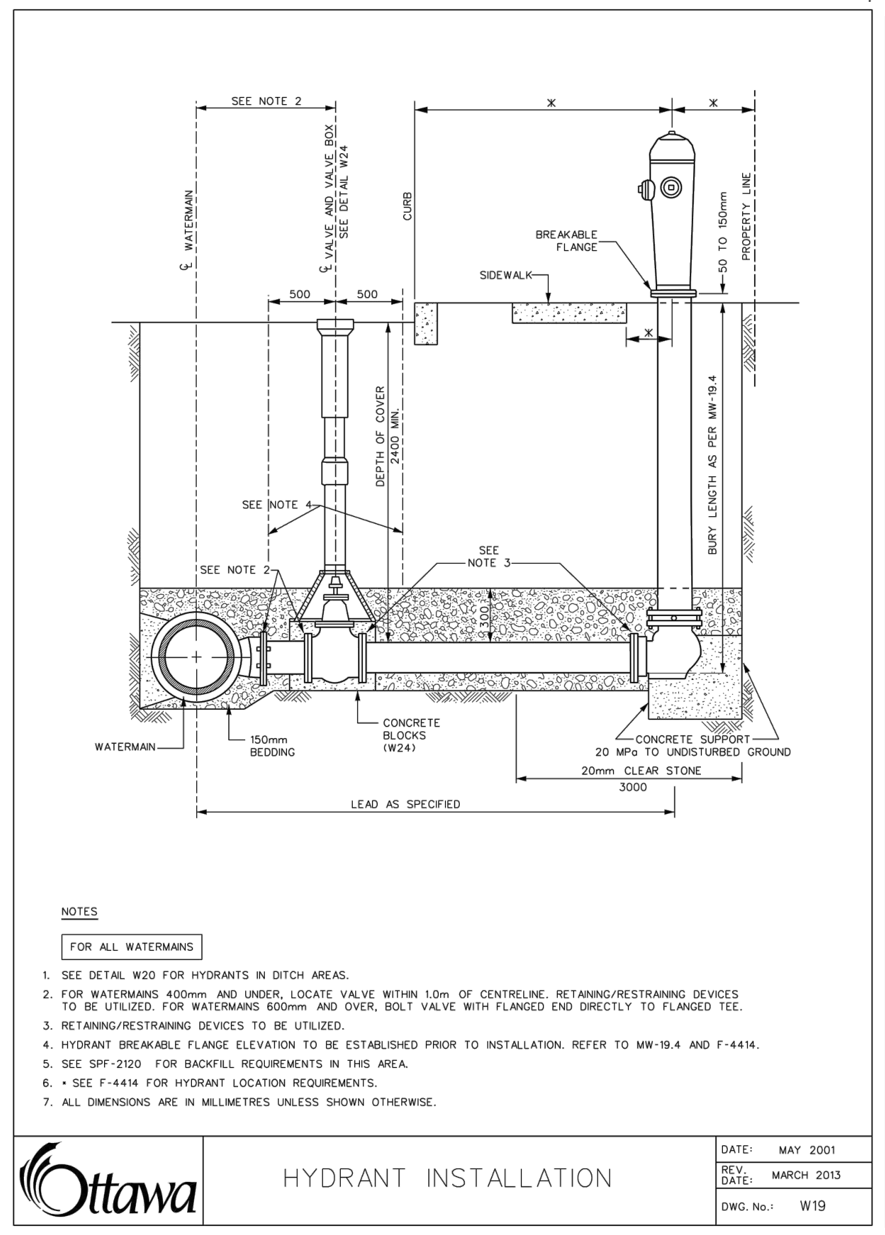
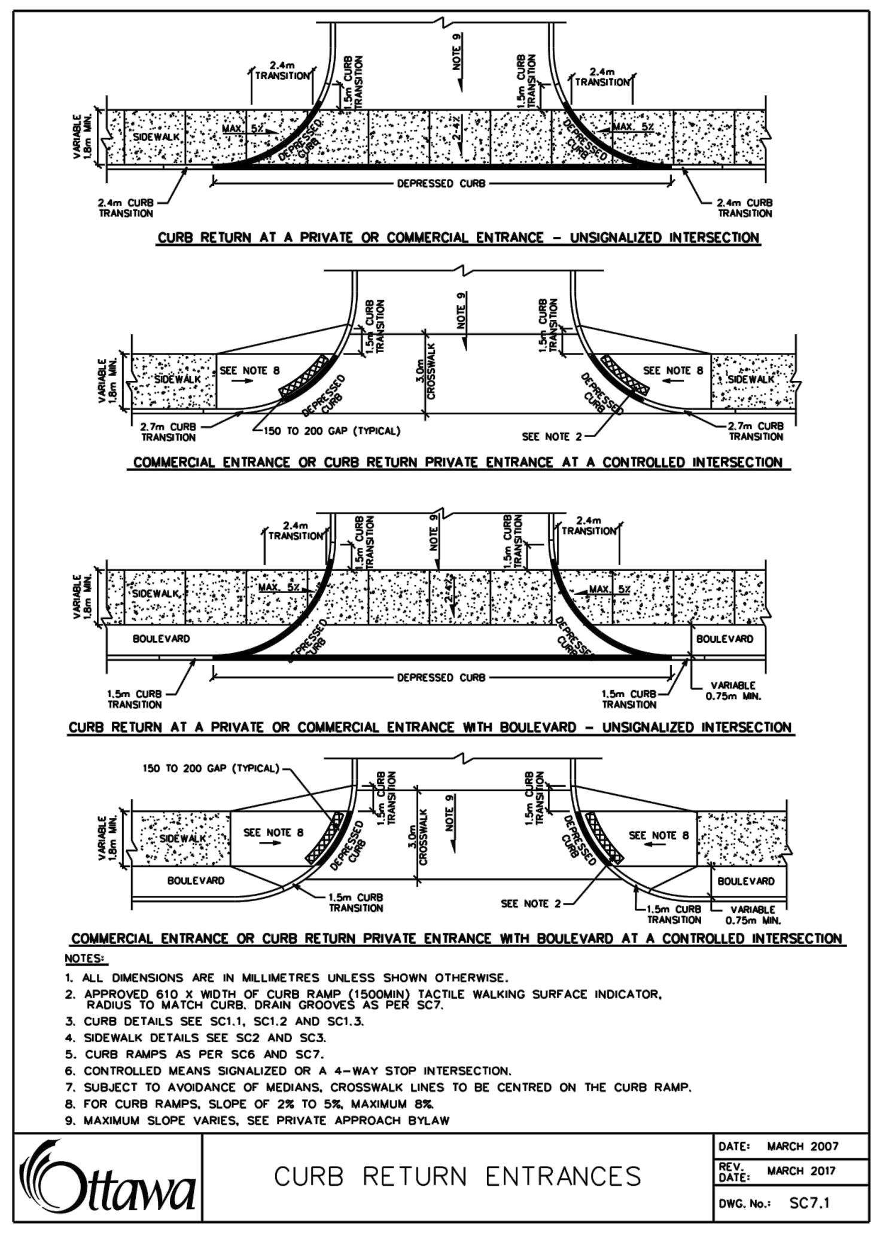
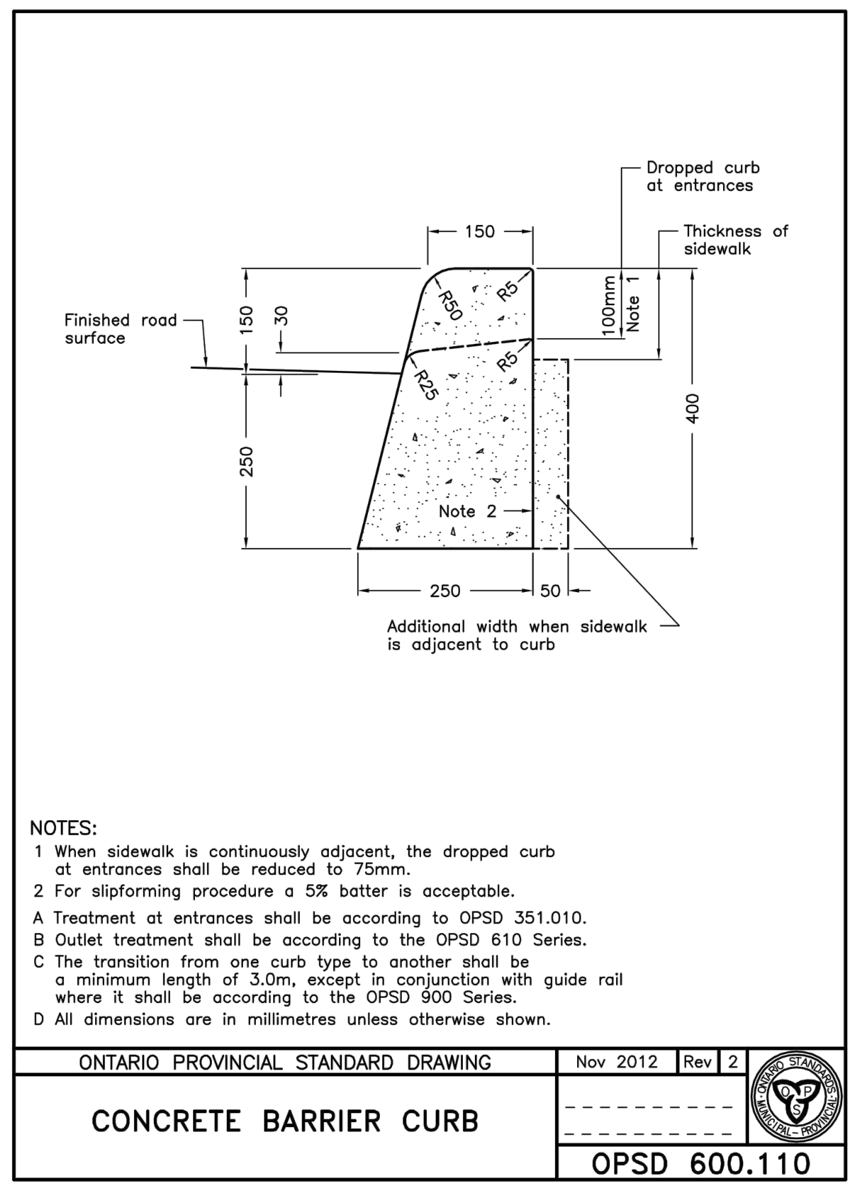
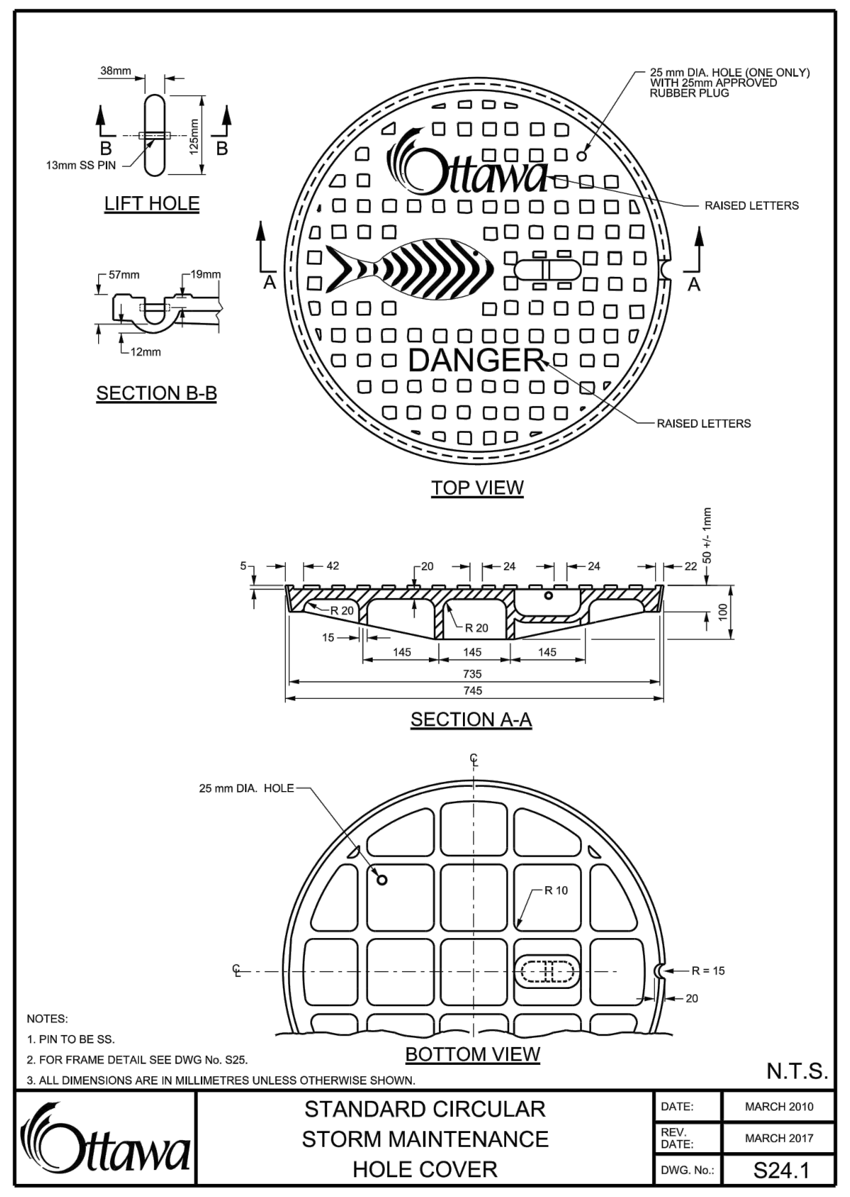
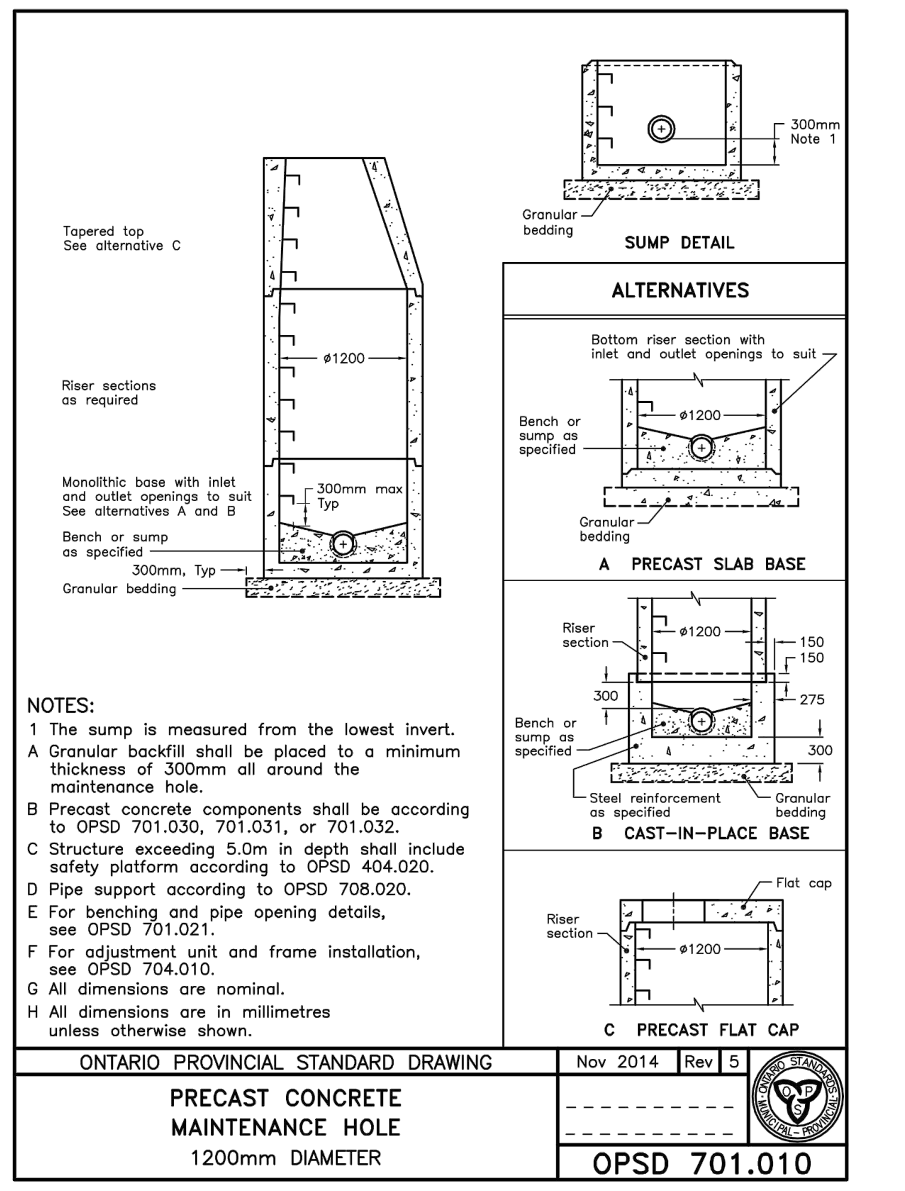


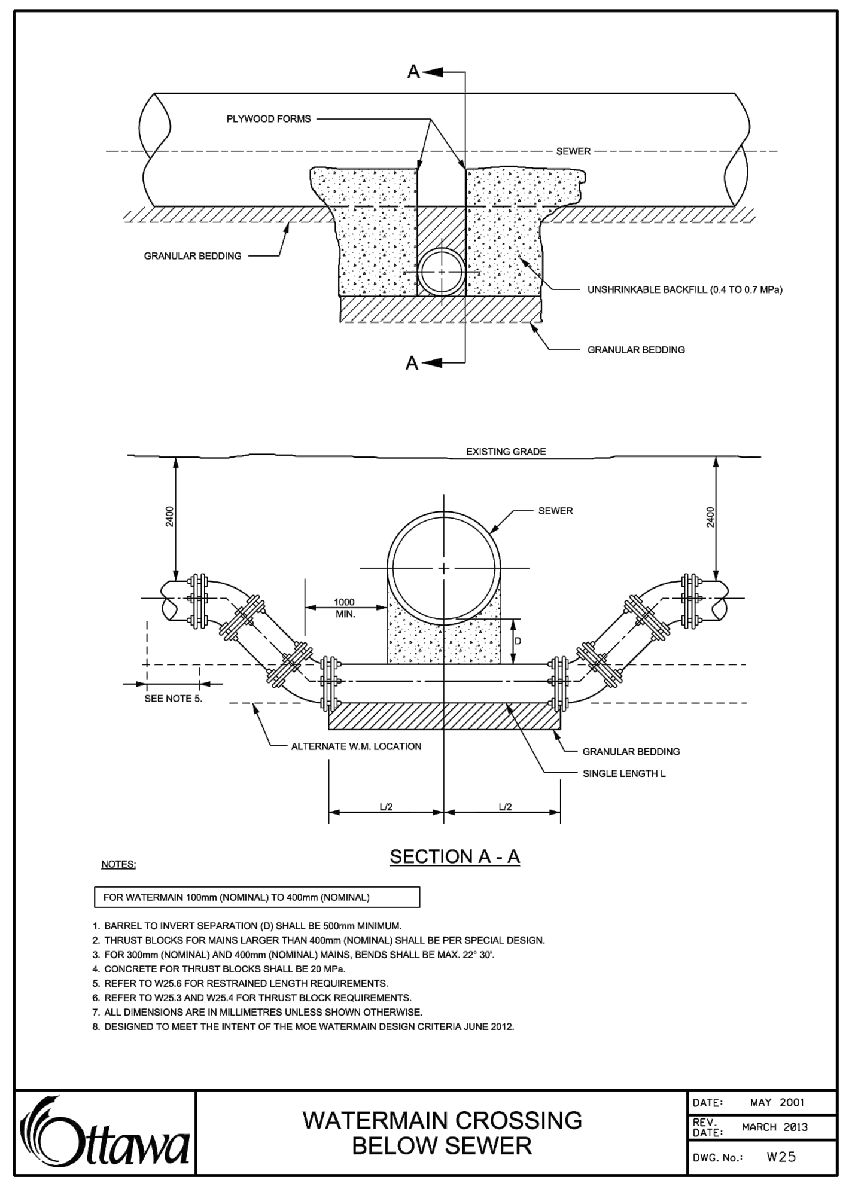


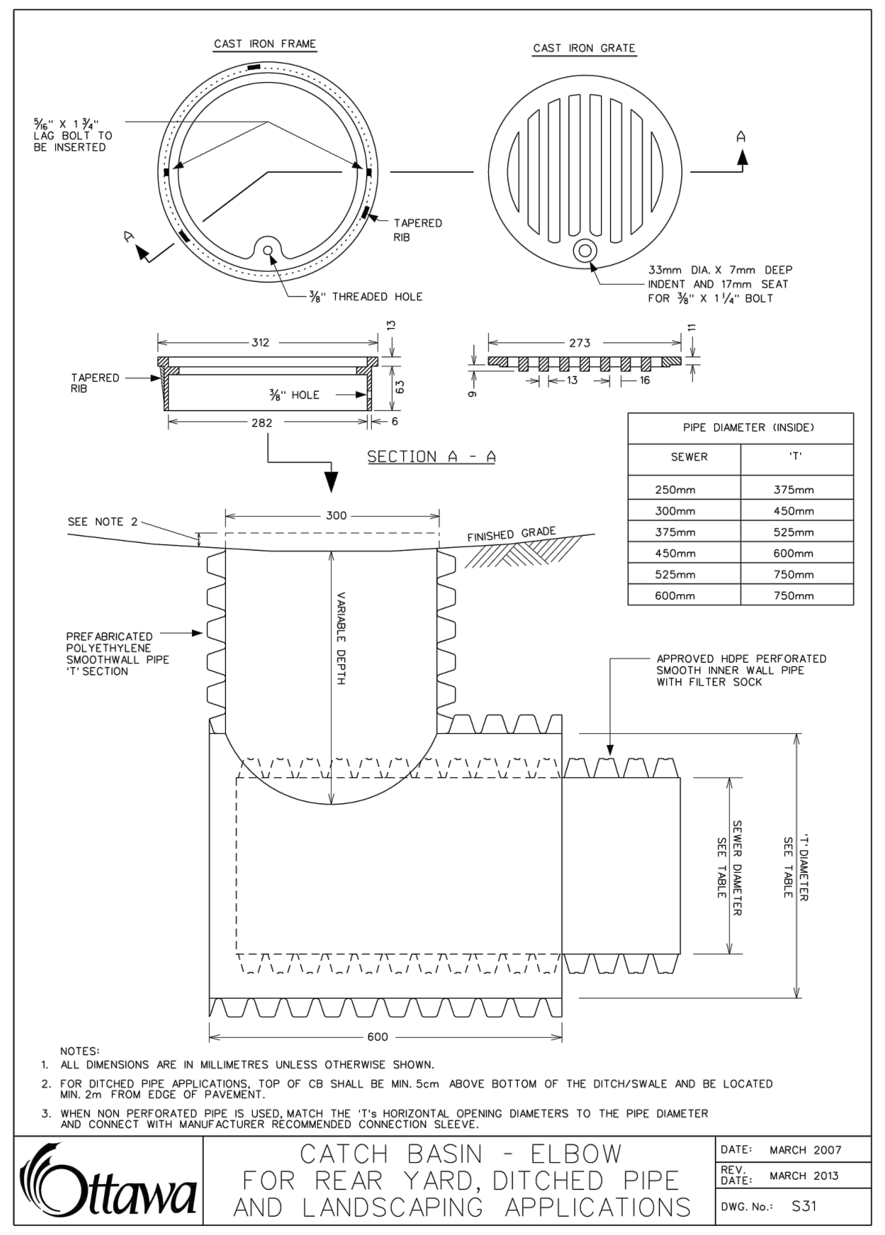


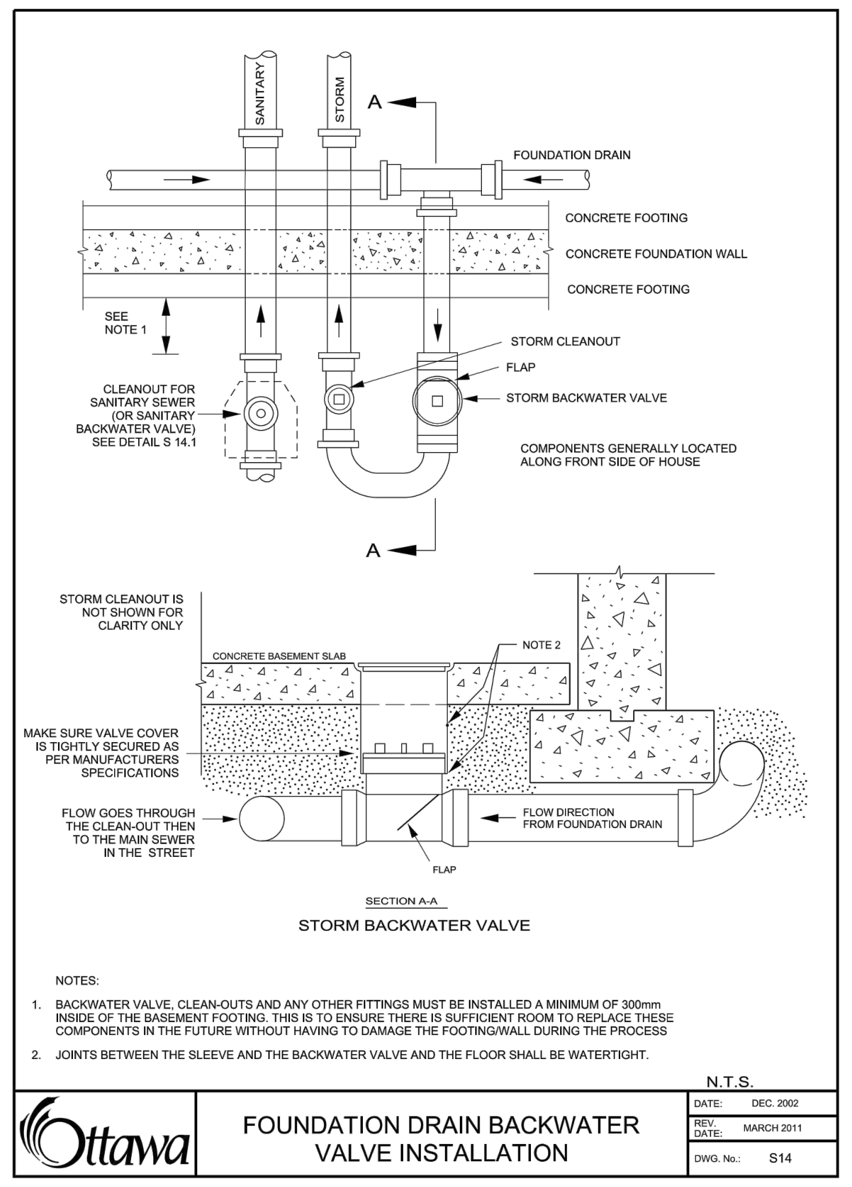


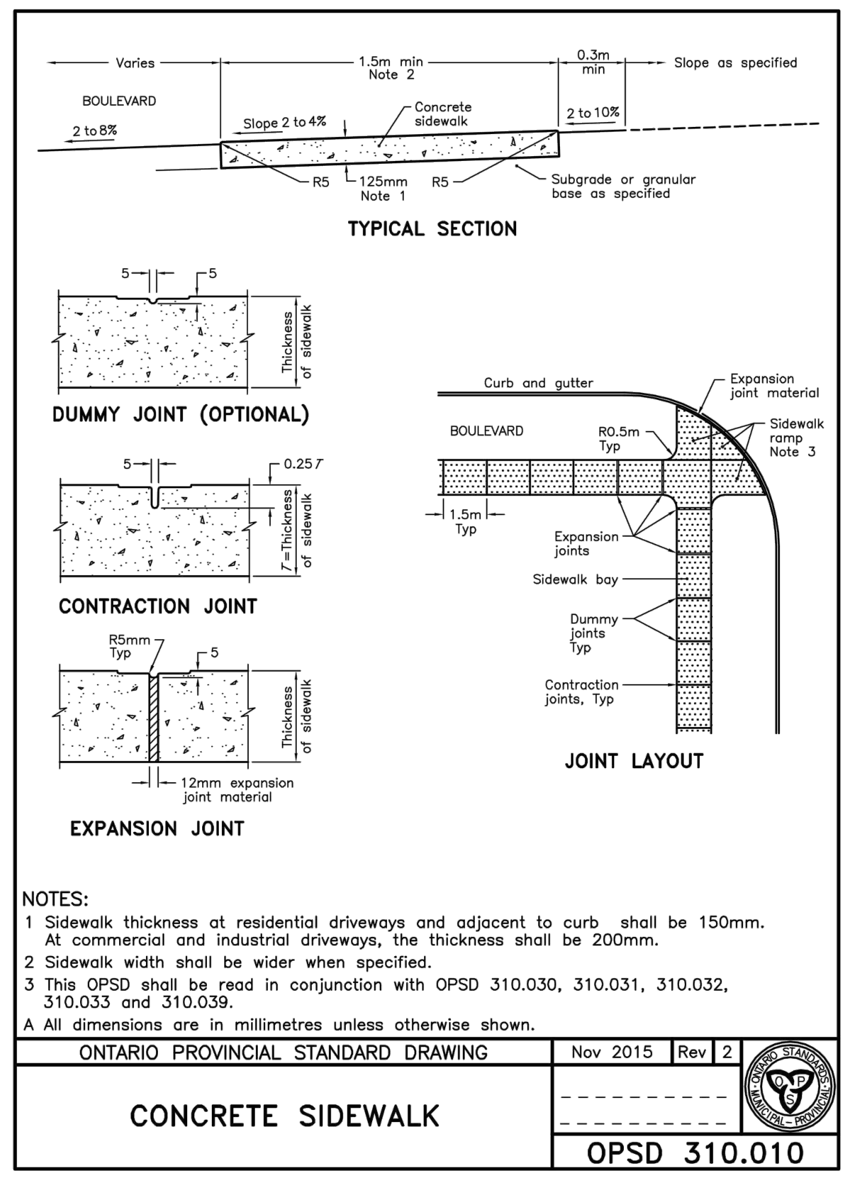


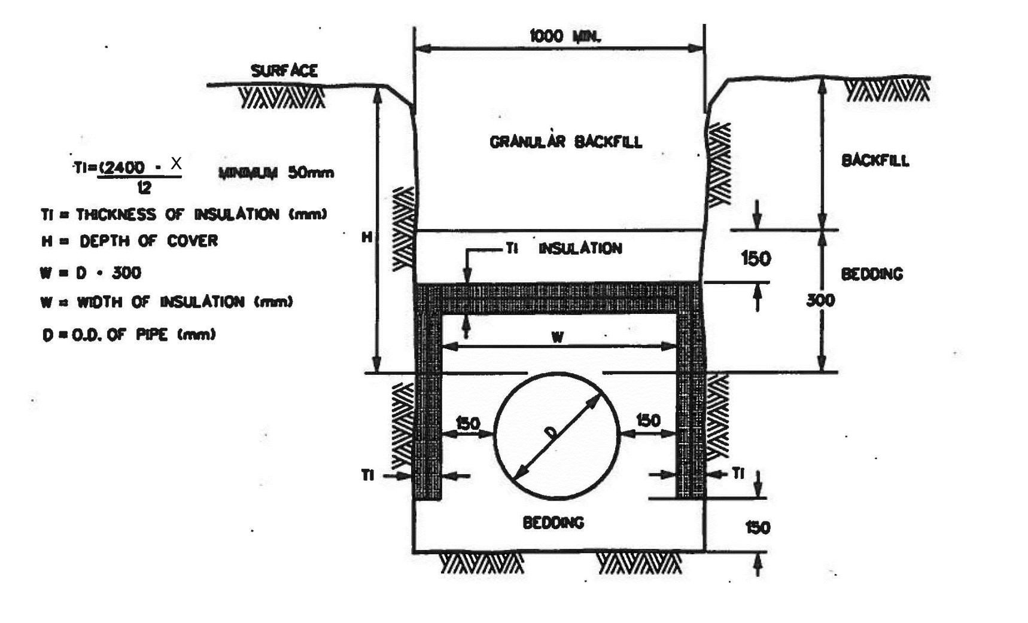








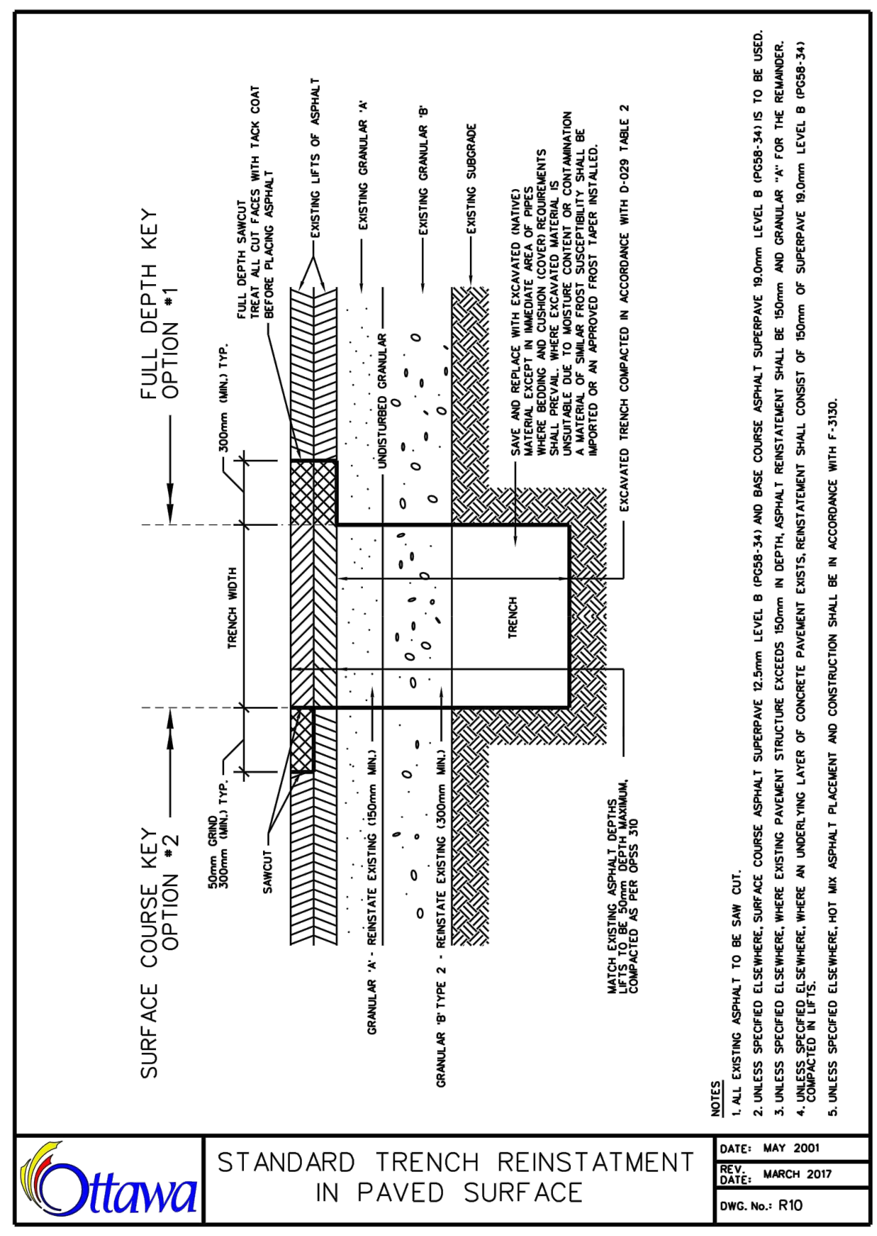


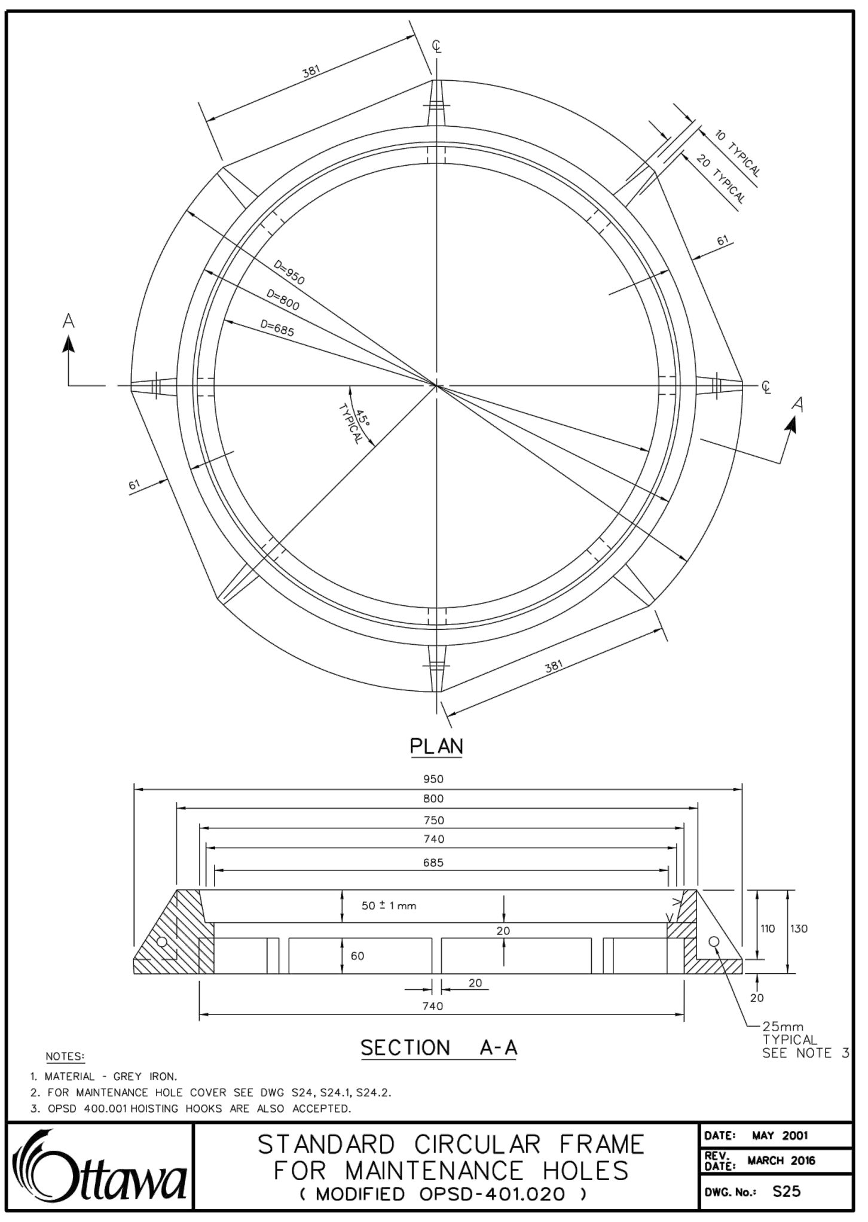


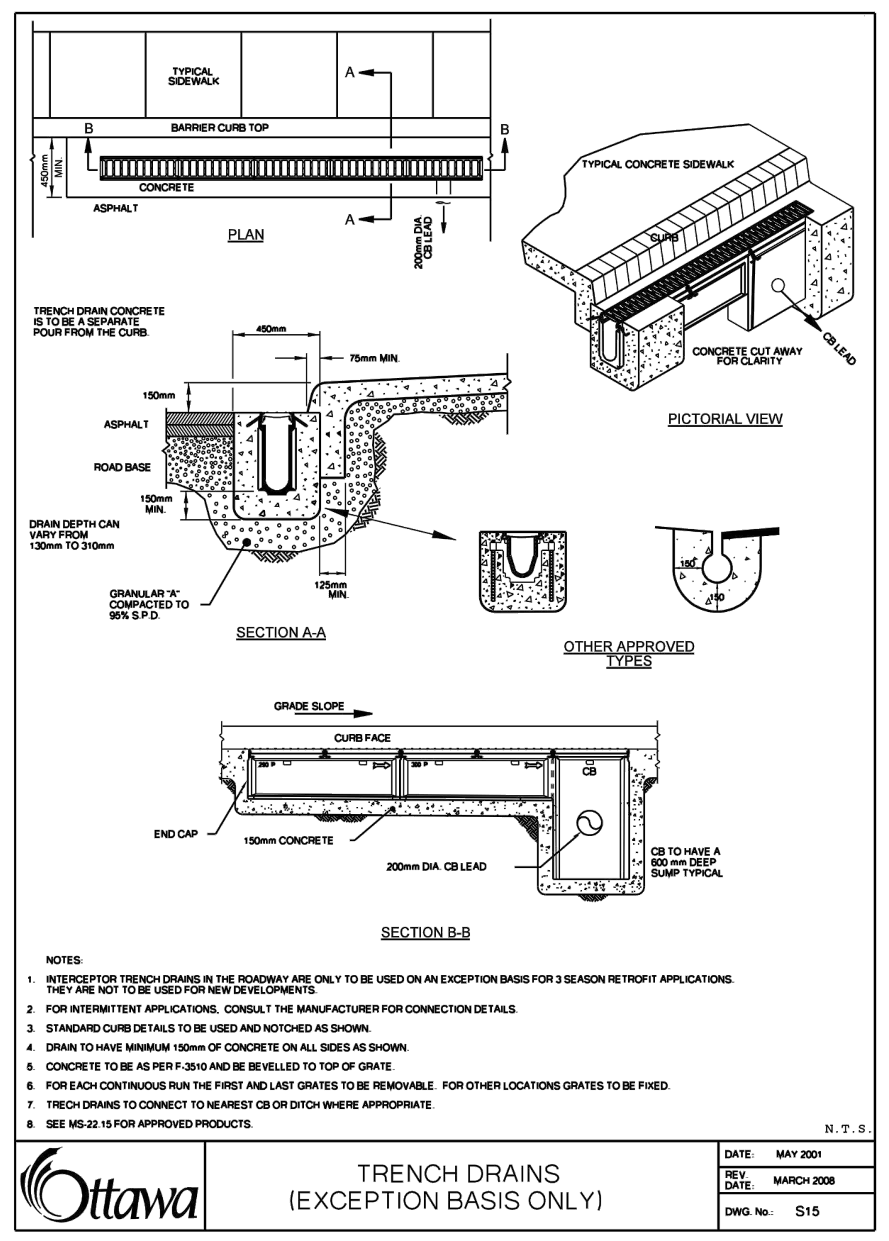
NOTES:
-FOR STORM INSULATION USE AN X VALUE OF 2000 IN THE ABOVE "TI" EQUATION.
-FOR SANITARY INSULATION USE AN X VALUE OF 2500 IN THE ABOVE "TI" EQUATION.
-FOR WATERMAIN INSULATION USE AN X VALUE OF 2400 IN THE ABOVE "TI" EQUATION.
-INCREMENTS OF INSULATION THICKNESS SHALL BE ADJUSTABLE TO 25mm.
-STAGGER JOINTS OF MULTIPLE SHEETS.
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SHOWN OTHERWISE.

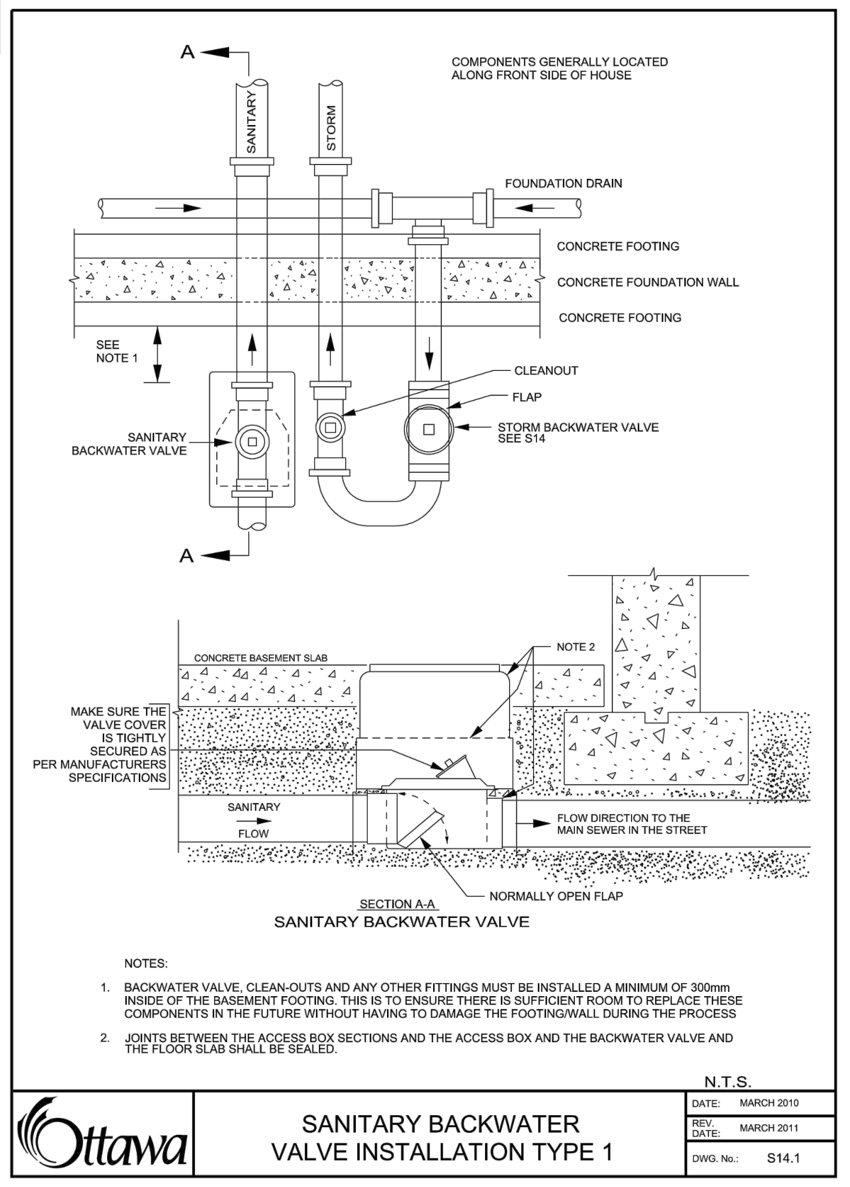
TYPICAL STORM AND SANITARYSEWER AND WATERMAIN INSULATION DETAIL

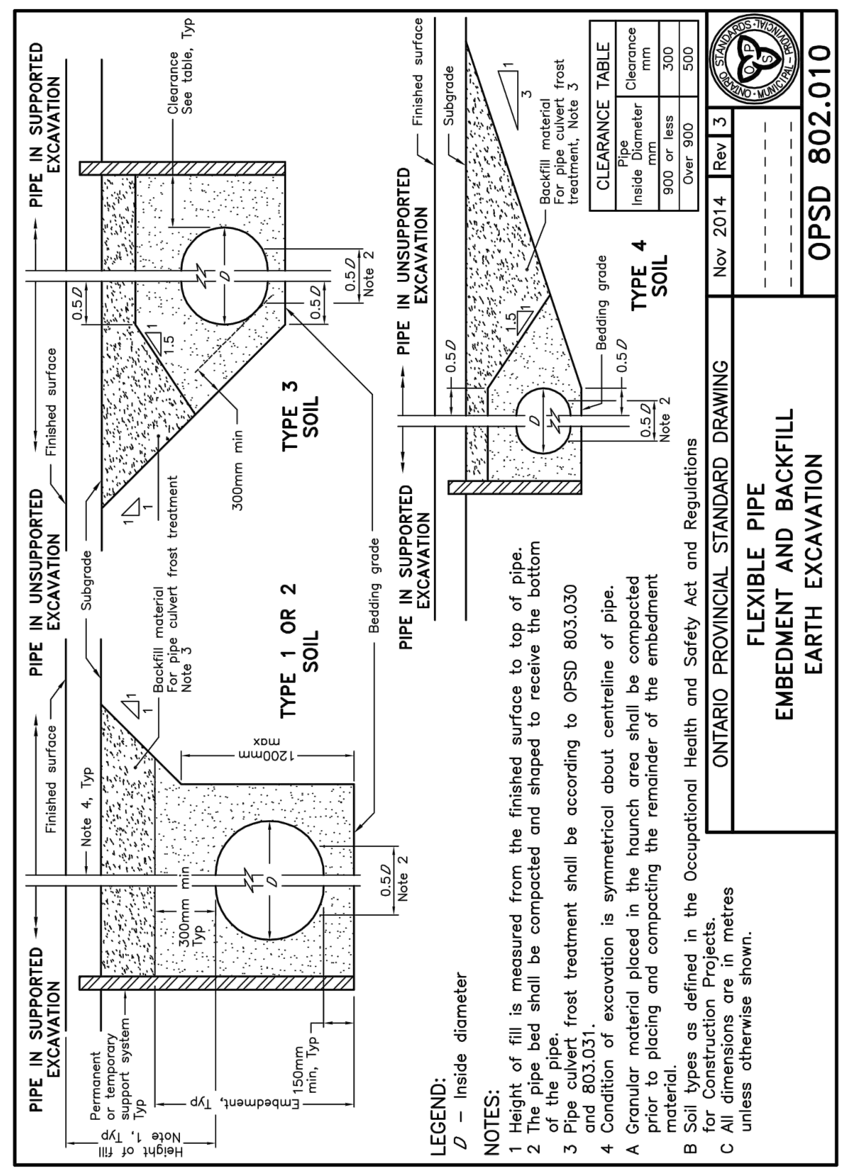
(N.T.S.)

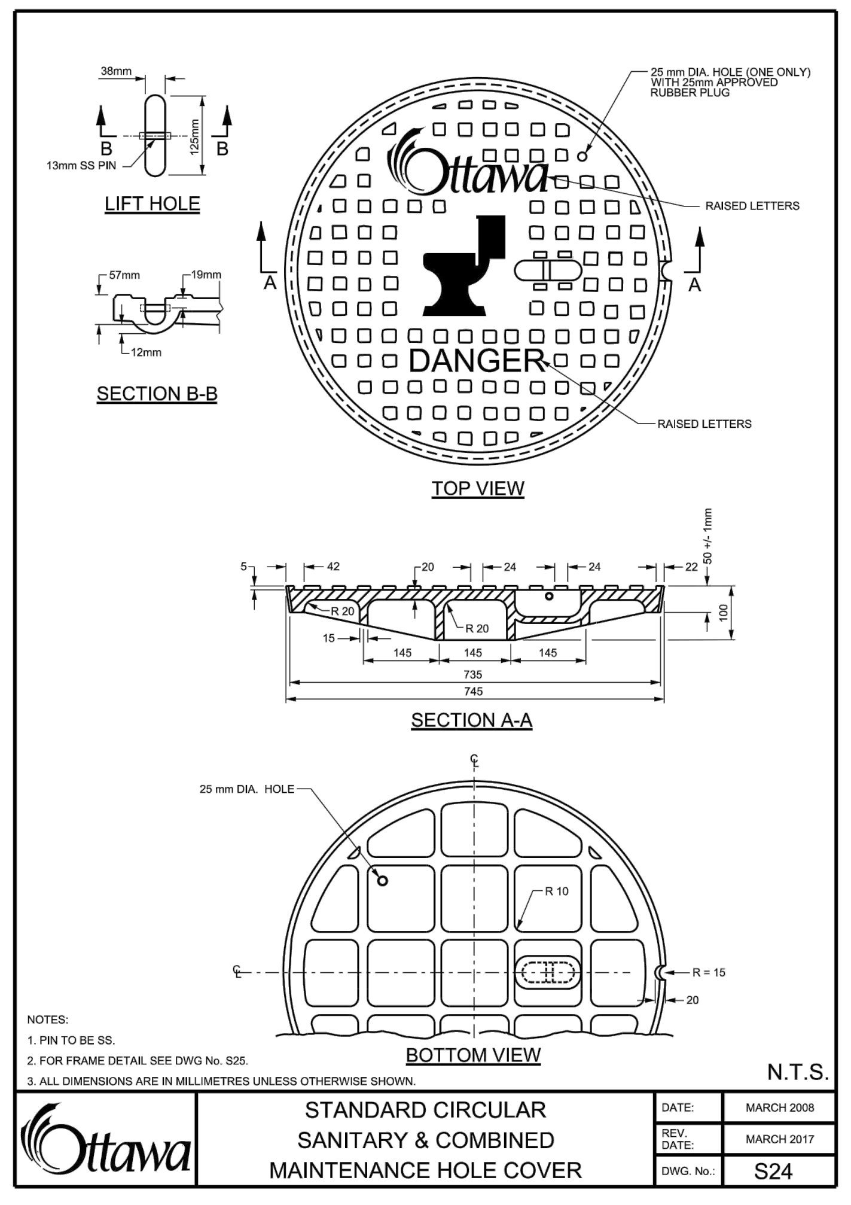












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100501996
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DRAWING TITLE
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PROJECT NO.
200463

DATE
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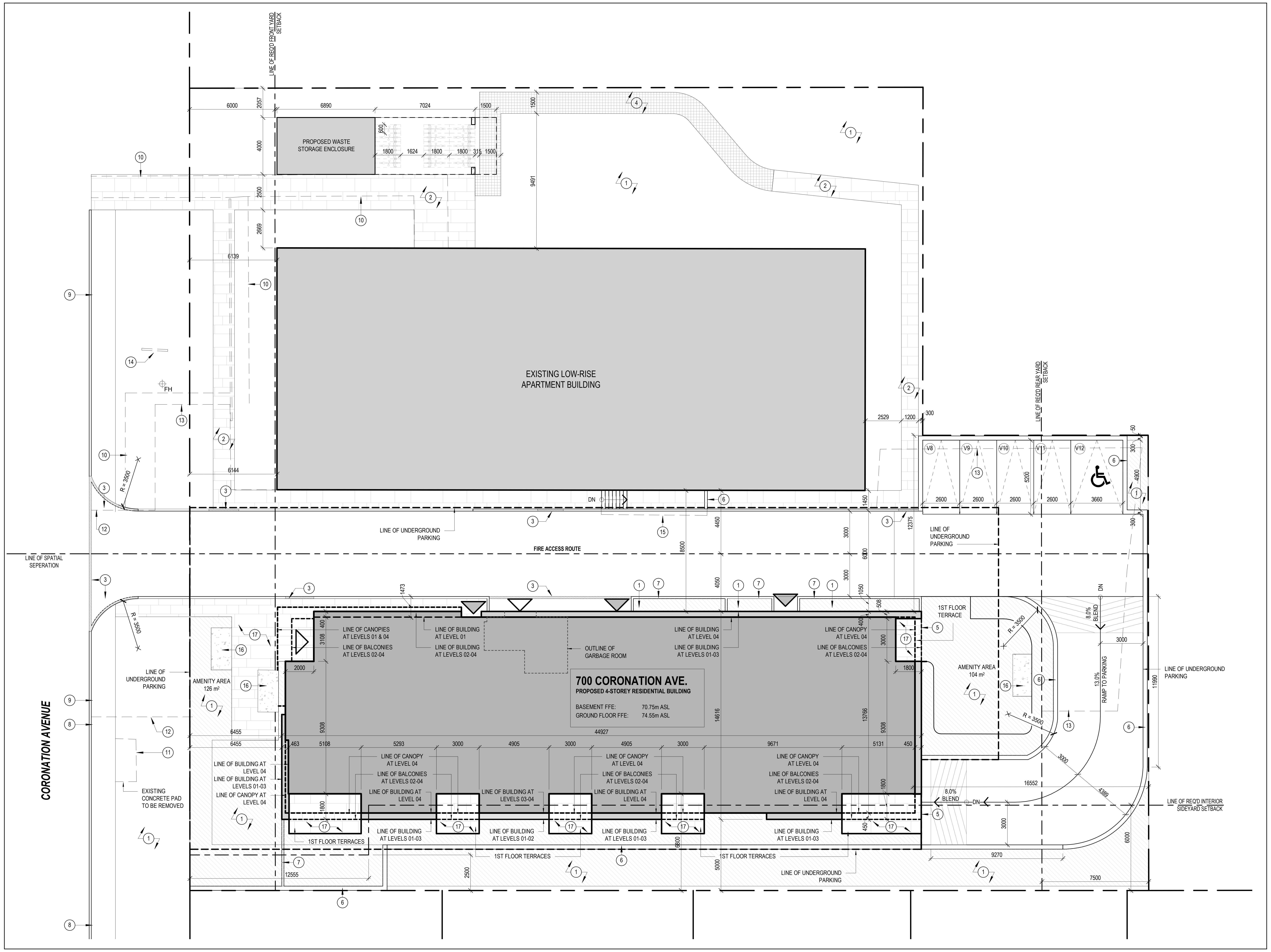
C901

D07-12- 20-0152

#18322

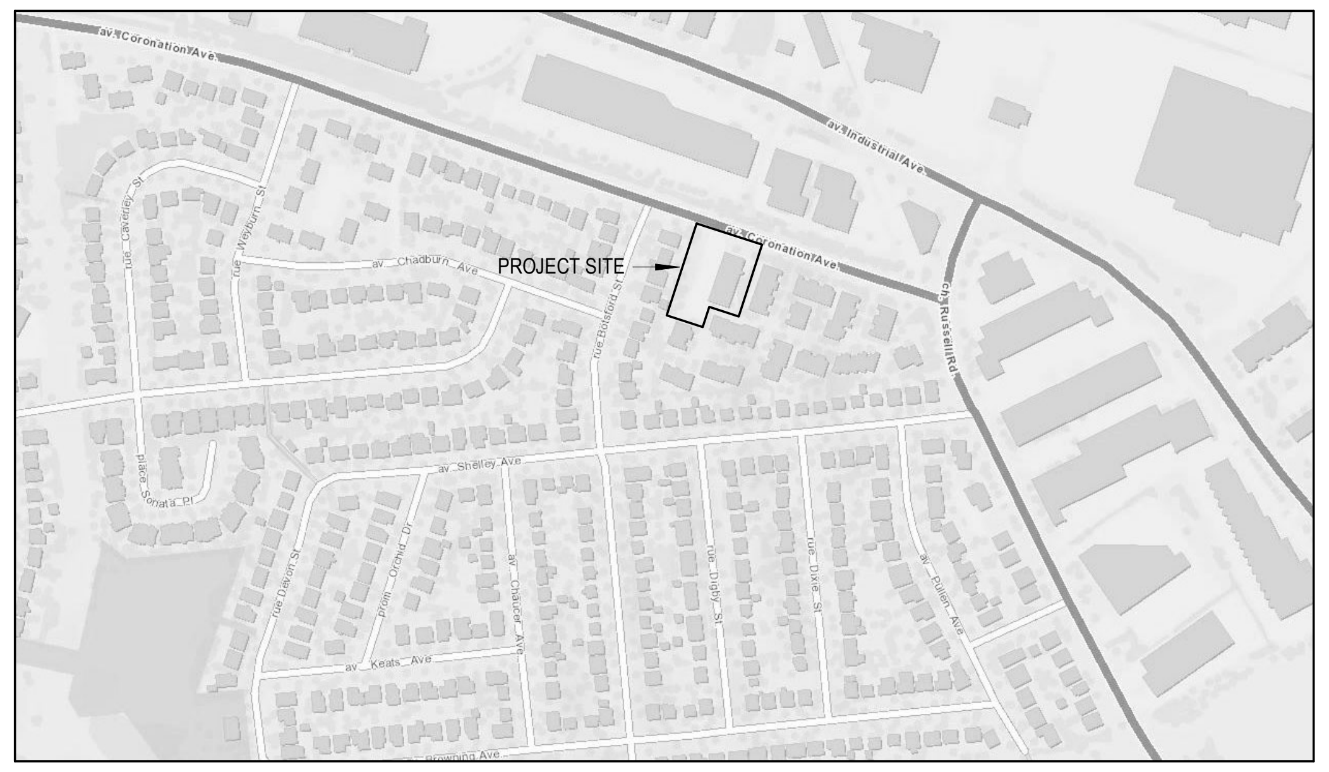
DRAWINGS/FIGURES

Proposed Site Plan
Legal Survey
As-builts



SITE PLAN

1 SP-01
SCALE: 1 : 150



LOCATION PLAN

2 SP-01
SCALE: 1 : 3

SITE STATISTICS

ZONING MECHANISM	REQUIRED	PROVIDED	
		PROPOSED BUILDING	EXISTING BUILDING
MIN. LOT WIDTH 162(a)	18m	56.3 m	56.3 m
MIN. LOT AREA 162(a)	1,400m2 for a Planned Unit Development	3411.36m2	3411.36m2
MIN. FRONT YARD SETBACK 139(3)(b)	4.4m (S.144(1)(a))	6.4m	6.1m
MIN. INTERIOR SIDE YARD SETBACK 162(a)	For existing building: 2.5m for first 18m from front lot line, then, 7.5m for the remainder. For proposed building: 3m, and yard must be landscaped for the first 18m from the front lot line, then 7.5m for the remainder (S.162B(1)(b); S.144(2)(a))	5m on west property line	11.23m on east property line
MIN. REAR YARD SETBACK 162(a)(iii)	Despite the definitions of rear yard and interior side yard, buildings in a PUD must be located so that they are set back, an amount equal to the minimum required rear yard setback for the dwelling type proposed, from a lot line where it abuts a rear yard on an abutting lot but need not exceed 7.5 metres (S.162B(1)(a))	4.03 m	16.55m
MAXIMUM BUILDING HEIGHT 162(a)	14.5m	12.34m	11m
PARKING SPACE RATES 161(14)	Residential Area B: 0.5 spaces/64 units = 32 Visitor after first 12 units: 0.2 space/52 units = 10	33 residential spaces 12 visitor spaces	33 residential spaces 12 visitor spaces
PARKING SPACE PROVISIONS (Section 106)	A motor vehicle parking space must have a min width of 2.6m and a maximum width of 3.1 Parking Spaces must have a min. length of 5.2m Parking spaces, other than visitor spaces, may be reduced in size for up to 40% of the required and provided parking spaces and may be reduced to a minimum width of 2.4 metres and a minimum length of 4.6 metres; where the parking spaces are located in a parking lot or parking garage containing more than 20 spaces, and provided any reduced length space is clearly identified for small cars only.	67.5% parking spaces are 2.6m by 5.2m in size, 32.5% are 2.6m by 4.6m	67.5% parking spaces are 2.6m by 5.2m in size, 32.5% are 2.6m by 4.6m
BICYCLE PARKING RATES Table 111A(b)(i)	0.5/unit = 32	34 spaces	34 spaces
AISLE AND DRIVEWAY PROVISIONS Section 107	A min 6m is required for a double traffic lane leading to a parking garage and for an aisle leading to parking spaces	6m lane proposed leading to the parking garage. 6m aisle proposed in parking garage.	6m lane proposed leading to the parking garage. 6m aisle proposed in parking garage.
AMENITY AREA Table 137 - Row 3	15m2 per dwelling unit up to 8 units: 120m2 6m2 for each unit in excess of 8: 336m2 120m2 must be provided as communal amenity space, in rear yard at-grade and 80% must be soft landscaping. Total amenity area required: 456m2 Communal amenity area required: 120m2	Total private amenity area provided for new building: 176m2 Communal amenity area provided at-grade in rear yard: 230 m2 Total: 406 m2	Total private amenity area provided for new building: 176m2 Communal amenity area provided at-grade in rear yard: 230 m2 Total: 406 m2
SOFT LANDSCAPING 161 (13)(B)(III)	Thirty percent of the lot area must be provided as landscaped area for a lot containing an apartment dwelling, low rise, stacked dwelling, or retirement home, or a planned unit development that contains any one or more of these dwelling types. 3422.36m2 x 30% = 1,026.7m2	1481.67m2 of the total lot area is landscaped = 43.4%	1481.67m2 of the total lot area is landscaped = 43.4%
FRONT YARD SOFT LANDSCAPING TABLE 161	40% of the front yard area must be landscaped with soft landscaping.	Total soft landscaped area = 51% of the front yard	Total soft landscaped area = 51% of the front yard

PLANNED UNIT DEVELOPMENT PROVISIONS (S.131)

PROVISIONS	REQUIREMENT	PROVIDE
MIN. WIDTH OF PRIVATE WAY	6 m	6 m
MIN. SETBACK FOR ANY WALL OF A RESIDENTIAL USE TO A PRIVATE WAY	1.8 m	1 m
MIN. SETBACK OF A GARAGE ENTRANCE FROM PRIVATE WAY	5.2 m	54.2 m
MIN. SEPARATION BETWEEN BUILDINGS WITHIN A PLANNED UNIT DEVELOPMENT	FOR BUILDINGS EQUAL TO OR LESS THAN 14.5M: 1.2M	8.5 m
PARKING	PARKING WITHIN A PLANNED UNIT DEVELOPMENT MAY BE LOCATED ANYWHERE WITHIN THE DEVELOPMENT, WHETHER OR NOT THE DEVELOPMENT PARCELS WITHIN THE PLANNED UNIT DEVELOPMENT ARE SEVERED	PARKING WITHIN A PLANNED UNIT DEVELOPMENT MAY BE LOCATED ANYWHERE WITHIN THE DEVELOPMENT, WHETHER OR NOT THE DEVELOPMENT PARCELS WITHIN THE PLANNED UNIT DEVELOPMENT ARE SEVERED

①	SOFT LANDSCAPING (REFER TO LANDSCAPE)
②	INTERLOCKED CONCRETE PAVERS (REFER TO LANDSCAPE)
③	DEPRESSED CURB
④	CITY OF OTTAWA STONEDUST PATH (REFER TO LANDSCAPE)
⑤	PRIVACY SCREEN
⑥	RETAINING WALL
⑦	CURB
⑧	EXISTING SIDEWALK
⑨	NEW CONCRETE SIDEWALK
⑩	EXISTING CONCRETE PAVERS TO BE REMOVED
⑪	EXISTING CONCRETE PAD TO BE REMOVED
⑫	EXISTING ASPHALT DRIVE AISLE TO BE REMOVED
⑬	EXISTING ASPHALT PARKING LOT TO BE REMOVED
⑭	EXISTING SIGNAGE TO BE REMOVED
⑮	EXISTING EXIT ENCLOSURE TO BE DEMOLISHED
⑯	CONCRETE PAD
⑰	UNIT PAVER (REFER TO LANDSCAPE)

KEYNOTE LEGEND

SP-01
SCALE: N.T.S.

TOPOGRAPHIC PLAN SURVEY OF
PART OF BLOCK F
REGISTERED PLAN 605
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2020

SURVEY INFO

3 SP-01
SCALE: 1 : 1

SITE PLAN SYMBOLS LEGEND

△	BUILDING ENTRANCE
▲	BUILDING EXIT

SYMBOLS LEGEND

4 SP-01
SCALE: 1 : 1

GENERAL ARCHITECTURAL NOTES:

1. This drawing is the property of the Architect and may not be reproduced or used without the expressed consent of the Architect.
2. Drawings are not to be scaled. The Contractor is responsible for checking and verifying all levels and dimensions and shall report all discrepancies to the Architect and obtain clarification prior to commencing work.
3. Upon notice in writing, the Architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents.
4. The Architectural drawings are to be read in conjuction with all other Contract Documents including Project Manuals and the Structural, Mechanical and Electrical Drawings.
5. Positions of exposed or finished Mechanical or Electrical devices, fittings and fixtures are indicated on the Architectural Drawings. Locations shown on the Architectural Drawings shall govern over Mechanical and Electrical Drawings. Mechanical and Electrical items not clearly located will be located as directed by the Architect.
6. These documents are not to be used for construction unless specifically noted for such purpose.

PRINTED: 2020-04-18

OWNER
INSPIRE DEVELOPMENTS
MARK FARRELL
440 LAURIER AVENUE WEST, SUITE 200, OTTAWA, ON. K1R 7X6

APPLICANT
FOTENN CONSULTANTS
SCOTT ALAIN
223 MCLEOD STREET, OTTAWA, ON. K2P 0Z8

ARCHITECT
PROJECT1 STUDIO
RYAN KOOLWINE
260 ST. PATRICK STREET #300, OTTAWA, ON. K1N 5K5

LANDSCAPE ARCHITECT
FOTENN CONSULTANTS
MYLES CARBERT
223 MCLEOD STREET, OTTAWA, ON. K2P 0Z8

CIVIL ENGINEER
LRL ASSOCIATES LTD.
AMR SALEM
5430 CANOTEK ROAD, GLOUCESTER, ON. K1J 9G2

SURVEYOR
FARLEY, SMITH & DENIS SURVEYING LTD.
DANIEL ROBINSON
190 COLONNADE ROAD, OTTAWA, ON. K2E 7J5

5	RE-ISSUED FOR SITE PLAN CONTROL	2021-11-04
4	ISSUED FOR SITE PLAN CONTROL	2020-11-13
3	ISSUED FOR COORDINATION	2020-09-18
2	ISSUED FOR COORDINATION	2020-09-04
1	ISSUED FOR COORDINATION	2020-06-23

ISSUE RECORD

ONTARIO ASSOCIATION OF ARCHITECTS
RYAN M. KOOLWINE
LICENCE
7370

project1 studio
Project1 Studio Incorporated
|613.884.3939 |mail@project1studio.ca

700 Coronation Avenue

700 Coronation Avenue
Ottawa, ON

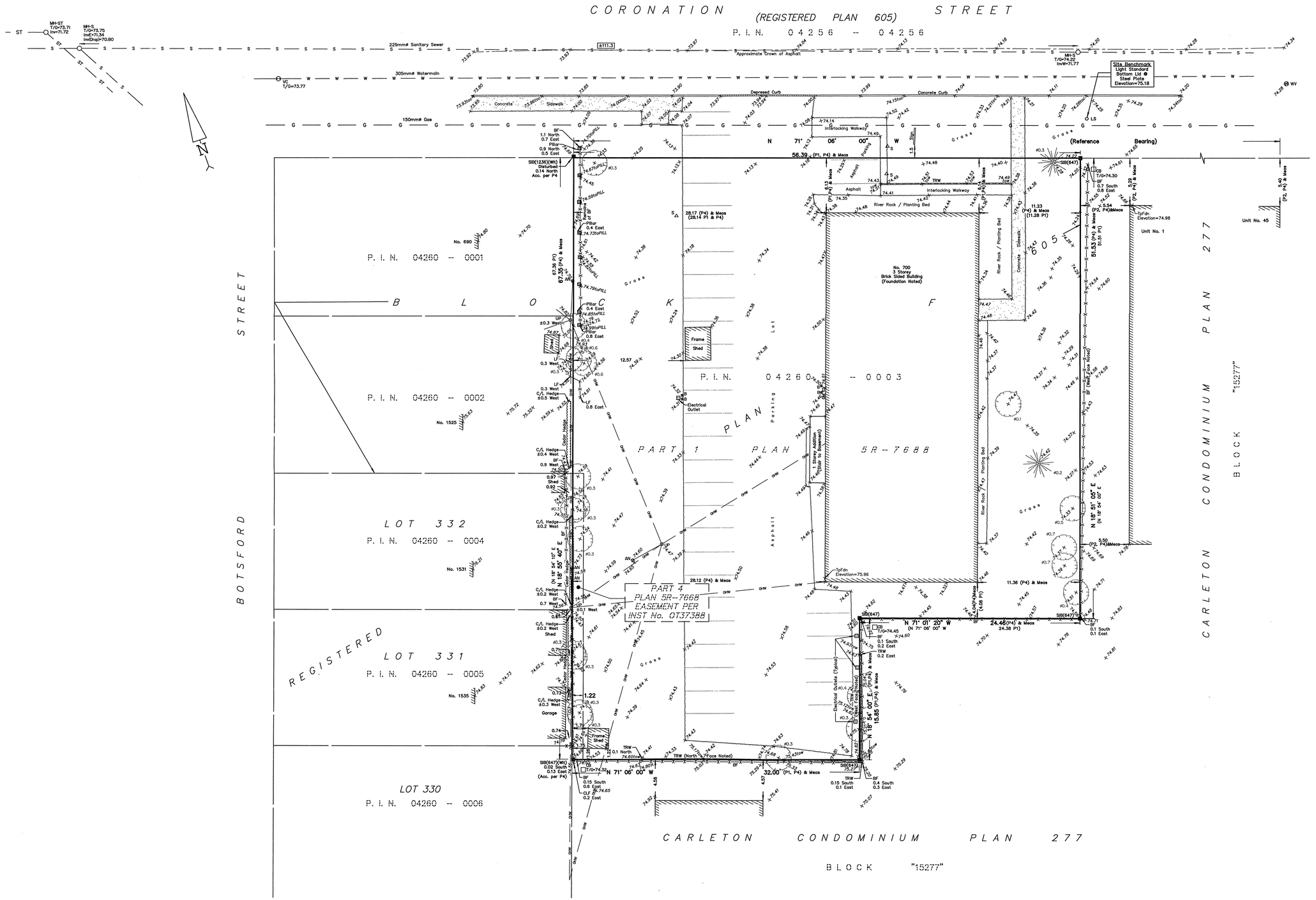
PROJ	SCALE	DRAWN	REVIEWED
2004	**NOTED**	**IB**	**RMK**

SITE PLAN

SP-01

D07-12- 20-0152

372261, 5030237



TOPOGRAPHIC PLAN OF SURVEY OF

PART OF BLOCK F
REGISTERED PLAN 605
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2020

Scale 1: 200

0 2.5 5 10 15 20 metres

Metric Note

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

Bearing Note

Bearings are astronomic and are referred to the Southerly limit of Coronation Street having a bearing of N 71° 06' 00" W as shown on Plan 5R-7688.

Elevation Notes

1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978.
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: F-1-c & 14012.
4. Sanitary and storm sewer grades and inverts were derived from: Field measurement.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Notes & Legend

—□—	Denotes	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
(Wit)	"	Witness
Meas	"	Measured
Acc	"	Accepted
(Plan)	"	Registered Plan 605
(P1)	"	Plan 5R-7688
(P2)	"	Carleton Condominium Plan 277
(P3)	"	Plan by (1236) dated June 27, 2002
(P4)	"	Plan by (1692) dated September 28, 2011 (File No. 344-11)
○ MH-ST	"	Maintenance Hole (Storm)
○ MH-S	"	Maintenance Hole (Sanitary)
⊗ VC	"	Valve Chamber (Watermain)
□CB	"	Catch Basin
⊗ WV	"	Water Valve
▭ GM	"	Gas Meter
o B	"	Bollard
△ S	"	Sign
—— ST ——	"	Underground Storm Sewer
—— S ——	"	Underground Sanitary Sewer
—— W ——	"	Underground Water
—— G ——	"	Underground Gas
—— OHW ——	"	Overhead Wires
○ UP	"	Utility Pole
○ AN	"	Anchor
○ LS	"	Light Standard
Ø	"	Diameter
CLF	"	Chain Link Fence
BF	"	Board Fence
LF	"	Lattice Fence
TRW	"	Timber Retaining Wall
Inv.	"	Invert
T/G	"	Top of Grate Elevation
TpFdn	"	Top of Foundation Elevation
toPILL	"	Top of Pillar/pier Elevation
toc	"	Top of Curb Elevation
tow	"	Top of Wall Elevation
C/L	"	Centreline
+ 65.00	"	Location of Elevations
━━━━	"	Property Line
◌	"	Deciduous Tree
✳	"	Coniferous Tree

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 August, 2020.

Sept. 1/20
Date

Daniel Robinson
Ontario Land Surveyor

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2130258

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

FARLEY, SMITH & DENIS SURVEYING LTD.

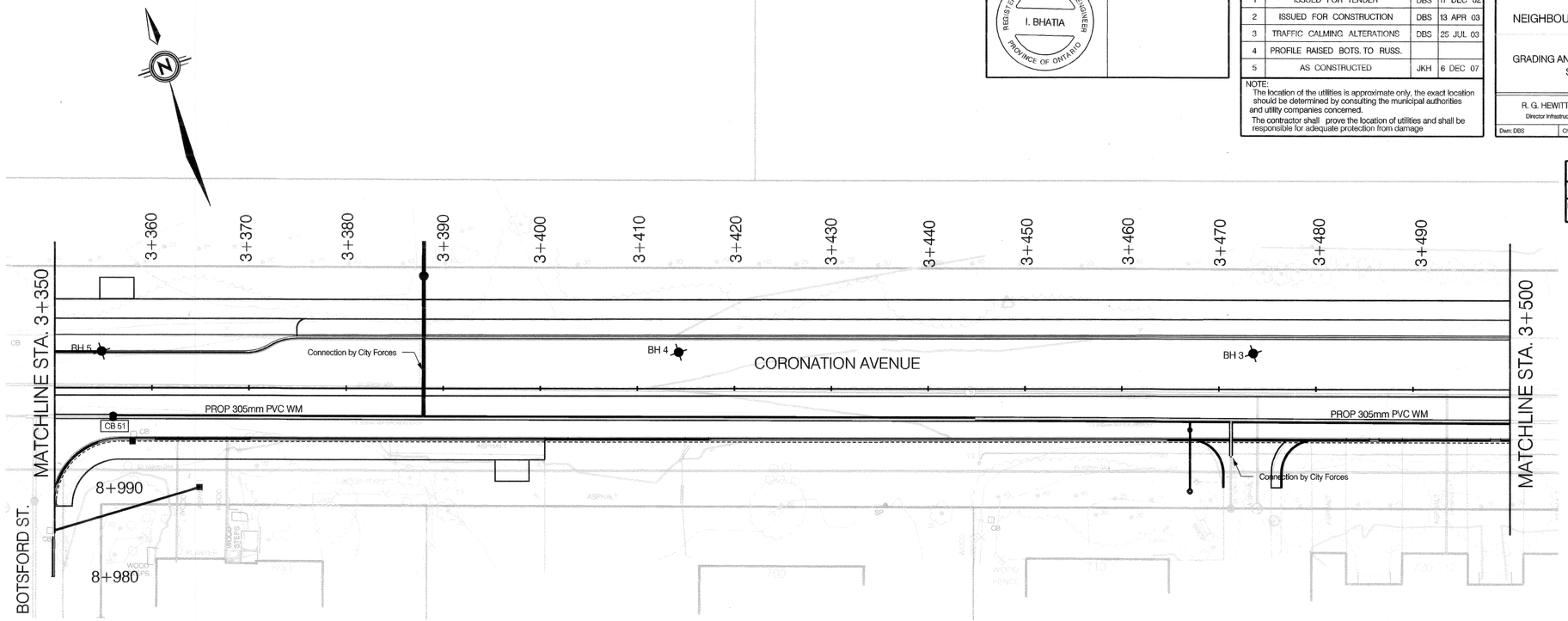
ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

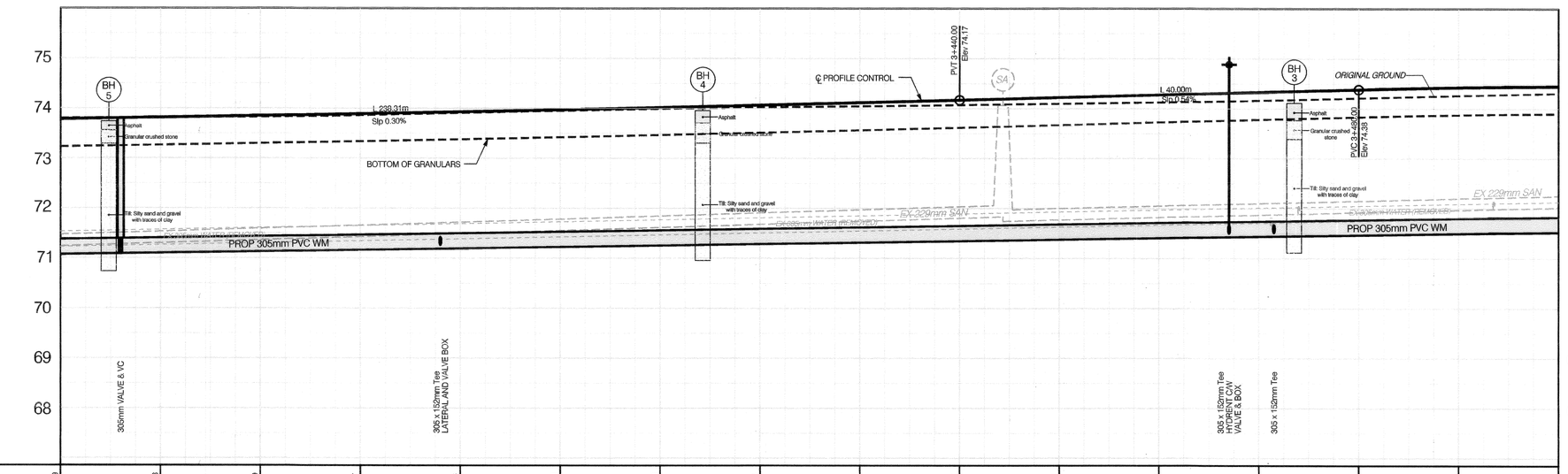
190 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J5
TEL. (613) 727-8226 FAX. (613) 727-1826

FILE No. : 376-20

J:\2020\376-20_700 Coronation St_topo\Final\376-20_700 Coronation St_BLKF RP605_T_F.dwg

TOPO 24X36





12-DEC-2007

K:\hojka\Coronation\Design\Grading\grading9.dgn

REGISTERED PROFESSIONAL ENGINEER
I. BHATIA
PROVINCE OF ONTARIO

NO.	REVISIONS	BY	DATE
1	ISSUED FOR TENDER	DBS	17 DEC 02
2	ISSUED FOR CONSTRUCTION	DBS	13 APR 03
3	TRAFFIC CALMING ALTERATIONS	DBS	25 JUL 03
4	PROFILE RAISED BOTS. TO RUSS.		
5	AS CONSTRUCTED	JKH	6 DEC 07

NOTE:
The location of the utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned.
The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage

CORONATION AVENUE
REHABILITATION
NEIGHBOURHOOD WAY TO RUSSELL ROAD

GRADING AND DRAINAGE / WATERMAIN LAYOUT IX
STA 3+350 TO STA 3+500

R. G. HEWITT, P.ENG.
Director Infrastructure Services

W. BENNETT, P.ENG.
Manager Construction Services - East

Dwn: DBS
Chkd:
Des: DBS
Chkd: IB

Ottawa
CONTRACT NO.
ISB03 - 5001
DWG. NO.
5001-22
SHEET 22 OF 36
Date: April 2003
Scale: HORIZONTAL 1:250
VERTICAL 1:50

CATCH BASIN DATA

NO.	STATION	OFFSET	DETAIL	STRUCTURE	ELEVATION	
					T/GRATE	LOW/INV.
EXCB58	3+358.103	x.xx RT	S24	Existing	xx.xxx	xx.xxx
CB51	3+358.000	5.19 RT	S3	705.010	73.851	72.471

OFFSETS ARE FROM CENTRE LINE TO FACE OF CURB FOR CURB INLET C.B.

TOP OF GRATE ELEVATIONS ARE REFERENCED TO THE TOP OF CURB FOR CURB INLET C.B.

℄ PROFILE	73.779		73.813	73.849	73.887		73.928	73.971	74.016	74.064	74.114	74.167	74.221	74.274		74.328		74.382	74.424	74.446
EXISTING SURFACE	73.798		73.812	73.825	73.859		73.907	73.951	73.991	74.021	74.045	74.068	74.096	74.123		74.162		74.212	74.263	74.306
PROPOSED TOP OF WATERMAIN	71.376		71.407	71.437	71.468		71.498	71.529	71.559	71.590	71.620	71.651	71.681	71.711		71.742		71.772	71.803	70.000
STATION	3+350	+355.996	3+360	3+370	3+380	+388.000	3+390	3+400	3+410	3+420	3+430	3+440	3+450	3+460	+467.000	3+470	+471.500	3+480	3+490	3+500

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

WATERMAIN NOTES

1 - ALL WATERMAIN MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.
2 - ALL CONNECTIONS OF NEW WM TO EXIST. WM AND ALL BLANKINGS OF EXIST. MAINS AND SERVICES SHALL BE PERFORMED BY CITY FORCES. THE CONTRACTOR SHALL PROVIDE EXCAVATION,BACKFILL AND REINSTATEMENT.
3 - RESTRAINING RINGS AND THRUST BLOCKING SHALL BE UTILIZED ON ALL BENDS, TEES AND PLUGS IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY STANDARD SPECIFICATIONS AND STANDARD DRAWINGS. TYPICAL SOIL BEARING CAPACITY RANGES FROM 100 TO 199kpa.
4 - A MINIMUM 2M SEPARATION IS REQUIRED BETWEEN ALL NEW WATER SERVICES AND CATCHBASINS OR OPEN STRUCTURES AND SHALL BE INSULATED PER CITY SPECIFICATION WSD-23 AS APPLICABLE.
5 - A MINIMUM 2M SEPARATION IS REQUIRED BETWEEN ALL NEW HYDRANTS AND CATCHBASINS OR OPEN STRUCTURES AND SHALL BE INSULATED PER CITY SPECIFICATION WSD-23 AS APPLICABLE.
6 - THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE VIA EXCAVATION THE EXACT LOCATION AND ELEVATION OF THE EXISTING WATERMAINS AS REQUIRED FOR ALL CONNECTIONS, RELOCATIONS AND BLANKING.

EARTH EXCAVATION	986 m3
EARTH FILL	150 m3

14012

14012