

Stormwater Management Report and Servicing Brief

Site Plan Control Design 630 Montreal Road, Ottawa, ON

Prepared for:

MB Group et Associes Inc. 549 De Mazenod Avenue Ottawa, Ontario K1S 5H3

Attention: Salim Mahi-Beaudry

LRL File No.: 210682.02

April 19, 2023 Revised December 07, 2023

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by MB Groupe et Associes Inc. to complete a Stormwater Management Analysis and Servicing Brief for the development of a 10-storey condo building with 2 level of underground garage parking. Part of the work will include the demolition of a two-storey dwelling and a garage.

The subject property consists of one (1) lot with an existing two-storey dwelling and a detached garage. The site location is legally described as Lot 45 and Part of Lots 3, 4 & 5, Registered Plan 343 in the City of Ottawa). The subject lot is zoned AM10[2199] (Arterial Mainstreet).



Figure 1: Aerial View of Subject Lands

The subject property measures approximately 32m in frontage along Montreal Road and approximately 31m along Borthwick Avenue. Based on locations of the existing property line, the total site area is approximately **0.103 ha**.

The proposed development will be constructed in a single phase, which includes the demolition of the existing two-storey dwelling and detached garage building and the construction of the 10-storey condo building. Refer to *Site Plan* included in *Appendix F* for more details.

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 and servicing considerations, LRL Associates Ltd. should be advised to review the report recommendations.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures **0.0968** *ha* and currently consists of a two-storey dwelling and a detached garage building with associated asphalt parking. There is one existing entrance to the site via Borthwick Avenue. The highest point onsite is located at the northeast corner and has an elevation of 80.01m, the lowest point onsite is located at the southwest corner of the site and has as elevation of 77.47m. The site generally slopes towards the south. There is a drop of approximately 1m across the south property line, a drop of approximately 1m across the east property line and a drop of approximately 1.5m across the west property line.

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-ways:

Montreal Road:

- 525mm CONC storm sewer (1997)
- 300mm CONC sanitary sewer
- 406mm PVC watermain (2006)

Borthwick Avenue:

- 525mm CONC storm sewers (1964)
- 225mm CONC sanitary sewer
- 152mm UCI watermain (1995)

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 not expected to be required for installation of the proposed storm and sanitary sewers within the site. 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 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. There is an existing 406 mm PVC watermain within Montreal Road and a 152mm UCI watermain in Borthwick Avenue. There are currently at least two (2) existing fire hydrants within proximity to the subject property. Refer to **Appendix B** for the location of fire hydrants.

5.2 Water Supply Servicing Design

According to the City of Ottawa Water Distribution Guidelines (Technical Bulletin ISDTB-2014-02), since the subject site is anticipated to house more than 50 residential units, it is required to be serviced by two water service laterals, separated by an isolation valve, for redundancy and to avoid creation of a vulnerable service area. Additionally, considering the presence of automatic sprinkler system inside the building and a recommended size to service the sprinkler system, the subject property is proposed to be serviced via two (2) 150 mm diameter service laterals connected to the existing 406mm PVC watermain within Montreal Road. Refer to *Site Servicing Plan* C.401 in *Appendix E* for servicing layout and connection points.

We have analyzed the water demand requirements for the proposed 10-storey condo building. The residential water demands, and anticipated population were determined using Appendix 4-A, Table 4.1 and Table 4.2 from the *City of Ottawa Water Distribution Design Guidelines* and Table 3-3 from the *MOE Design Guidelines for Drinking Water Systems*.

Through reviewing the architectural floor plans of the proposed building, it was determined that the building will have a total combined aboveground floorspace of $4,854 \text{ m}^2$, 56 residential units and 206.5 m^2 of commercial space.

The water supply requirements for the residential units and commercial space in the proposed development have been calculated using the following formulas:

 $Q = (q \times P \times M)$, for the residential and $Q = (q \times A \times M)$, for the commercial space.

Where:

q = average water consumption (L/capita/day) or (L/ha/day)
P = design population (capita)
M = Peak factor
A = area (ha)

Residential Demands

The proposed building will include **37** one-bedroom units and **19** two-bedroom units. Based on the City of Ottawa Design guidelines for population projection, this translates to approximately **91.7** residents. *Table 1* below summarizes the proposed residential population count as interpreted using Table 4-1 from the *City of Ottawa Water Distribution Design Guideline.*

Proposed Unit Type	Persons Per Unit	Number of Units	Total Population
1 Bedroom	1.4	37	51.8
2 Bedroom	2.1	19	39.9
	Total	56	91.7

With reference to *Table 4.1 of the City of Ottawa Water Distribution Design Guidelines*, an average water consumption rate of 280 L/c/d was used. With reference to Table 3-3 of the MOE *Design Guidelines for Drinking Water Systems* a Maximum Daily Demand Factor and Maximum Hour Demand Factor were calculated to be approximately 5.95 and 8.94, respectively. The anticipated residential demands were calculated as follows:

- > Average daily domestic water demand is **0.30** L/s,
- > Maximum daily demand is **1.77** L/s, and
- > Maximum hourly demand is **2.66** L/s.

Commercial Demands

Appendix 4-A and *Table 4.2 of the City of Ottawa Water Distribution Design Guidelines* were used to determine the consumption rates and peak factors of the commercial space. A water consumption rate of 28,000L/ha/d was used for the commercial space. The Maximum Daily Demand Factor and the Maximum Hourly Demand Factor were 1.5 and 1.8 respectively. *Table 2* below summarizes the proposed commercial demands.

Table 2: Institutional	V Commercial	Demands
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Property Type	Unit	Rate	Units	Demand (L/d)
Commercial Space	28,000	L/ha/d	0.02065 ha	578.2

Using the peak factors, the anticipated commercial demands were calculated as follows:

- > Average daily domestic water demand is **0.007** L/s,
- > Maximum daily demand is **0.010** L/s, and
- > Maximum hourly demand is **0.018** L/s.

Combined - Residential/Commercial/Institutional

The combined residential and commercial demands for the site are anticipated to equal the following:

- > Average daily domestic water demand is **0.30** L/s,
- > Maximum daily demand is **1.78** L/s, and
- > Maximum hourly demand is **2.67** 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 proposed development.

		Boundary Conditions @ Montreal Road		
Design Parameter	Anticipated Demand (L/s)	Connection 1* (m H2O / kPa)		
Average Daily Demand	0.30	118.3/372.84		
Max Day + Fire Flow (per FUS)	1.78 + 150.00	111.8/309.10		
Peak Hour	2.67	109.9/290.47		
*Ground Elevation assumed at 80.28 for Connections 1 & 2 @ Montreal Road				

 Table 3: Summary of Boundary Conditions

As indicated in Table 3, pressures in all scenarios meet the required pressure range stated in the City of Ottawa Design Guidelines – Water Distribution (Section 4.2.2). 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:

- Type of construction Non-combustible construction
- Occupancy type Limited Combustible
- Sprinkler Protection Fully Automatic Sprinkler System

The estimated fire flow demand was estimated to be 9,000 L/min, see Appendix B for details.

There are two (2) existing fire hydrants in proximity to the proposed buildings that are available to provide the required fire flow demands of 9,000 L/min. Refer to **Appendix G** for fire hydrant

locations. Table 4 below summarizes the aggregate fire flow of the contributing hydrants in proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

	Max. Fire	Fire	Fire	Available
	Flow Demand	Hydrants(s)	Hydrant(s)	Combined Fire
	(L/min)	within 75m	within 150m	Flow (L/min)
Contemplated Development	9000	1	1	(1 x 5678) + (1 x 3785) = 9463

Table 4: Fire Protection Summary Table

The total available fire flow from contributing hydrants is equal to **9,463 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 300mm dia. CONC sanitary sewer located in Montreal Road and a 225mm dia. CONC sanitary sewer located in Borthwick Avenue. It is anticipated that the contemplated development will be connected to the existing 225mm CONC sanitary sewer located within Borthwick Avenue.

6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via a 150 mm dia. sanitary service connected to the existing 225mm CONC sanitary sewer located within Borthwick Avenue. Refer to LRL drawing C.401, included in **Appendix F**, for the proposed sanitary servicing.

The parameters used to calculate the anticipated residential sanitary flows are an average population count of 1.4 person per single unit, 2.1 persons per two-bedroom unit, a residential daily demand of 280 L/p/day, a residential peaking factor of 3.6 and a total infiltration rate of 0.33 L/s/ha. The parameters used to calculate the anticipated commercial sanitary flows are a daily flow of 28,000L/ha/day and a commercial peaking factor of 1.5. Based on these parameters and a total site area of 0.103 ha, the total anticipated wet wastewater flow was estimated to be **1.11** L/s. Refer to *Appendix C* for the site sanitary sewer design sheet.

As requested in the pre-consultation with City staff, the calculated sanitary demands for the proposed development were coordinated with the City of Ottawa to confirm there is sufficient capacity in the downstream municipal sewers. As per correspondence attached, see *Appendix C*, the downstream municipal sewers can sufficiently accommodate the increase in sanitary flows from the proposed development.

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.

There is an existing 525mm CONC storm sewer available in Montreal Road and an existing 525mm CONC storm sewer located in Borthwick Avenue. In the pre-development conditions, drainage from the subject lot is depicted by existing watershed EWS-01 (0.103ha), which drains in the south towards Borthwick Avenue. Refer to plan C701 included in *Appendix E* for pre-development drainage characteristics. Refer to *Appendix D* for pre-development 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), as well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003 (SWMPD Manual).

7.2.1 Water Quality

The subject property lies within the Ottawa River West sub-watershed and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). It was determined that water quality controls would not be required on this site as treatment would be handled by municipal infrastructure. 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 a Rational Method Coefficient of 0.50, employing the City of Ottawa IDF parameters for a 2-year storm with a calculated time of concentration equal to 10 minutes; and
- > Attenuate all storms up to and including the City of Ottawa 100-year storm event on site.
- Water quality treatment will not be required on this site as the water being collected and conveyed to the storm system is mostly rooftop water. Water collected from the parking ramp will need to be considered in the detailed mechanical design to ensure that sediment, oil and grit are considered prior to entering the cistern.

As per the pre-application consultation meeting with the City of Ottawa, it was recommended that it would be acceptable to control only the roof portion of the building up to the 100-year storm event, to a 2-year pre-development level and that the remainder of the site could be left

uncontrolled as long as the uncontrolled portion is directed towards the right of way. Based on these stormwater objectives for the subject site, it was determined that the allowable release rate for the site is **5.36 L/s** for all storms up to and including the 100-year storm. 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 an underground cistern. The proposed cistern will be pumped and a proposed 250 mm PVC diameter storm sewer pipe will outlet stormwater flows from the site to the existing 525mm CONC storm sewer located within Borthwick Avenue. The proposed servicing layout and connection points are shown on drawing C.401 in *Appendix E,* and detailed calculations can be found in *Appendix D*.

The site has been analyzed and five (5) post-development watersheds have been allocated.

- WS-01 and WS-02 (0.030 ha) consist of areas around the building that will flow uncontrolled towards the Borthwick Avenue Right of Way.
- WS-03 (0.011 ha) is a controlled area which consists of pavers and grassed areas and is located east of the building. This area is directed to an area drain which carries flows to the underground cistern.
- WS-04 (0.050 ha) is a controlled area which consists of the roof envelope. There will be no roof storage since the roof will be used primarily as an amenity space. Flows from the roof will be directed to the underground cistern.
- WS-05 (0.013 ha) consists of the ramp access. Flows from this area will be captured via a trench drain and directed to the underground cistern.

Refer to C601, Stormwater Management Plan and C702, Post-Development Watershed Plan C702 in *Appendix E* for reference.

Table 5 below summarizes post-development drainage areas. Calculations can be seen in *Appendix D.*

WATERSHED	Total Area (ha)	Weighted Runoff Coefficient (C)
W-01 (UNCONTROLLED)	0.009	0.28
WS-02 (UNCONTROLLED)	0.021	0.47
WS-03 (CONTROLLED IN CISTERN)	0.011	0.48

 Table 5: Post-Development Estimated Areas & Runoff Coefficients

WS-05 (RAMP - CONTROLLED IN CISTERN)	0.013	0.90
TOTAL	0.103	0.72

It was determined that it would be acceptable to control only the roof portion of the building up to the 100-year storm event, to a 2-year pre-development level. Based on these assumptions the allowable release rate of the site was calculated to equal **5.36L/s**. In post development, watersheds WS-03, WS-04 and WS-05 will be controlled via the cistern. They have a combined area of 0.074ha and a 100-year weighted runoff coefficient of 1.00. Therefore, it was determined that a total of 24.18m³ of storage would be required within the underground cistern. For release rate and storage calculations, refer to *Appendix D*. For additional information on cistern location etc., refer to drawing C.601 in *Appendix E*.

Table 6 below summarizes the release rates and storage volumes required to meet the allowable release rate of **5.36 L/s** for 100-year flow rates.

CATCHMENT AREAS	DRAINAGE AREAS (ha)	100-YEAR RELEASE RATE (L/s)	100-YEAR REQUIRED STORAGE (m ³)	TOTAL AVAILABLE STORAGE (m ³)
WS-03 (CONTROLLED IN CISTERN)	0.011			
WS-04 (ROOF - CONTROLLED IN CISTERN)	0.050	5.36	24.18	25.00
WS-05 (RAMP - CONTROLLED IN CISTERN)	0.013			
TOTAL CONTROLLED	0.074	5.36	24.18	25.00

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

To attenuate flows to the allowable release rate of **5.36** L/s, it is calculated that a total of **24.18** m^3 of storage will be required. The required storage is proposed to be met through an underground cistern. The total required storage, storage available and allowable release rate is the following;

- 24.18 m³ is required for underground cistern storage capacity corresponding to a maximum restricted flow of 5.36L/s via roof drain controls.
- The cistern will have a capacity of a minimum of 25.00 m³ of available storage. Exact cistern size and location will be confirmed during the detailed design stage.

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. For more details refer to drawing C101 Erosion and Sediment Control Plan in *Appendix E*.

9 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at 630 Montreal Road 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 to be **9,000 L/min** using the FUS method.
- There are at least two (2) existing fire hydrants available to service the proposed development. They will provide a combined fire flow of **9,463 L/min** to the site.
- The new development will be serviced via two (2) 150mm diameter service laterals separated by an isolation valve, that will be connected to the existing 406mm PVC watermain within Montreal Road.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

Sanitary Service

- The total calculated wet wastewater flow from the proposed development is **1.11 L/s**.
- The proposed development will discharge **1.11 L/s** to the existing 225 mm CONC sanitary sewer within Borthwick Avenue via a proposed 150mm PVC sanitary service lateral.

Stormwater Management

- The stormwater release rates from the proposed development will meet the calculated allowable release rate of **5.36L/s**.
- As per the pre-application consultation meeting with the City of Ottawa, only the roof portion of the building will be controlled up to the 100-year storm event, to a 2-year predevelopment level and the remainder of the site may be left uncontrolled and will be directed towards the right of way.
- The site stormwater quantity control objectives will be met through storage within an underground cistern. **24.18m³** of storage is required and there will be a minimum of **25.00m³** of storage capacity available within the cistern.

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.

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Prepared by: LRL Associates Ltd.

Sarthak Vora

Sarthak Vora, E.I.T Civil E.I.T



Mohan Basnet, P.Eng. Civil Engineer

APPENDIX A

Pre-consultation / Correspondance



Site Plan Control Pre-consultation 630 Montreal Road

Applicant: Max Mahi Owner: Max Mahi Meeting Date: February 2, 2021

Attendees: Applicant Team

Max Mahi Anissa Alami Merrouni Yves Lussier

City of Ottawa

Jean-Charles Renaud, Planner Randolph Wang, Urban Designer Jeff Nadeau, Planner (Committee of Adjustment) Reza B, Engineer Mark Richardson, Forester Jenny Kluke, Housing Developer Shukufa Sultonmamad, Planning Assistant

Meeting Notes & Comments

Proposal: The site of interest is located at 630 Montreal Road in a corner lot on the southeast side of Montreal Road and adjacent to Borthwick Avenue. The area surrounding the site of interest is well developed with two three-storey apartment buildings and a block comprised of two-storey townhouses to the south. The northern there is a car dealership, single storey strip mall, and a two storey office / commercial complex. The east portion includes a two storey and single-storey dwellings. The applicant is proposing a nine-storey mixed-use building with underground parking.

Planning Comments – Renaud, Jean – Charles

- How will loading and waste management function? Will everything be going through the underground garage? This is typical of a very urban environment, not of an Arterial Mainstreet environment.
 - Answer from applicant: Waste will be located in the basement. Someone will need to bring it up. Perhaps we could move the garbage to a room closer to the front of the property. Trucks for commercial loading would stop along Borthwick.

- The AM10 zone incorporates stepbacks which are meant to protect the residential neighbourhoods at the rear. Staff have concerns with the lack of adherence to these performance standards. The proposal may benefit from some articulation at the rear.
- Please provide a strong rationale for the relief requested, demonstrating how the proposal maintains the Zoning By-law's intent with the AM10 zone.
- The building's large footprint in relation to the size of the property is being detrimental to the amount of green space that can be provided around the building and is reducing opportunities to provide more plantings and trees. A rooftop green area is a positive element to the proposal, but it does not participate or add to the streetscape.
- Please contact Hydro Ottawa as soon as possible to discuss the powerlines located along the streets' edges.

Urban Design Comments- Randolph Wang

- A Design Brief is required for Site Plan Control application. The Terms of Reference of the Design Brief is attached for convenience.
- The site is within a Design Priority Area, a visit to the City's Urban Design Review Panel (UDRP) is required. Please visit the <u>UDRP website</u> for information and contact <u>udrp@ottawa.ca</u> for any questions. The applicant may also benefit from an informal preconsultation with the UDRP. The decision as to the need for a UDRP preconsulation can be made at the second preconsulation since changes to the design after yesterday's preconsultation are anticipated and a second preconsultation is expected.
- With respect to the design presented yesterday, the site organization, and scale of the building are generally appropriate for the context. However, The application should investigate and confirm regulations around the hydro lines along both Montreal Road and Borthwick Avenue. These may have significant impacts on the placement and massing of the proposed building.
- Moving forward as part of the urban design analysis, the applicant should investigate and illustrate both the existing conditions and development potentials on the abutting properties to understand the relationship and impacts.
- Please take into consideration the following in the revised design:
 - 1. Locate the main entrance and the emergency exit required by the Building Code on Borthwick Avenue to maintain the residential character of the street while allowing for increased flexibility for the commercial spaces.
 - 2. Provide sufficient floor to ceiling height of the ground floor, minimum 4.5m, frequently around 6.0m as proposed by many local developers.
 - 3. Examine the impact of potential development on abutting properties and adjust the floor plan layout accordingly to ensure access to natural light and privacy are protected in the long term.
 - 4. Consideration should be given to the base-middle-top design approach incorporating step backs at middle and top sections to reduce the impact of massing and open up sky views.
 - 5. Develop a calmed architecture expression.
 - 6. Explore opportunities to anchor the street corner.
 - 7. Develop an appropriate landscape plan.

Hope these are helpful. Please feel free to reach out if you have any questions.

Committee of Adjustment Planning Comments – Jeff Nadeau

Recommend advancing the site plan control application to a point where design issues have been substantially resolved before seeking minor variances.

Housing Comments – Jenny Kluke

If you are applying to CMHC National Housing Strategy funding programs to support this development, they may require a letter of support from the City of Ottawa. Please contact Jenny Kluke in the City's Affordable Housing Branch to discuss this further. Jenny can be reached at jenny.kluke@ottawa.ca.

Forester Comments – Mark Richardson

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

Soil Volume

Please ensure adequate soil volumes are met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

Sensitive Marine Clay

• Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

For additional information on the following please contact Tracy.Smith@Ottawa.ca

Engineering Comments- Reza Bakhit

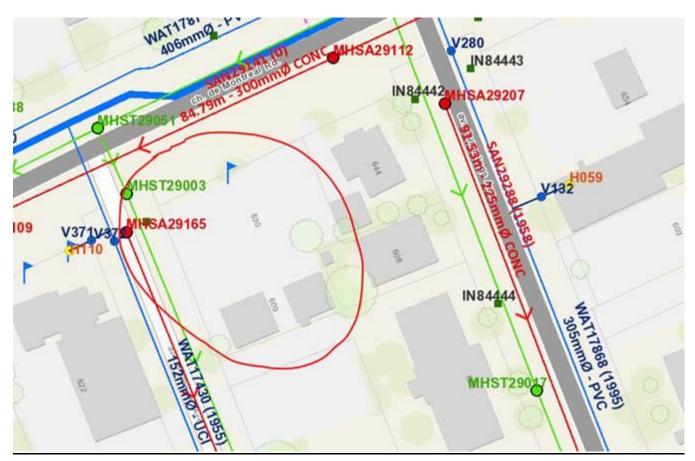
Please forward the below information to the applicant regarding a development proposal at 630 Montreal Road/609 Borthwick Ave. for 8-storey mixed-use building with 3 levels of underground parking. Note that the information is considered preliminary and the assigned Development Review Project Manager may modify and/or add additional requirements and conditions upon review of an application if deemed necessary.

General:

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an Existing Conditions Plan.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A legal survey plan shall be provided and all easements shall be shown on the engineering plans.
- An application to consolidate the parcels (630 Montreal road and 609 Borthwick Ave) of land will be required otherwise the proposed stormwater works will be servicing more than one parcel of land and thus does not meet the exemption set out in O.Reg. 525/98. This would mean an ECA would be required regardless of who owns the parcels.
- Concerns about roadway drainage spilling into the underground parking garage. Please make sure that the entrances to the underground garage is 0.30m higher than the spill point on the street. Entrance should not be located within a sag (low point) in the road.
- A deep excavation and dewatering operations have the potential to cause damages to the neighboring adjacent buildings/ City infrastructure. Document that construction activities (excavation, dewatering, vibrations associated with construction, etc.) will not have an impact on any adjacent buildings and infrastructure.

- A Record of Site Condition (RSC) in accordance with O.Reg. 153/04 will be required to be filed and acknowledged by the Ministry prior to issuance of a building permit due to a change to a more sensitive property use.
- Reference documents for information purposes :
- Ottawa Sewer Design Guidelines (October 2012)
- Technical Bulletin PIEDTB-2016-01
- Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
- Ottawa Design Guidelines Water Distribution (2010)
- Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
- City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
- City of Ottawa Environmental Noise Control Guidelines (January 2016)
- City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
- Ottawa Standard Tender Documents (latest version)
- Ontario Provincial Standards for Roads & Public Works (2013)
- Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at <u>InformationCentre@ottawa.ca</u> or by phone at (613) 580-424 x.44455).

Please note that this is the applicant responsibility to refer to the latest applicable guidelines while preparing reports and studies.



Disclaimer:

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Stormwater Management Criteria and Information:

- Water Quantity Control: In the absence of area specific SWM criteria please control postdevelopment runoff from the subject site, up to and including the 100-year storm event, to a 2-year pre-development level. The pre-development runoff coefficient will need to be determined as per existing conditions but in no case more than 0.5. [If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5]. The time of concentration (T_c) used to determine the predevelopment condition shall be 20min or can be calculated. [*T_c of 20 minutes should be used for all pre-development calculations without engineering justification, Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations].*
- Any storm events greater than the established 2-year allowable release rate, up to and including the 100-year storm event, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Please note that foundation drainage is to be independently connected to sewermain unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.
- Water Quality Control: Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- Please note that as per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* there shall be no surface ponding on private parking areas during the 2-year storm rainfall event.
- Underground Storage: Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.

In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

• Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.

- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A topographical plan of survey shall be provided as part of the submission and a note provided on the plans.
- Please provide a Pre-Development Drainage Area Plan to define the pre-development drainage areas/patterns. Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution.
- If rooftop control and storage is proposed as part of the SWM solutions sufficient details (CI. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a Roof Drain Plan as part of the submission.
- Investigate the implementation of LID features (i.e. permeable IPS) to reduce runoff however no credit shall be given in terms of stormwater management.

Storm Sewer:

- A 525 mm dia. CONC Combined sewer (1997) is available within Montreal Road.
- A 525 mm dia. CONC Combined sewer (1964) is available within Borthwick Ave.

Sanitary Sewer Maclaren St:

- A 300 mm dia. CONC Sanitary sewer is available within Montreal Road.
- A 225 mm dia. CONC Sanitary sewer is available within Borthwick Ave.
- An analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater system is required to be provided. Needs to be demonstrated that there is adequate capacity to support any increase in wastewater flow.
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01*.
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- A backwater valve is required on the sanitary service for protection.

Water:

- A 406 mm dia. PVC watermain (2006) is available within Montreal Road.
- A 152 mm dia. UCI watermain (1955) is available within Borthwick Ave.
- Existing residential service to be blanked at the main.
- Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m³/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the Ottawa Design Guidelines Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration. The basic day demand for this site not expected to exceed 50m³/day.
- Please review Technical Bulletin ISTB-2018-0, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal. Two or more public hydrants are anticipated to be required to handle fire flow.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000

persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.

- Type of Development and Units
- Site Address
- A plan showing the proposed water service connection location.
- Average Daily Demand (L/s)
- Maximum Daily Demand (L/s)
- Peak Hour Demand (L/s)
- Fire Flow (L/min)

[Fire flow demand requirements shall be based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection 1999]

Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).

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

Snow Storage:

 Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site please indicate this on the plan(s).

Permits and Approvals:

• Please note that this project will be subject to an Environmental Compliance Approval (ECA) for Private Sewage Works. (Any connection to a combined Sewer system required the Ministry (MECP) approval)

Required Engineering Plans and Studies: PLANS:

- Existing Conditions and Removals Plan
- Site Servicing Plan
- Grade Control and Drainage Plan
- Erosion and Sediment Control Plan
- Pre-Development Drainage Area Plan
- Post-Development Drainage Area Plan
- Roof Drainage Plan
- Foundation Drainage System Detail
- Topographical Plan of Survey
- Legal Survey Plan
- Site Lighting Plan

REPORTS:

- Site Servicing and Stormwater Management Report
- Geotechnical Study/Investigation
- Noise Control Study (assessment of stationery and transportation noise) (due to proximity (within 100m) of an existing arterial road (Montreal Road)).
- Phase I ESA
- Phase II ESA (Depending on recommendations of Phase I ESA)
- RSC (Record of the site Conditions)
- ECA (If the SWM system services two parcels)
- Site lighting certificate
- Wind analysis

Please refer to the City of Ottawa Guide to Preparing Studies and Plans [Engineering]: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/developmentapplication-review-process/development-application-submission/guide-preparing-studies-andplans#gravity-pipe-design-guidelines

Please ensure you are using current guidelines, by-laws and standards.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 4.8.4:

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

RSC (Record of the site Conditions)

• A RSC is required when changing the land use (zoning) of a property to a more sensitive land use.

Submitting a record of site condition | Ontario.ca

ECA application

• Environmental Compliance Approval (ECA) for stormwater works the services more than one parcel of land.

Environmental Compliance Approval | Ontario.ca

Geotechnical Investigation:

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of

groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long term damages associated with lowering the groundwater in this area.

• Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications.

https://documents.ottawa.ca/sites/default/files/documents/cap137602.pdf

Noise Study:

- A Phase 2 Noise Control Detailed Study is required as the subject site is within 100m of Bank Street (arterial road) that is considered a surface transportation noise source. Any existing and/or new stationary noise sources shall be identified and analyzed.
- Please note that an environmental noise assessment of any stationary noise sources (Stationary Noise Assessment) of the proposed development will be required to determine the affects of any proposed roof top units, etc. for this building as this noise may subject the tenants/owners of the upper level of the residential building, and the surrounding neighbours, to static noise levels that are beyond the acceptable limits.

• Noise Study shall be consistent with the City's Environmental Noise Control Guidelines. https://documents.ottawa.ca/sites/default/files/documents/enviro_noise_guide_en.pdf

Wind analysis:

• A wind analysis must be prepared, signed and stamped by an engineer who specializes in pedestrian level wind evaluation. Where a wind analysis is prepared by a company which do not have extensive experience in pedestrian level wind evaluation, an independent peer review may be required at the expense of the proponent.

Terms of Reference: Wind Analysis (ottawa.ca)

Exterior Site Lighting:

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

Please note that these comments are considered <u>preliminary based on the information</u> <u>available</u> to date and therefore maybe amended as additional details become available and presented to the City. It is the responsibility of the applicant to <u>verify the above information</u>. The applicant may contact me for follow-up questions related to engineering/infrastructure prior to submission of an application if necessary.

If you have any questions or require any clarification, please let me know.

Transportation Comments – Wally Dubyk

- Montreal Road is scheduled for sewer lining to start 1-2 years.
- Montreal Road is designated as a Design Priority Area.
- Montreal Road is designated as an Arterial road within the City's Official Plan with a ROW protection limit of 37.5 metres. The ROW protection limit and the offset distance (18.75 metres) are to be dimensioned from the existing centerline of pavement and shown on the drawings.
- ROW interpretation Land for a road widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of the widening if required by the City. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.
- Borthwick Avenue is classified as a Collector road. There are no additional protected ROW limits identified in the Official Plan.
- A 5.0 metres x 5.0 metres sight triangle would be required at the intersection of Montreal Road and Borthwick Avenue and is to be shown on all drawings. The sight triangle dimensions are to be measured from the protected ROW limits.
- All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend either above or below into the existing property lines, sight triangles and/or future road widening protection limits.
- The consultant should review the sight distance to the access and any obstructions that may hinder the view of the driver.
- The concrete sidewalks should be 2.0 metres in width and be continuous and depressed through the proposed accesses (please refer to the City's sidewalk and curb standards.
- The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.
- The proponent shall comply with the Private Approach By-Law 2003-447
- No private approach shall be constructed within 0.3 metres of any adjacent property measured at the highway line, and at the curb line or roadway edge.
- Ensure that the driveway grade does not exceed 2-6% within the private property for a distance of 9.0 metres from the ROW limit; see Section 25 (t) of the Private Approach By-Law #2003-447. Any grade exceeding 6% will require a subsurface melting device.
- Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather.

The TIA (Transportation Impact Assessment) Guidelines (2017) were approved by Transportation Committee and City Council on June 14, 2017. The new version of the TIA Guidelines (2017) that are posted on the web are now to be used for the TIA Submission for development applications.

The following list highlights the significant changes to the 2006 TIA Guidelines

1. A Screening Test (Step 1) quickly determines if a transportation study is required. Consultants should fill in the form in Appendix B.

- 2. Should the development generate 60 peak hour person trips, the TIA guidelines Step 2 Scoping report would be required.
- 3. Study Scope (Step 2) is site specifically tailored; there are no longer three defined types of TIA reports. Scoping report is required and needs to be signed off by TPM before the consultant moves on to Forecasting volumes.
- 4. Sign off from City Transportation Project Manager is required at key points in the review process prior to TIA Submission (Step 5). See Figure 1 on page 9 for a good flow chart of the process.
- 5. Multi Modal Level of Service (MMLOS) and Complete Street analysis is required to assess the impact of all modes of travel rather than just vehicle traffic.
- 6. There is no longer a requirement for consultant pre-approval. Consultants must now sign and submit the Credentials Form included in the Appendix A with each TIA report.
- 7. The TIA Submission (report, drawings and/or monitoring plan) is required with the development application.

Click on the website: www.ottawa.ca/TIA

A construction Traffic Management Plan is to be provided for approval by the Senior Engineer, Traffic Management, Transportation Services Dept.

Application Submission Information

Application Type: Site Plan Control, Standard, Staff Approval (based on plans discussed at the teleconference meeting of February 2, 2021)

For information on Site Plan Control Thresholds under the Site Plan Control By-law, please visit: <u>https://documents.ottawa.ca/sites/documents/files/siteplan_thresholds_en.pdf</u>

For information on Applications, including fees, please visit: <u>https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/fees-and-funding-programs/development-application-fees</u>

The application processing timeline generally depends on the quality of the submission. For more information on standard processing timelines, please visit: <u>https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/development-application-forms#site-plan-control</u>

Prior to submitting a formal application, it is recommended that you pre-consult with the Ward Councillor.

Application Submission Requirements

For information on the preparation of Studies and Plans and the City's Planning and Engineering requirements, please visit: <u>https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans</u>

Please provide electronic copy (PDF) of all plans and studies required.

All plans and drawings must be produced on A1-sized paper and folded to 21.6 cm x 27.9 cm ($8\frac{1}{2}$ "x 11").

Note that many of the plans and studies collected with this application must be signed, sealed and dated by a qualified engineer, architect, surveyor, planner or designated specialist.

Sarthak Vora

From:	Fawzi, Mohammed <mohammed.fawzi@ottawa.ca></mohammed.fawzi@ottawa.ca>	
Sent:	December 6, 2023 1:35 PM	
То:	Sarthak Vora	
Cc:	Mohan Basnet; Maxime Longtin; mmahi@mbgroupcanada.com; De Santi, Nadia	
Subject:	RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer	
	Capacity	

Hi Sarthak,

Apologies for not responding to that.

There are no concerns related to sanitary capacity.

Thank you.

Best Regards,

Mohammed Fawzi, P.Eng.

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

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

From: Sarthak Vora <svora@lrl.ca>
Sent: December 6, 2023 1:33 PM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Cc: Mohan Basnet <mbasnet@lrl.ca>; Maxime Longtin <mlongtin@lrl.ca>; mmahi@mbgroupcanada.com; De Santi, Nadia <nadia.de-santi@wsp.com>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

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Thankyou for this.

I am also awaiting confirmation on the Sanitary Sewer capacity along the Borthwick Avenue.



From: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Sent: December 6, 2023 10:32 AM
To: Sarthak Vora <<u>svora@lrl.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>; <u>mmahi@mbgroupcanada.com</u>; De Santi, Nadia <<u>nadia.de-santi@wsp.com</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

Hi Sarthak,

The following are boundary conditions, HGL, for hydraulic analysis at 630 Montreal Road (zone 1E) assumed to be a dual connection to the 406 mm watermain on Montreal Road (see attached PDF for location).

Minimum HGL: 109.9 m Maximum HGL: 118.3 m Max Day+ Fire Flow (150 L/s): 111.8 m

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

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

Best Regards,

Mohammed Fawzi, P.Eng.

Project Manager Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique Development Review - Central Branch City of Ottawa | Ville d'Ottawa 110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1 613.580.2424 ext./poste 20120, <u>Mohammed.Fawzi@ottawa.ca</u> **Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me**

From: Sarthak Vora <<u>svora@lrl.ca</u>>
Sent: December 6, 2023 10:01 AM
To: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>; <u>mmahi@mbgroupcanada.com</u>; De Santi, Nadia <<u>nadia.de-santi@wsp.com</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

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Hello Mohammed,

Just wanted to follow-up on my request for the boundary conditions. Shall I expect a confirmation sometime this week, as we are aiming to finalize our deliverables by the end of this week?

Thank you.

Sarthak Vora, EIT Civil Engineer-In-Training LRL Engineering | Irl.ca Cell: (613)915-7633 | svora@Irl.ca



From: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Sent: November 28, 2023 10:35 AM
To: Sarthak Vora <<u>svora@lrl.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

Hi Sarthak,

Thanks for the explanation.

This to confirm your request has been received. Results will be sent as soon as they are available.

Best Regards,

Mohammed Fawzi, P.Eng.

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

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

From: Sarthak Vora <<u>svora@lrl.ca</u>>
Sent: November 27, 2023 8:09 PM
To: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

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Hi Mohammed,

Attached is the plot of MOE Table 3-3 peaking factors.

It indicates that the dataset is non-linear, evident by the Power law fit distribution (R- squared value = 0.99). When compared to linear trendline, the R-squared value (0.8) is significantly lower. Therefore, in our opinion data interpolation using the Power law distribution align better with this data set. Hence, the average daily and maximum hourly peaking factors we have calculated are **5.95** and **8.94**.

Please advise if the city still intends to proceed with linear interpolation.

Thanks

Sarthak Vora, EIT Civil Engineer-In-Training LRL Engineering | Irl.ca Cell: (613)915-7633 | svora@Irl.ca



From: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Sent: November 27, 2023 8:33 AM
To: Sarthak Vora <<u>svora@lrl.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

Hi Sarthak,

Can you please confirm the peaking factors used? Interpolating the average daily and maximum hourly peaking factors, I calculated 7.13 and 10.7, respectively.

Thank you.

Best Regards,

Mohammed Fawzi, P.Eng.

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

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

From: Sarthak Vora <<u>svora@lrl.ca</u>>
Sent: November 24, 2023 10:40 AM
To: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

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Please find the Water demand and Fire flow (FUS) design calculation pdfs attached. Moreover, attached are the Peaking factor pdfs, justifying the interpolation values considered for the revised population.

Thank you.

Sarthak Vora, EIT Civil Engineer-In-Training LRL Engineering | <u>Irl.ca</u> Cell: (613)915-7633 | <u>svora@Irl.ca</u>



From: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Sent: November 24, 2023 9:52 AM
To: Sarthak Vora <<u>svora@lrl.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>
Subject: RE: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

Hi Sarthak,

Thank you for your email.

I kindly request if you can provide me with the water demand calculations as well a calculation sheet for the fire flow.

Thank you.

Best Regards,

Mohammed Fawzi, P.Eng.

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

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

From: Sarthak Vora <<u>svora@lrl.ca</u>>
Sent: November 24, 2023 9:30 AM
To: Fawzi, Mohammed <<u>mohammed.fawzi@ottawa.ca</u>>
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>
Subject: LRL210682- 630 Montreal Road Boundary Conditions Request & Sanitary Sewer Capacity

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

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

I would like to request boundary conditions and confirmation on the Sanitary sewer capacity for the proposed development located at 630 Montreal Road. It is proposed that one 10-storey building with two (2) underground parking levels will be developed on this site. The building will house a total of 56 units. We are proposing a dual service connection to the 406mm municipal watermain in Montreal Road (see image for connection points below). Please provide the boundary conditions for the two connections, using the following revised proposed development demands:

	Demand (L/s)
Avg. Daily	0.30
Max. Day + FUS	1.78 + 150
Peak Hour	2.67

Sanitary Connection

We also determined that the revised sanitary sewer discharge from the site would be equal to **1.11L/s**. We are proposing to tie into the 225mm CONC sanitary sewer located within Borthwick Avenue. Please confirm if the existing sanitary sewer will have sufficient capacity to accommodate our site.



I am currently working towards a pressing submission deadline and would greatly appreciate a prompt response from you.

Thank you

Sarthak Vora, EIT Civil Engineer-In-Training LRL Engineering | Irl.ca Cell: (613)915-7633 | svora@Irl.ca



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From: Tamara Harb
Sent: January 31, 2023 10:16 AM
To: ylussier@cdarchitecture.ca
Cc: Mohan Basnet <<u>mbasnet@lrl.ca</u>>; Maxime Longtin <<u>mlongtin@lrl.ca</u>>; Virginia Johnson <<u>vjohnson@lrl.ca</u>>
Subject: LRL210682.01 630 Montreal Road - Required info for Fire Flow Assumptions

Good morning Yves,

Hope this message finds you well.

Could you please provide the following information for the proposed building at 630 Montreal Road. We will need this as soon as possible to calculate the required fire flows and to request boundary conditions from the City of Ottawa.

- Please confirm the total building area (GFA) that is above ground. 5 390 s.m.
- Can you confirm if sprinklers are proposed for the building? If yes, will the sprinkler system be fully supervised and automatic? A sprinkler system will be used, it will be fully automatic.
- Please provide the **ISO class** for the building as per ISO Guide sections 1, 2 and 3. I have included a brief summary of ISO Guide (review chapter 2 for construction types) as well as the section from the City's technical bulletin.

Note that ISO refers only to fire-resistive for fire ratings not less than 1-hour.

The building will be non-combustible – Concrete structure and non combustible envelop (Steel studs construction with a masonry/concrete precast panel as the veneer)

A. Determine the type of construction.

Coefficient C in the FUS method is equivalent to coefficient F in the ISO method:

FUS type of construction	ISO class of construction	Coefficient C
Fire-resistive construction	Class 6 (fire resistive)	0.6
	Class 5 (modified fire resistive)	0.6
Non-combustible construction	Class 4 (masonry non-combustible)	0.8
	Class 3 (non-combustible)	0.8
Ordinary construction	Class 2 (joisted masonry)	1.0
Wood frame construction	Class 1 (frame)	1.5

Correspondence between FUS and ISO construction coefficients

However, the FUS definition of fire-resistive construction is more restrictive than those of ISO construction classes 5 and 6 (modified fire resistive and fire resistive). FUS requires structural members and floors in buildings of fire-resistive construction to have a fire-resistance rating of 3 hours or longer.

- With the exception of fire-resistive construction that is defined differently by FUS and ISO, practitioners can refer to the definitions of the ISO construction classes (and the supporting definitions of the types of materials and assemblies that make up the ISO construction classes) found in the current ISO guide [4] (see Annex i) to help select coefficient C.
- To identify the most appropriate type of construction for buildings of mixed construction, the rules included in the current ISO guide [4] can be followed (see Annex i). For a building to be assigned a given classification, the rules require 3/2 (67%) or more of the total wall area and 3/2 (67%) or more of the total floor and roof area of the building to be constructed according to the given construction class or a higher class.
- New residential developments (less than 4 storeys) are predominantly of wood frame construction (C = 1.5) or ordinary construction (C = 1.0) if exterior walls are of brick or masonry. Residential buildings with exterior walls of brick or masonry veneer and those with less than % (67%) of their exterior walls made of brick or masonry are considered wood frame construction (C = 1.5).
- E. Determine the increase or decrease for occupancy and apply to the value obtained in D above. Do not round off the answer.
 - The charge for occupancy class in the FUS method corresponds with the occupancy factor O in the ISO method (subtracting 1.00 from the ISO O factor values and converting to a percentage will yield the FUS charges):

FUS occupancy ISO occupancy combustibility Occupancy Occupancy class factor O class charge Non-combustible C-1 (non-combustible) -25% 0.75 0.85 Limited C-2 (limited combustibility) -15% combustible Combustible C-3 (combustible) No charge 1.00 Free burning C-4 (free burning) +15% 1.15 C-5 (rapid burning or flash burning) 1.25 Rapid burning +25%

Correspondence between FUS occupancy charges and ISO occupancy factors

- Practitioners can refer to the detailed definitions of the occupancy classes and associated lists of example occupancies from the current ISO guide [4] (reproduced in Annex ii) to select the most appropriate occupancy charge for a building.
- The rules provided in the current ISO guide [4] (see Annex ii) can be used to determine the most appropriate occupancy charge for buildings with multiple occupancies.
- For residential buildings, an occupancy charge of -15% should be used.
- · For consistency, fire flows should not be rounded at this step.

Please let me know if you have any questions.

Thank you,

TAMARA HARB, EIT, CPESC-IT

Civil Engineer in Training



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



Given the current COVID-19 situation, please be aware that LRL has implemented alternative working conditions for our team.

Many of us have now transitioned to working from home; however, communication and workability remains one of our top priorities.

We will continue to be reachable by cell phone or by calling LRL at 613-842-3434 which will prompt you to enter the extension of the person you are trying to reach.

In addition, we will continue to have access to all e-mail correspondence and do our best to return all inquiries in a timely manner.

APPENDIX B

Water Supply Calculations & Fire Hydrant Coverage





LRL File No. 210682 Date 2023-11-22 Prepared by Sarthak Vora Location 630 Montreal Road

ENGINEERING I INGÉNIERIE

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

Domestic Demand											
Unit Type	Persons Per Unit	Number of Units	Population								
1 Bedroom	1.4	37	51.8								
2 Bedroom	2.1	19	39.9								
	Total	56	91.7								

*Based on a daily demand of 280L/day per person as identified by Appendix 4-A of the Sewer design guidelines.

Average Water Consumption Rate	280	L/c/d					
Average Day Demand	25,676	L/d	0.30 L/s				
Maximum Day Factor	Factor 5.95 Table (3-3) MOI						
Maximum Daily Demand	152,890	L/d	1.77 L/s				
Peak Hour Factor	8.94		Table (3-3) MOE Peaking Factors				
Maximum Hour Demand	229,489	L/d	2.66 L/s				

Institutional / Commercial / Industrial Demand												
Property Type Unit Rate Units												
Commercial	28000 L/ha/d	0.02065 ha	578.2									

ble 4.2)
ble 4.2)

TOTAL DEMAND											
Average Day Demand	26,254 L/d	0.30	L/s								
Maximum Daily Demand	153,758 L/d	1.78	L/s								
Maximum Hour Demand	231,050 L/d	2.67	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/πV) ^{1/2}	
=	0.043	m
=	43	mm
Proposed pipe diameter (d) =	150	mm
=	6	Inches

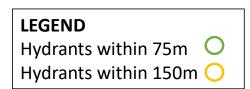


Fire Flow Calculations

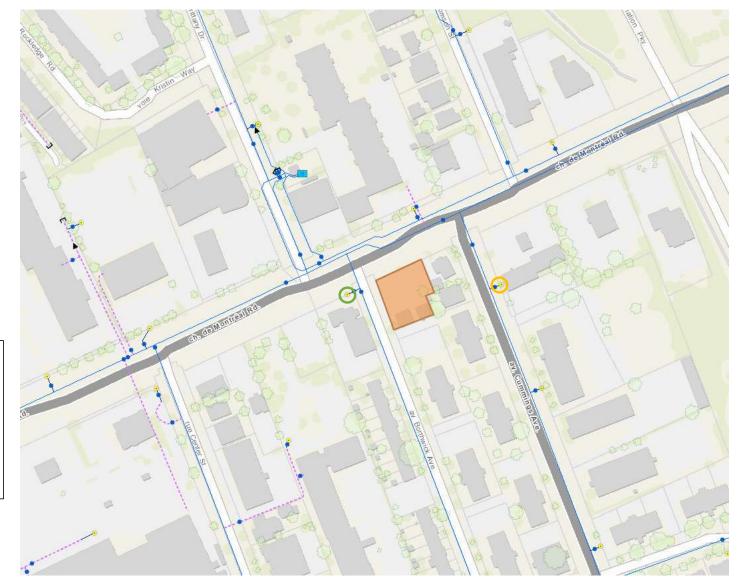
LRL File No.	210682
Date	November 21, 2023
Method	Fire Underwriters Survey (FUS)
Prepared by	Sarthak Vora
Location	630 Montreal Road

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow	
		·	Structural Framing Material						
			Wood Frame						
	Ohanna fransa and fra	Coofficient C	Ordinary Construction	1.0					
1	Choose frame used for building	related to the type of construction	Non-combustible construction	0.8	Non-combustible construction	0.8			
	building		Fire resistive construction <2 hrs	0.7					
			Fire resistive construction >2 hrs	0.6					
			Floor Space Area (A)						
2			Total area			2,964	m ²		
3	Obtain fire flow before reductions	$Fire Flow = 220 \times C \times \Lambda^{0.3}$							
	1		Reductions or surcharge due to factors aff	ecting burning]				
			Non-combustible	-25%					
		Occupancy hazard reduction or	Limited combustible	-15%					
4	Choose combustibility of contents	surcharge	Combustible	0%	Limited combustible	-15%	L/min	8,500	
	or contents		Free burning	15%					
			Rapid burning	25%					
			Full automatic sprinklers	-30%	True	-30%			
5	Choose reduction for sprinklers	for Sprinkler reduction	Water supply is standard for both the system and fire department hose lines	-10%	True -		L/min	5,100	
			Fully supervised system	-10%	False	0%			
			North side	>30m	0%				
6	Choose separation	Evenanura diatanaa batwaan unita	West side	10.1 to 20m	15%		L/min	9,350	
0		Exposure distance between units	East side	3.1 to 10m	20%		L/mm	9,330	
			South side 10.1 to 2		n 15% 50%				
			Net required fire flow						
	Obtain fire flow,			Minimum	required fire flow rate (rounded to n	earest 1000)	L/min	9,000	
7	duration, and volume				Minimum required	fire flow rate	L/s	150.0	
					Required duration	on of fire flow	hr	2	

FIRE HYDRANTS LOCATIONS 630 Montreal Road



Distance to	Maximun	n Capacity ^b			
(ft)	(m)	(gpm)	(L/min)		
≤ 250	≤ 76	1500	5678		
> 250 and ≤ 500 > 500 and	> 76 and ≤ 152	1000	3785		
≤ 1000	$>\!152$ and ≤ 305	750	2839		



APPENDIX C

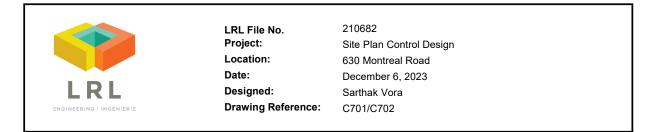
Wastewater Collection Calculations

									Sanitary Design Parameters										Pipe Design Parameters								
illower 1	LRL File No Project: Location: Date:			210682 Site Plan Control Design 630 Montreal Road November 21, 2023												Light Industrial Flow = 35000 L/ha/dayDaily Flow for Places of Employment = 75L/p/dayMinimum VeloHeavy Industrial Flow = 55000 L/ha/dayIndustrial Peak Factor = as per Appendix 4-B = 7Manning*Maximum Residential Peak Factor = 4.0Extraneous Flow = 0.33L/s/gross haManning*						num Veloc Manning's r		n/s			
	LOCATION			RESIDEN	FIAL AREA		JLATION	COMMERCIAL INDUSTRIAL OFFICE C+I+I INFILTRATION PIPE																			
STREET	FROM	то	AREA (Ha)	POP.	CUMM AREA (Ha)	ULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FACT.	POP	ACCU. POP	PEAK FLOW (I/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (I/s)	TOTAL FLOW (I/s)	LENGTH (m)	DIA. (mm)	SLOPE (%)	MATERIAL	CAP. (FULL) (I/s)	VEL. (FULL) (m/s)	
Borthwick Ave	Bldg	EX 225 CONC SAN SEWER	0.103	91.7	0.103	91.7	3.6	1.07	0.021	0.021	0.00	0.00	7.0	0.0	0.0	0.01	0.103	0.103	0.03	1.11	8.7	150	2.00%	PVC	21.54	1.22	
												<u> </u>		Design		<u> </u>	I						J OJECT:				
NOTES	Existing inverts	and slopes ar	e estimate	ed. They are	to be confir	med on-site						J		Checke	SV ed:						S		Control De CATION:	esign			
														Check	MB								ntreal Roa	ad			
														Dwg. F	Reference: C.401		File Ref.:	210	682		Date:	202	3-11-21			Shee 1 o	

APPENDIX D

Stormwater Management Calculations

LRL Associates Ltd. Storm Watershed Summary



Pre-Development Catchments

WATERSHED	C = 0.2	C=0.7	C = 0.90	Total Area (m ²)	Total Area (ha)	Combined C
EWS-01	0.0	0.0	1033.9	1033.9	0.103	0.90
TOTAL	0.0	0.0	1033.9	1033.9	0.103	0.90

Post-Development Catchments

WATERSHED	C = 0.20	C = 0.70	C = 0.90	Total Area (m ²)	Total Area (ha)	Combined C
W-01 (UNCONTROLLED)	78.30	14.74	0.00	93.04	0.009	0.28
WS-02 (UNCONTROLLED)	113.61	41.30	50.65	205.56	0.021	0.47
WS-03 (CONTROLLED IN CISTERN)	55.92	26.35	24.70	106.97	0.011	0.48
WS-04 (ROOF - CONTROLLED IN CISTERN)	0.00	0.00	502.52	502.52	0.050	0.90
WS-05 (RAMP - CONTROLLED IN CISTERN)	0.00	0.00	125.78	125.78	0.013	0.90
TOTAL	247.8	82.4	703.7	1033.9	0.103	0.72



Runoff Equation

2 year storm

LRL File No. 210682 Project: Site Plan Control Design Location: 630 Montreal Road Date: December 6, 2023 Designed: Sarthak Vora Drawing Ref.: C601

= A / (Td + C)^B

a = 732.951 b = 0.810 C = 6.199

C =	0.50	max of 0.5 as per City of Ottawa
Tc =	76.8 10	mm/hr min
Total Area =	0.050	ha

Allowable Release Rate= 5.36 L/s

 $\begin{array}{l} \textbf{Q} = \textbf{2.78CIA} (L/s) \\ \textbf{C} = \text{Runoff coefficient} \\ \textbf{I} = \text{Rainfall intensity (mm/hr)} \\ \textbf{A} = \text{Area (ha)} \\ \textbf{T}_c = \text{Time of concentration (min)} \end{array}$

I2 = 732.95 / (Td + 6.199)^{0.81}

Pre-development Stormwater Management - 2 Year Storm

Post-development Stormw	Post-development Stormwater Management												
	∑R _{2&5}	∑ R 100											
		Area	ha	∑R=									
	WS-03 (CONTROLLED IN CISTERN)	0.011	ha	R=	0.48	0.61							
Controlled	WS-04 (ROOF - CONTROLLED IN CISTERN)	0.050	ha	R=	0.90	1.00							
	WS-05 (RAMP - CONTROLLED IN CISTERN)	0.013	ha	R=	0.90	1.00							
	Total Controlled	0.074	ha	∑R=	0.84	1.00							

		Post	development Stormwate	er Management (WS-03, W	S-04 AND WS-05	CISTERN)	
Year Storm Event:							
I ₁₀	_o = 1735.688 / (To	i + 6.014) ^{0.820}		a =	1735.688	b = 0	0.820 C = 6.014
			Storage Require	d			
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	36.50	18.68	5.36	0.00	5.36	
15	142.9	29.21	21.46	5.36	0.00	5.36	
20	120.0	24.52	22.98	5.36	0.00	5.36	
25	103.8	21.23	23.79	5.36	0.00	5.36	
30	91.9	18.78	24.14	5.36	0.00	5.36	
35	82.6	16.88	24.18	5.36	0.00	5.36	
40	75.1	15.36	23.99	5.36	0.00	5.36	
45	69.1	14.11	23.62	5.36	0.00	5.36	
50	64.0	13.07	23.12	5.36	0.00	5.36	
60	55.9	11.43	21.82	5.36	0.00	5.36	
70	49.8	10.18	20.21	5.36	0.00	5.36	
80	45.0	9.20	18.39	5.36	0.00	5.36	
90	41.1	8.40	16.41	5.36	0.00	5.36	
100	37.9	7.75	14.30	5.36	0.00	5.36	
110	35.2	7.20	12.08	5.36	0.00	5.36	
120	32.9	6.72	9.79	5.36	0.00	5.36	
		A	Total Storage Required = vailable Cistern Storage =		m ³ m ³		ill be directed to the underground cistern area drains. Where the cistern will contro

SUMMARY OF RELEASE RATES AND STORAGE VOLUMES											
CATCHMENT AREAS	DRAINAGE AREAS (ha)	100-YEAR RELEASE RATE (L/s)	100-YEAR REQUIRED STORAGE (m3)	TOTAL AVAILABLE STORAGE (m3)							
WS-03 (CONTROLLED IN CISTERN)	0.011										
WS-04 (ROOF - CONTROLLED IN CISTERN)	WS-04 (ROOF - 0.050		24.18	25.00							
WS-05 (RAMP - CONTROLLED IN CISTERN)	0.013										
TOTAL	0.074	5.36	24.18	25.00							

LRL Associates Ltd. Storm Design Sheet



LRL File No.210682Project:Site Plan Control DesignLocation:630 Montreal RoadDate:December 6, 2023Designed:Sarthak VoraDrawing Reference:C.401

	Storm Do	esign Parameters	
Rational Method Q = 2.78CIA			Ottawa Macdonald-Cartier International Airport IDF curve
			equation (10 year event, intensity in mm/hr)
Q = Peak flow in litres per second (L/s)	Runoff Coefficient (C	:)	l100 = 1735.688 / (Td + 6.014)0.820
A = Drainage area in hectares (ha)	Grass	0.20	Min. velocity = 0.80 m/s
C = Runoff coefficient	Gravel	0.70	Manning's "n" = 0.013
I = Rainfall intensity (mm/hr)	Asphalt / rooftop	0.90	

LO	CATION			AREA (ha)				F	LOW					Ş	STORM S	EWER			
Watershed	From	То	C = 0.20	C = 0.70	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc. (min.)	Rainfall Intensity (mm/hr)	Peak Flow Q (L/s)	Controlled Flow Q (L/s)	Pipe Diameter (mm)	Туре	Slope (%)	Length (m)	Capacity Full (L/s)	Velocity Full (m/s)	Time of Flow (min.)	Ratio (Q/Q _{FULL})
WS-03 to WS-05 (Directed to Underground Cistern)	BUIDLING	EX 525mm dia. STM Sewer in Borthwick Ave.	0.006	0.003	0.065	0.172	0.172	10.00	178.6	30.65	5.36	250	PVC	2.00%	5.6	84.1	1.71	0.05	0.36

APPENDIX E

Civil Engineering Drawings

SITE PLAN CONTROL DESIGN 63 MONTREAL ROAD, OTTAWA ON

SUBMISSION 02



KEY PLAN (N.T.S.)

DRAWING INDEX

TITLE PAGE

SEDIMENT AND EROSION CONTROL PLAN

GRADING AND DRAINAGE PLAN SERVICING PLAN

STORMWATER MANAGEMENT PLAN

PRE-DEVELOPMENT WATERSHED PLAN

POST-DEVELOPMENT WATERSHED PLAN

CONSTRUCTION DETAIL PLAN

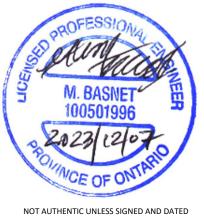


ENGINEERING | INGÉNIERIE

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

C101	
C301	
C401	
C601	
C701	
C702	
C901	





GENERAL NOTES

- 1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS). WHERE APPLICABLE, LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
- 2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
- 3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTORS TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT CONTRACTORS EXPENSE. 4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE
- RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS 5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 'OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR
- CONSTRUCTION PROJECTS. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE 'CONTRACTOR' AS DEFINED IN THE ACT. 6. ALL THE CONSTRUCTION SIGNAGE MUST CONFIRM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO MANUAL OF UNIFORM TRAFFIC
- CONTROL DEVICES PER LATEST AMENDMENT. 7. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
- 8. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
- 9. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER 10. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT
- 11 FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT 12. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL
- INSTRUMENT PRIOR TO BACKFILLING.
- 13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME. 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS
- SPECIFIED BY OPSD IS EXCEEDED.
- 15. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS. 16. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
- 17. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL. 18. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
- 19. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS. 20.BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

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

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER. AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS. AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE SEDIMENT RELEASE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO THE FOLLOWING METHODS: SEDIMENT PONDS FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY AS SUCH THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING ARE ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FRO EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BRACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR TAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

- 1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE,
- STEAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED. 2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT
- 3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT. THE CONTRACTOR SHALL:
- 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS,
- 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT. 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING

MUD MAT NOTES

JURISDICTION

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.

2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY. 3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

- 1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER FROSION CONTROL PLAN
- 2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS
- OF CONSTRUCTION.
- AND OPSS 310.

- REQUIRED BY THE MUNICIPALITY.
- 11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS. 12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
- 13. SIDEWALKS TO BE 13MM & BEVELED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES
- REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.8.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS

ROADWORK SPECIFICATIONS

- 15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT.
- STOCK PILLED ON SITE AS DIRECTED BY NATIONAL MUNICIPALITY.
- 17. THE SUBGRADE SHALL BE CROWNED AND SLOPED AT LEAST 2% AND PROOF ROLLED WITH HEAVY ROLLERS.

- INSTALLED AT ALL RAMPS. MATERIAL TO BE POLYMER COMPOSITE, COLOR GREY.

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

- 1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
- AND AT 60M INTERVALS IN THE SERVICE TRENCHES
- PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
- 6. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE
- ADJUSTING UNITS ON THE OUTSIDE ONLY.
- 7. SAFETY PLATFORMS SHALL BE PER OPSD 404.02. 8. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
- SATISFACTION OF THE ENGINEER.
- 10. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

<u>SANITARY</u>

- STANDARD DRAWINGS (OPSD). AND SPECIFICATIONS (OPSS).
- AMENDMENT, UNLESS SPECIFIED OTHERWISE.
- 13. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
- OTHERWISE
- 16. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.

<u>STORM</u>

DRAWING SSP-1.

- GASKETS AS PER CSA A257.3. OR LATEST AMENDMENT.

- 21. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
- 22. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
- 23. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
- MADE NECESSARY BY THE WIDENED TRENCH
- APPLICABLE
- 28. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.

WATERMAIN

WATERMAIN

THE SEWER.

BACK FROM STUB.

- DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
- 33. ALL WATER SERVICES LESS THAN OR EQUAL TO 50MM IN DIAMETER TO BE TYPE 'K' COPPER.

- OTTAWA STD. W.36

49 ALL WATERMAINS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.

OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.

FINISHED GRADE AT HYDRANT: FIRE HYDRANT LOCATION AS PER STD DWG W18. 47. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M 48. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS

45. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20. 46. FIRE HYDRANT INSTALLATION AS PER STD DWG W19, ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED

44. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.

43. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.5M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM

41. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25,2 AND W25, RESPECTIVELY. 42. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN

40. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE

38. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6. 39. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.

36. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD.25.5 AND W25.6. 37. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.

AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER. 35. ALL PVC WATERMAINS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF

34. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17. UNLESS SPECIFIED OTHERWISE. BEDDING

32. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.

31. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD

29. ALL STORM SEWER/ CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE. 30. ALL STORM MANHOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP AS PER SDG, CLAUSE 6.2.6.

26. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1 UNLESS OTHERWISE NOTED. 27. PERFORATED SUBDRAIN FOR REAR YARD AND LANDSCAPING APPLICATIONS SHALL BE INSTALLED PER CITY STD S29, S30 AND S31, WHERE

EXCEEDED, THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS

24. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE. 25. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS

20. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.

19. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.

18. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2, OR LATEST AMENDMENT. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER

17. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON

15. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.

14. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED

11. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL 12. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST

407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO

9. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDING IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE

3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED. 4. ALL SEWER SERVICE LATERALS SHALL HAVE A MIN. 2.0M OF EARTH COVER OR ARE SUBJECT TO INSULATION DETAIL. 5. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD

2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES

18 SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A' TYPE ILCOMPACTED IN MAXIMUM 300MM LIFTS 19. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD). 20. CONCRETE RAMP C/W TACTILE WALKING SURFACE INDICATORS COMPONENT AS PER OPSD 310.039. TACTILE WALKING SURFACE INDICATORS TO BE

16. AL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND

14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING. 9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF 10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.

6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 30MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA. 7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 30MM LIFTS.

5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010

CONCRETE ISLANDS, AND SIDEWALKS SHOWN O THIS DRAWING ARE TO BR PRICED IN SITE WORKS PORTION OF THE CONTRACT.

4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1.1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS,

3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. T CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO T WNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF E CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AN WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORL IOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAM MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER ONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. T ONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMS WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR AS INSTRUMENTS OF SERVICE, ALL OPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT. INCLUDING REPEATS OF THE PROJECT ANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEE

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION". THESE DRAWINGS HALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED ANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS HE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT TH WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING

UNAUTHORIZED CHANGES: IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OF

ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BI MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTH CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FU RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIEN AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY IABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED

IN ADDITION. THE CLIENT AGREES. TO THE FULLEST EXTENT PERMITTED BY LAW O INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OF ODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRICE WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

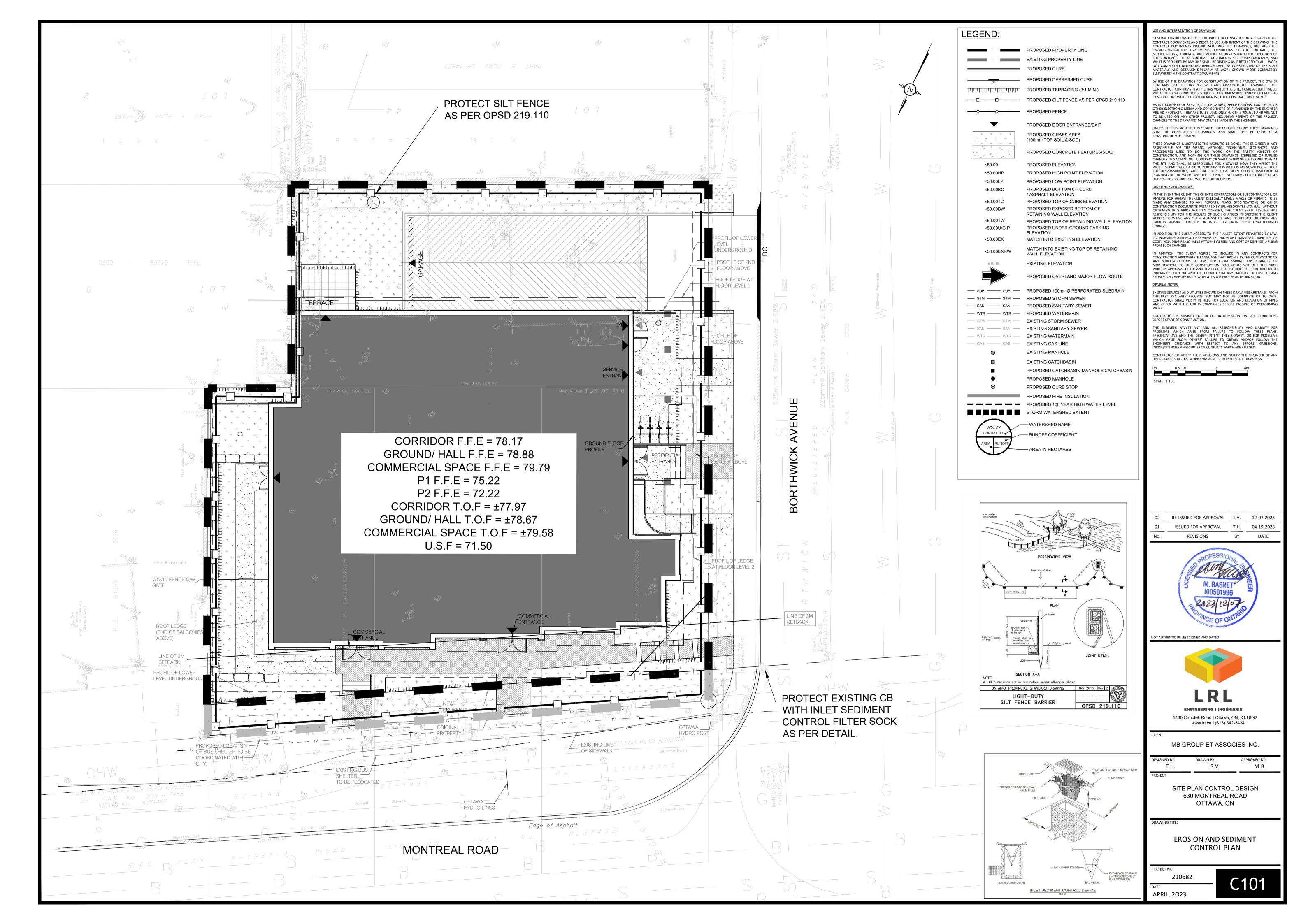
GENERAL NOTES:

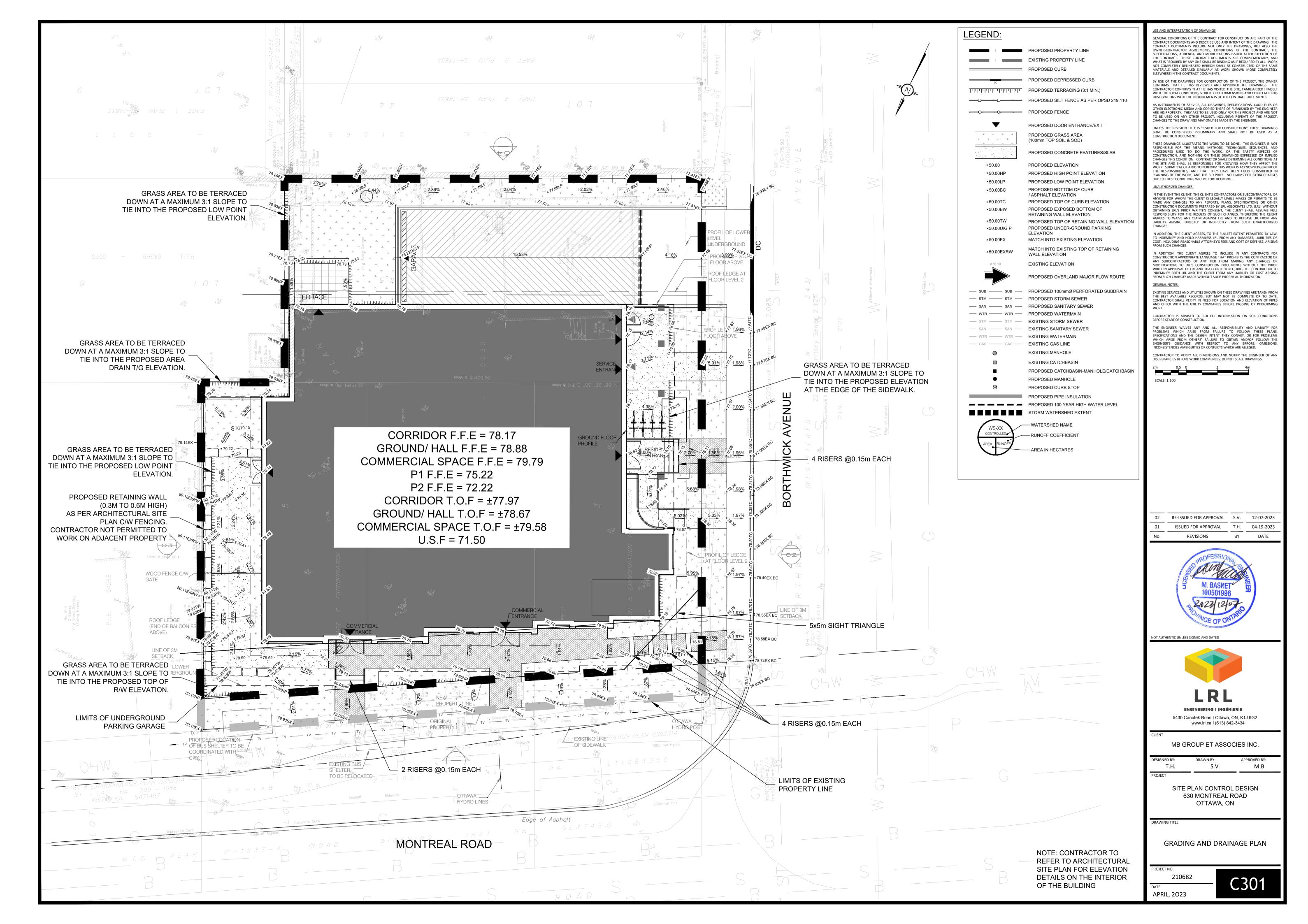
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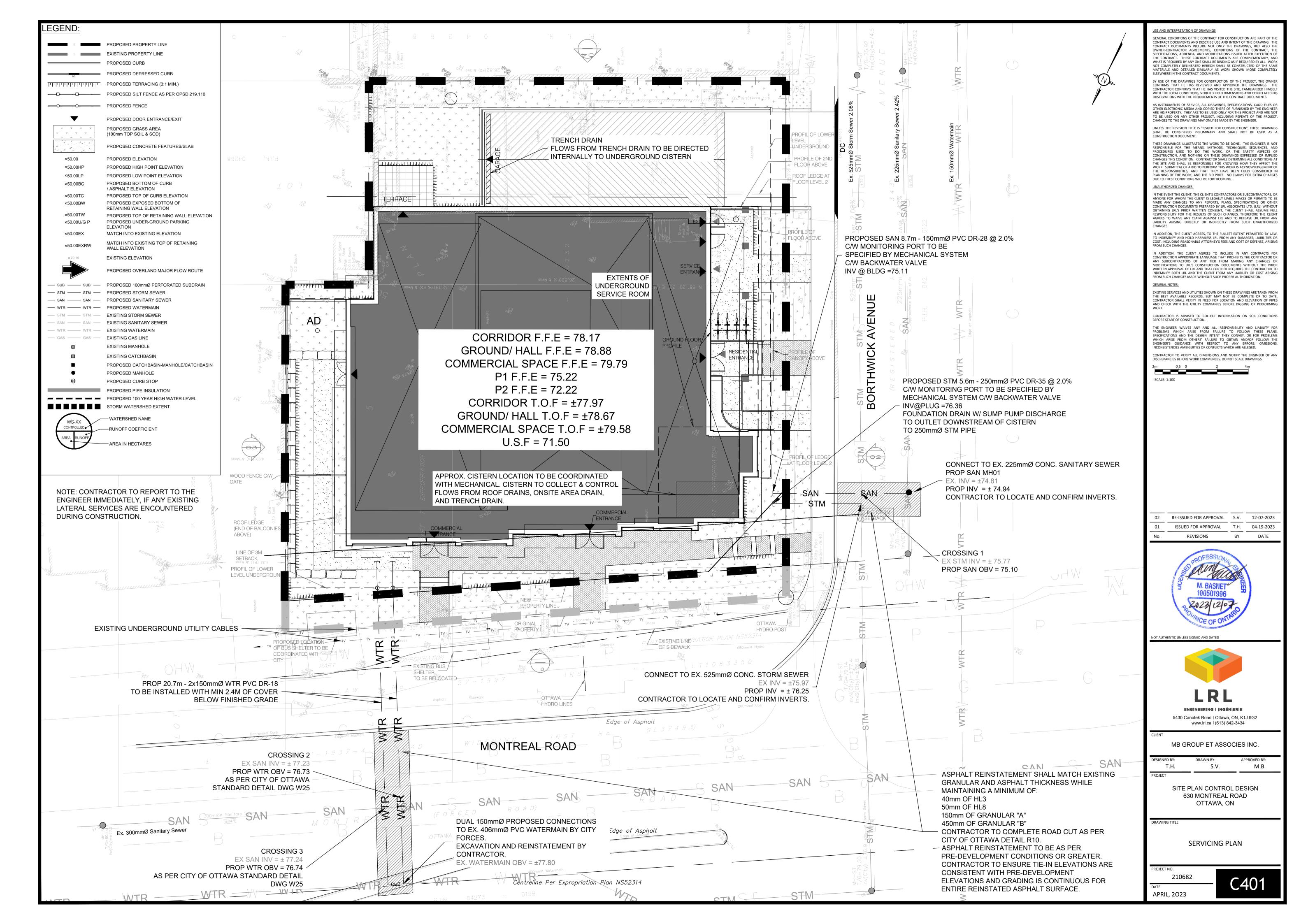
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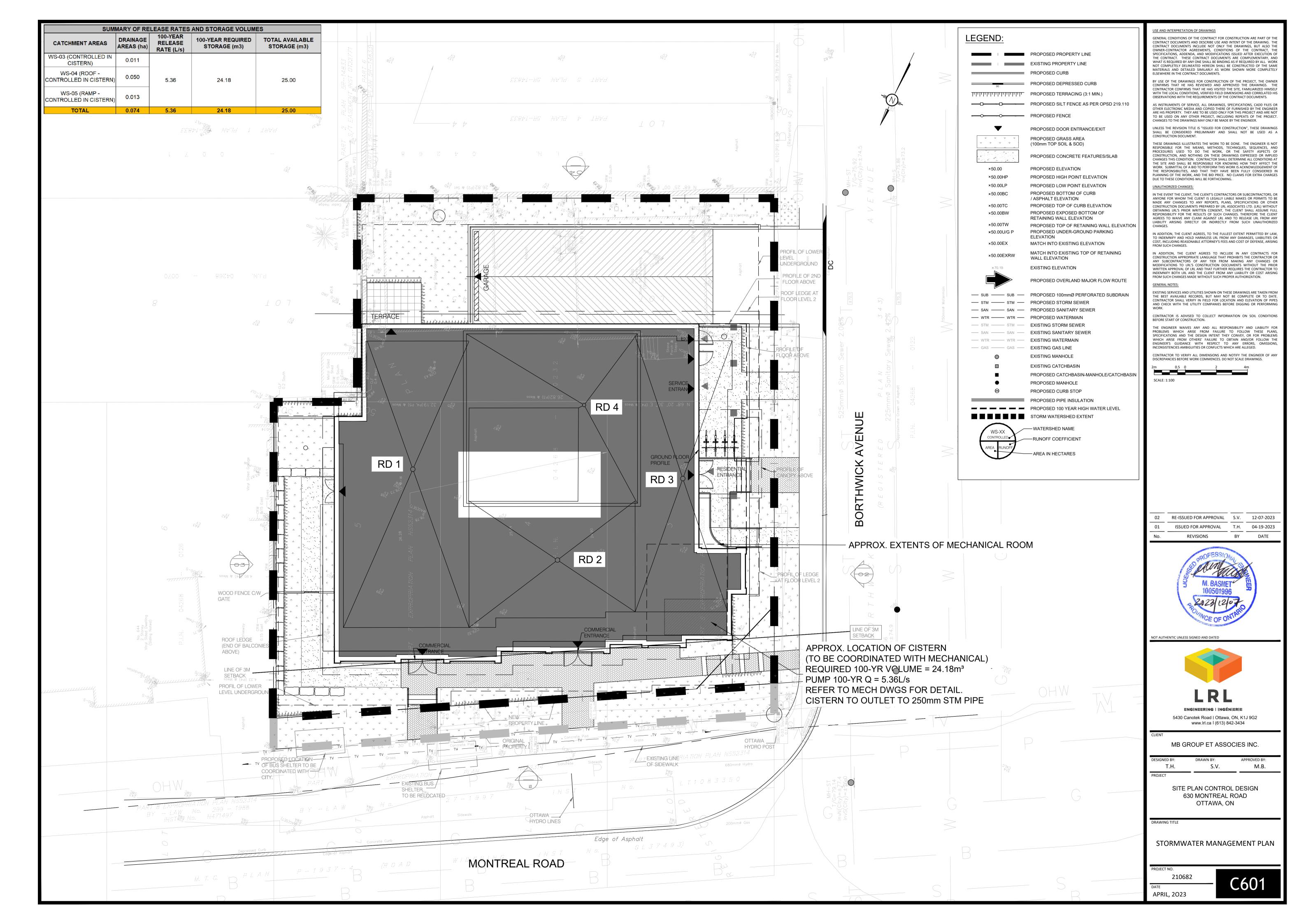
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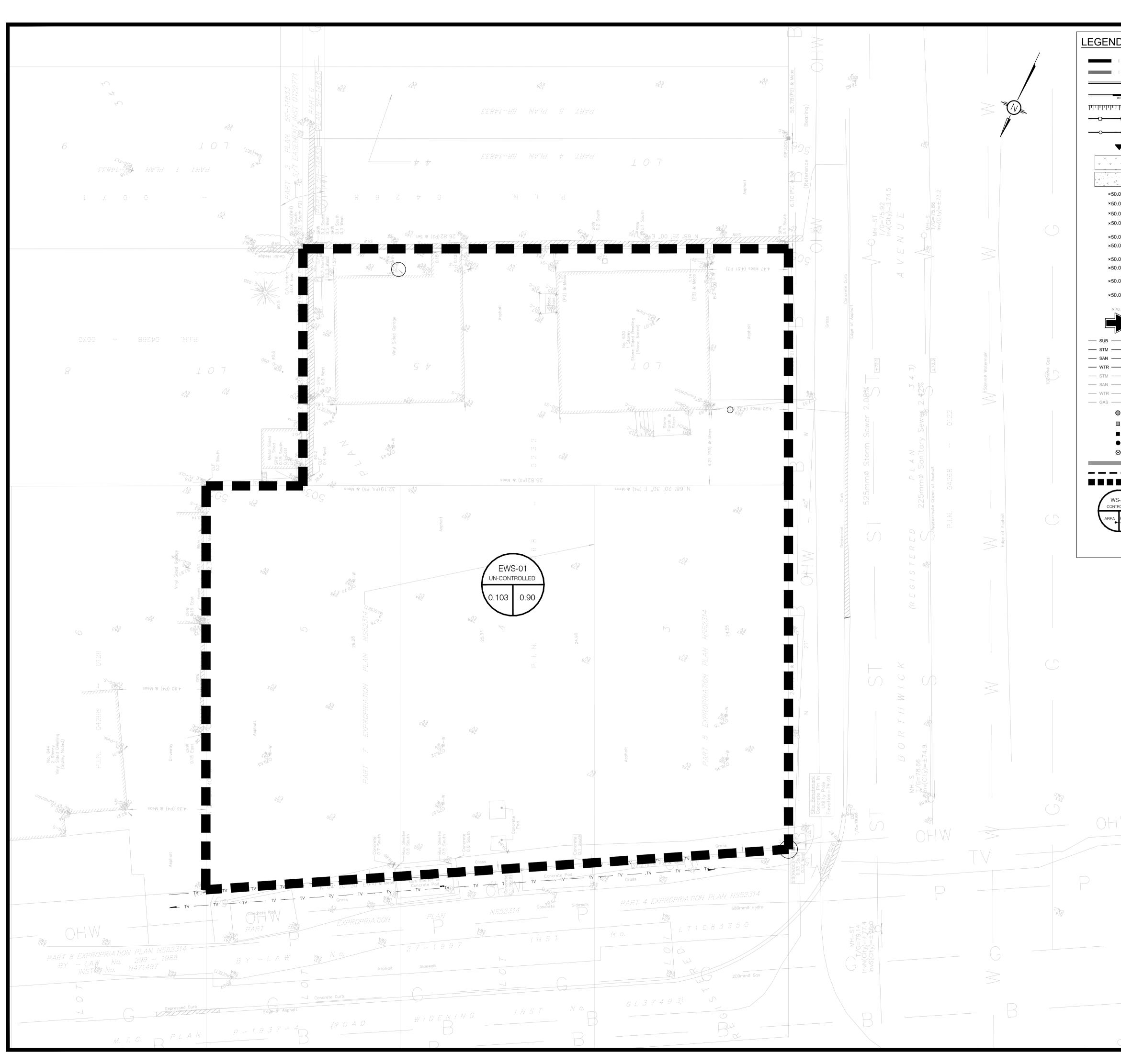
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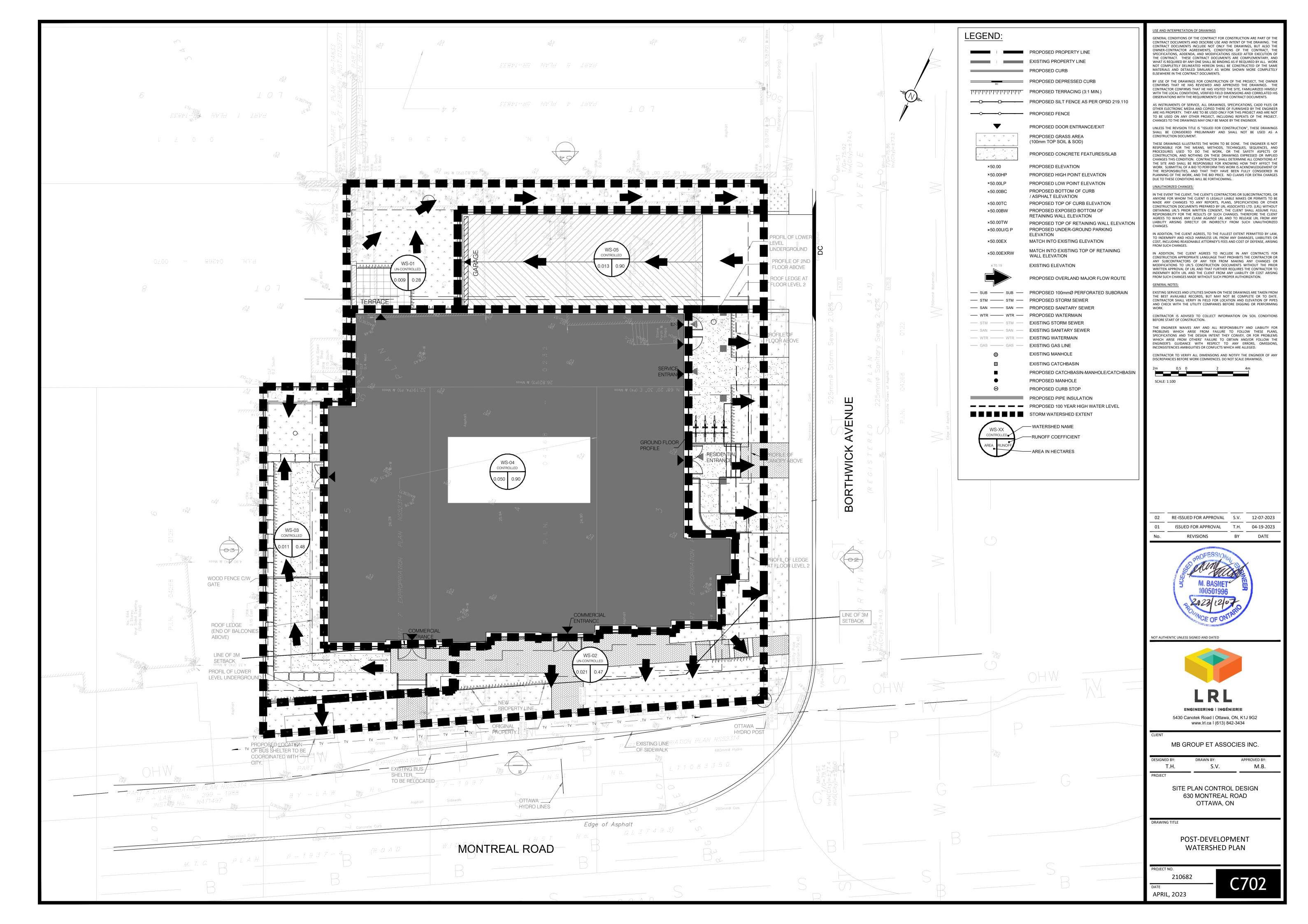


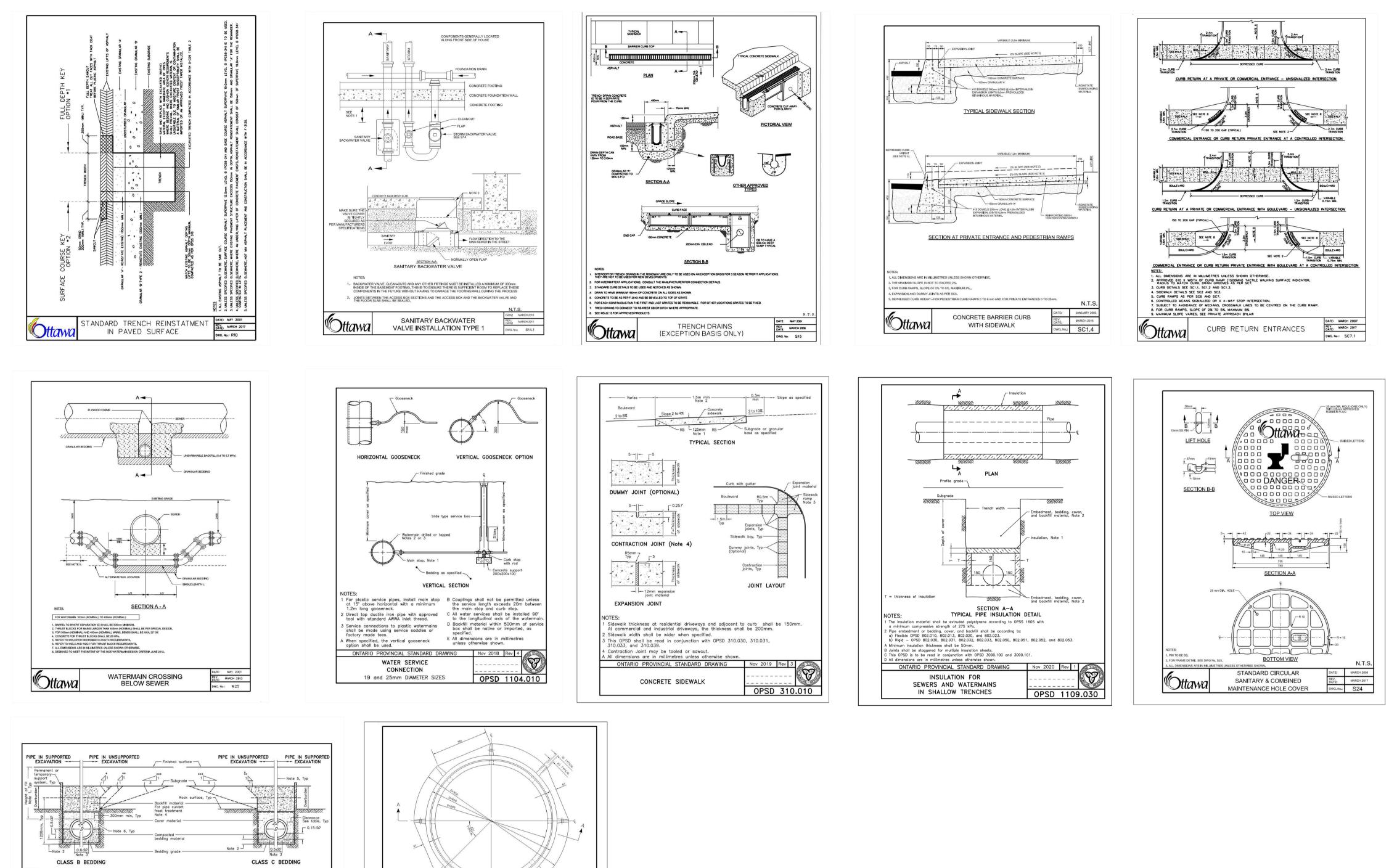


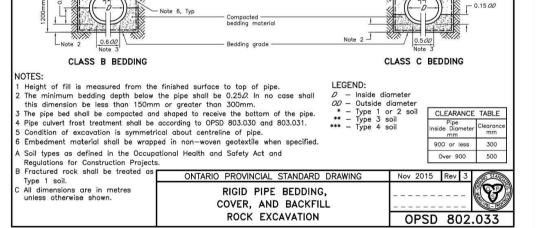


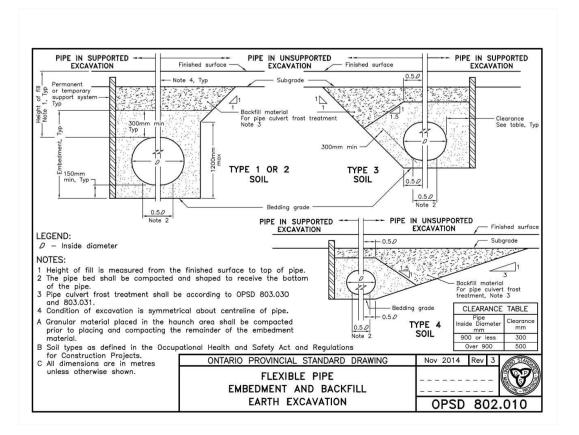


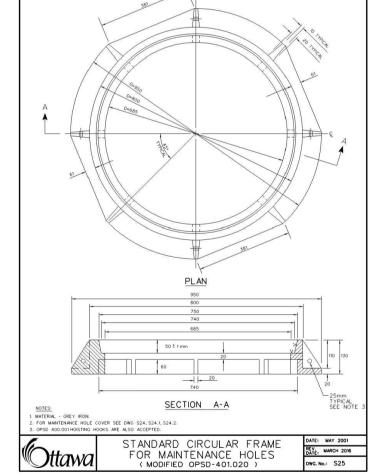
		USE AND INTERPRETATION OF DRAWINGS
<u>ID:</u>		GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE
	PROPOSED PROPERTY LINE	OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND
	EXISTING PROPERTY LINE PROPOSED CURB	WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.
DC	PROPOSED DEPRESSED CURB	BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE
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	PROPOSED SILT FENCE AS PER OPSD 219.110 PROPOSED FENCE	AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT
▼	PROPOSED DOOR ENTRANCE/EXIT	TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER. UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS
▼ ↓ ↓ ↓	PROPOSED GRASS AREA	SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.
A A A	(100mm TOP SOIL & SOD)	THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF
⁴	PROPOSED CONCRETE FEATURES/SLAB	CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF
60.00HP	PROPOSED HIGH POINT ELEVATION	THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.
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60.00BW	PROPOSED EXPOSED BOTTOM OF RETAINING WALL ELEVATION	OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY
50.00TW 50.00U/G P	PROPOSED TOP OF RETAINING WALL ELEVATION PROPOSED UNDER-GROUND PARKING	LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES. IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW,
60.00EX	ELEVATION MATCH INTO EXISTING ELEVATION	TO INDEMNIFY AND HOLD HARMLESS LEL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.
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< 70.19	EXISTING ELEVATION	MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING
	PROPOSED OVERLAND MAJOR FLOW ROUTE	FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.
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SAN	PROPOSED SANITARY SEWER	AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.
WTR STM	PROPOSED WATERMAIN EXISTING STORM SEWER	CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION. THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR
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		5430 Canotek Road I Ottawa, ON, K1J 9G2 www.lrl.ca I (613) 842-3434
		CLIENT
		MB GROUP ET ASSOCIES INC.
		DESIGNED BY: DRAWN BY: APPROVED BY:
		T.H. S.V. M.B.
		SITE PLAN CONTROL DESIGN
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USE AND INTERPRETATION OF DRAWINGS

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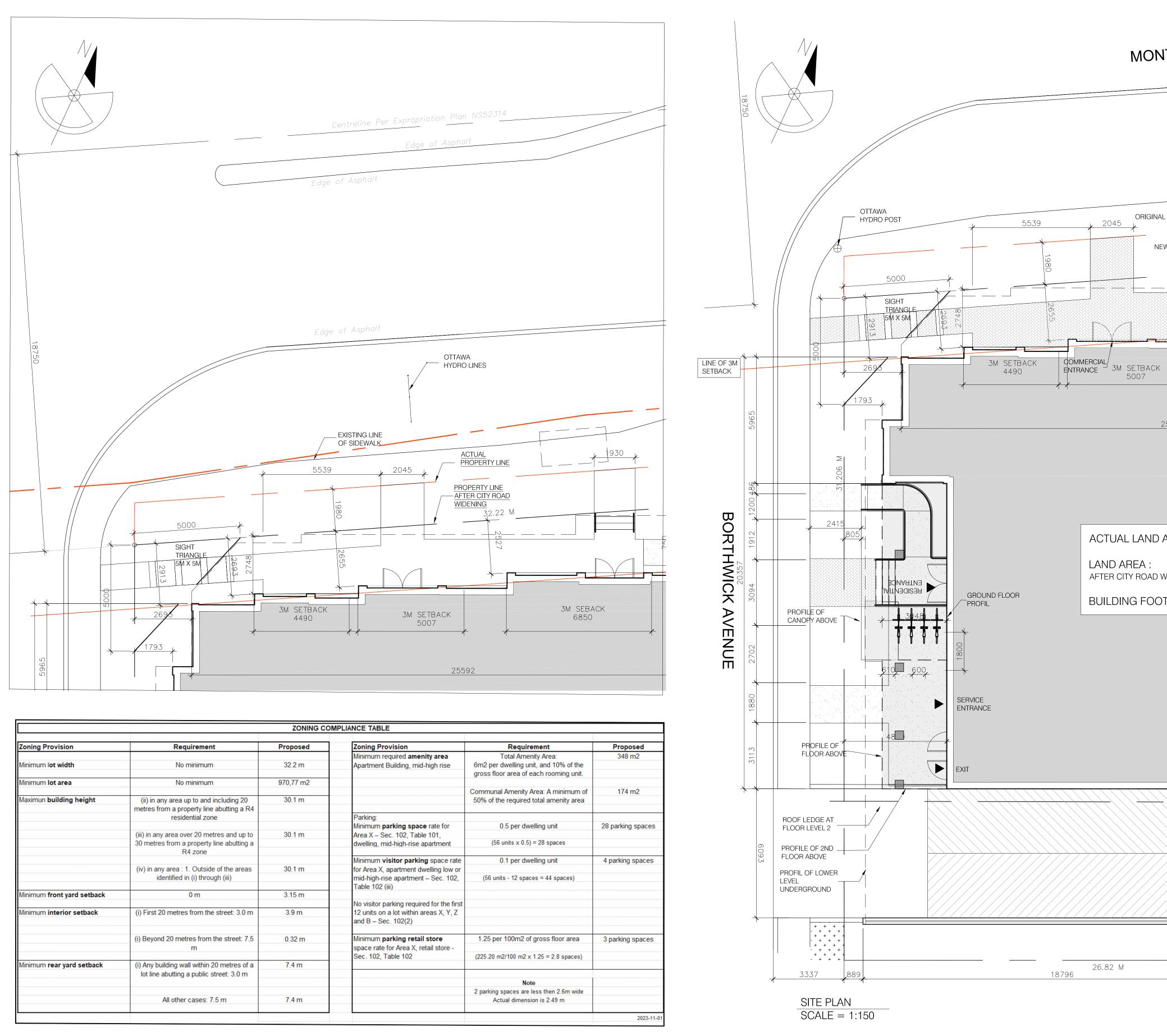
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DRAWIN	IG TITLE		
	CONSTRUCTION E	DETAIL	PLAN
PROJECT	¹ NO. 210682		
DATE	210002	<u>C</u> 9	01

APRIL, 2023

APPENDIX F

Proposed Site Plan Legal Survey As-builts



		ZONING CO	MPLIANCE TABLE	
Zoning Provision	Requirement	Proposed	Zoning Provision	
			Minimum required amenity area	T
Minimum l ot width	No minimum	32.2 m	Apartment Building, mid-high rise	6m2 per dv gross floor
Minimum lot area	No minimum	970,77 m2		Communal
Maximun building height	(ii) in any area up to and including 20 metres from a property line abutting a R4	30.1 m		50% of the
	residential zone		Parking:	
			Minimum parking space rate for	0.
	(iii) in any area over 20 metres and up to	30.1 m	Area X – Sec. 102, Table 101,	
	30 metres from a property line abutting a R4 zone		dwelling, mid-high-rise apartment	(56 ur
			Minimum visitor parking space rate	0.
	(iv) in any area : 1. Outside of the areas	30.1 m	for Area X, apartment dwelling low or	
	identified in (i) through (iii)		mid-high-rise apartment – Sec. 102,	(56 units
		0.45	Table 102 (iii)	
Minimum front yard setback	0 m	3.15 m		
Minimum interior setback	(i) First 20 metres from the street: 3.0 m	3.9 m	No visitor parking required for the first 12 units on a lot within areas X, Y, Z	
Minimum Interior setback	(i) First 20 metres from the street. 3.0 m	3.9 m	and B – Sec. 102(2)	
	(i) Beyond 20 metres from the street: 7.5	0.32 m	Minimum parking retail store	1.25 per 1
	m		space rate for Area X, retail store -	
			Sec. 102, Table 102	(225.20 m2/
Minimum rear yard setback	(i) Any building wall within 20 metres of a lot line abutting a public street: 3.0 m	7.4 m		
				2 parking sp
	All other cases: 7.5 m	7.4 m		Actua



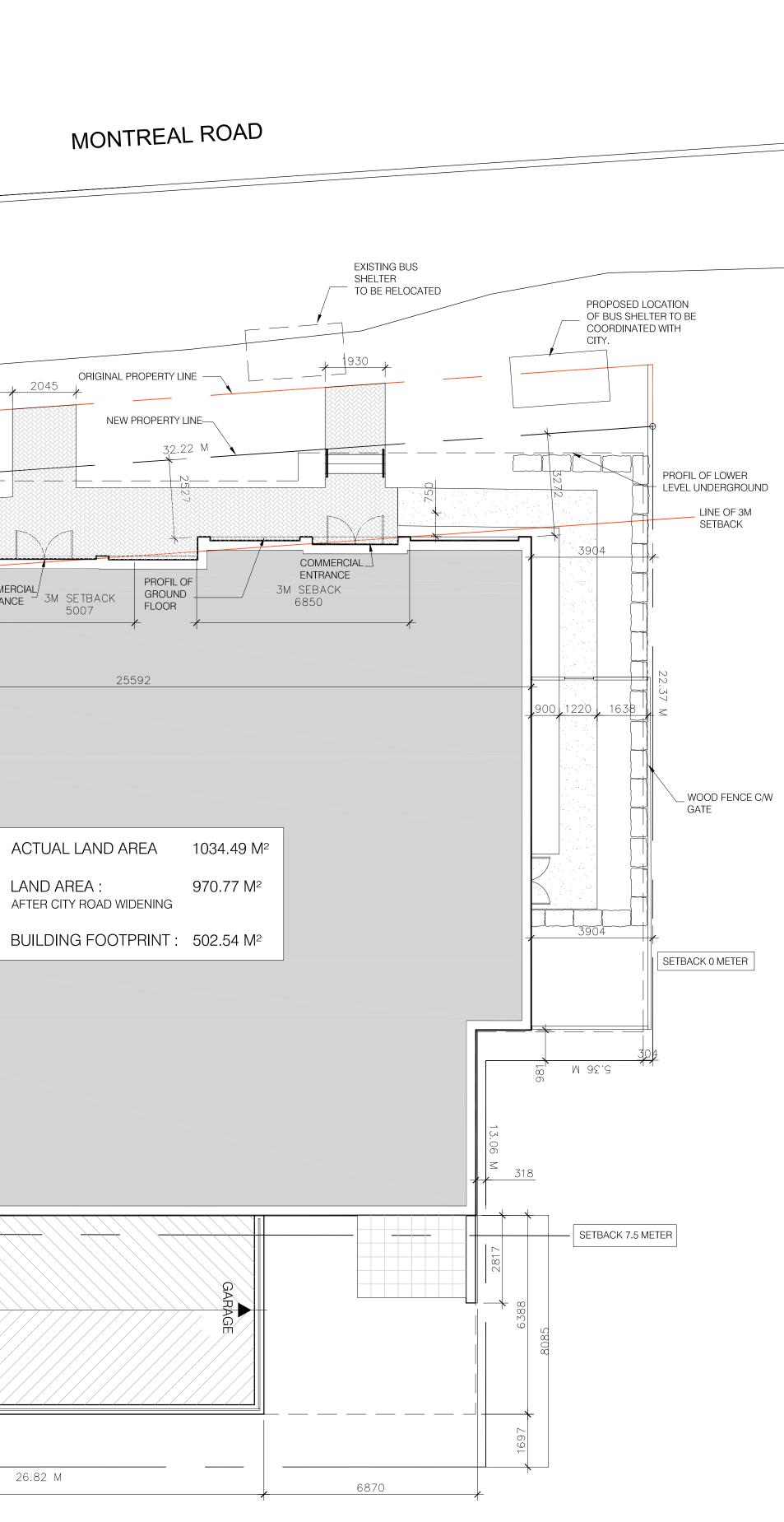


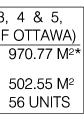


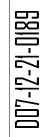


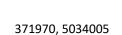
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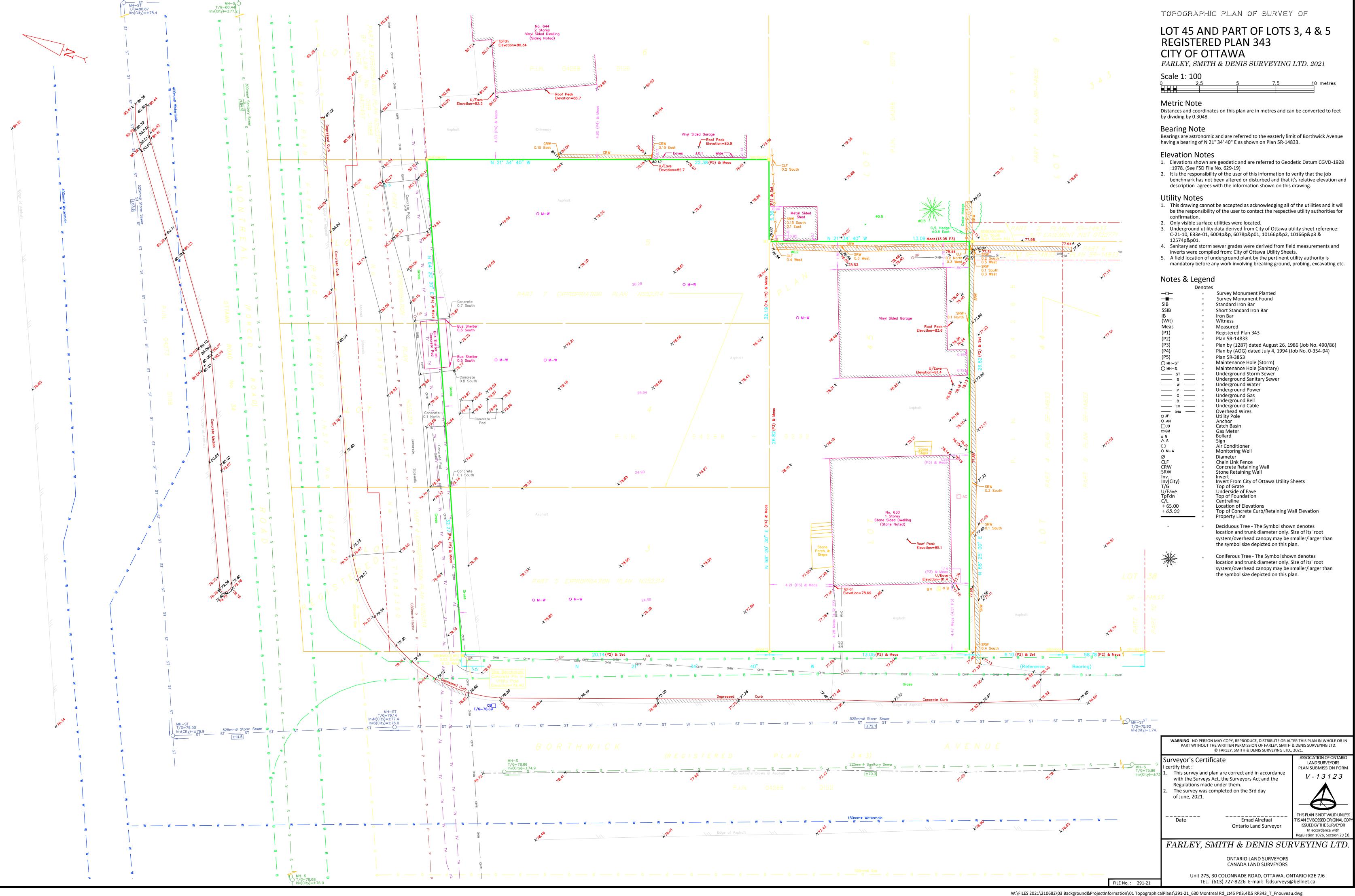
LOT 45 AND PART OF LOTS 3, 4 & 5, REGISTEDED PLAN 343 (CITY OF OTTAWA) . ACTUAL LAND AREA 970.77 M^{2*} . BUILDING FOOTPRINT (GFA): 502.55 M² . NUMBER OF DWELLINGS: 56 UNITS

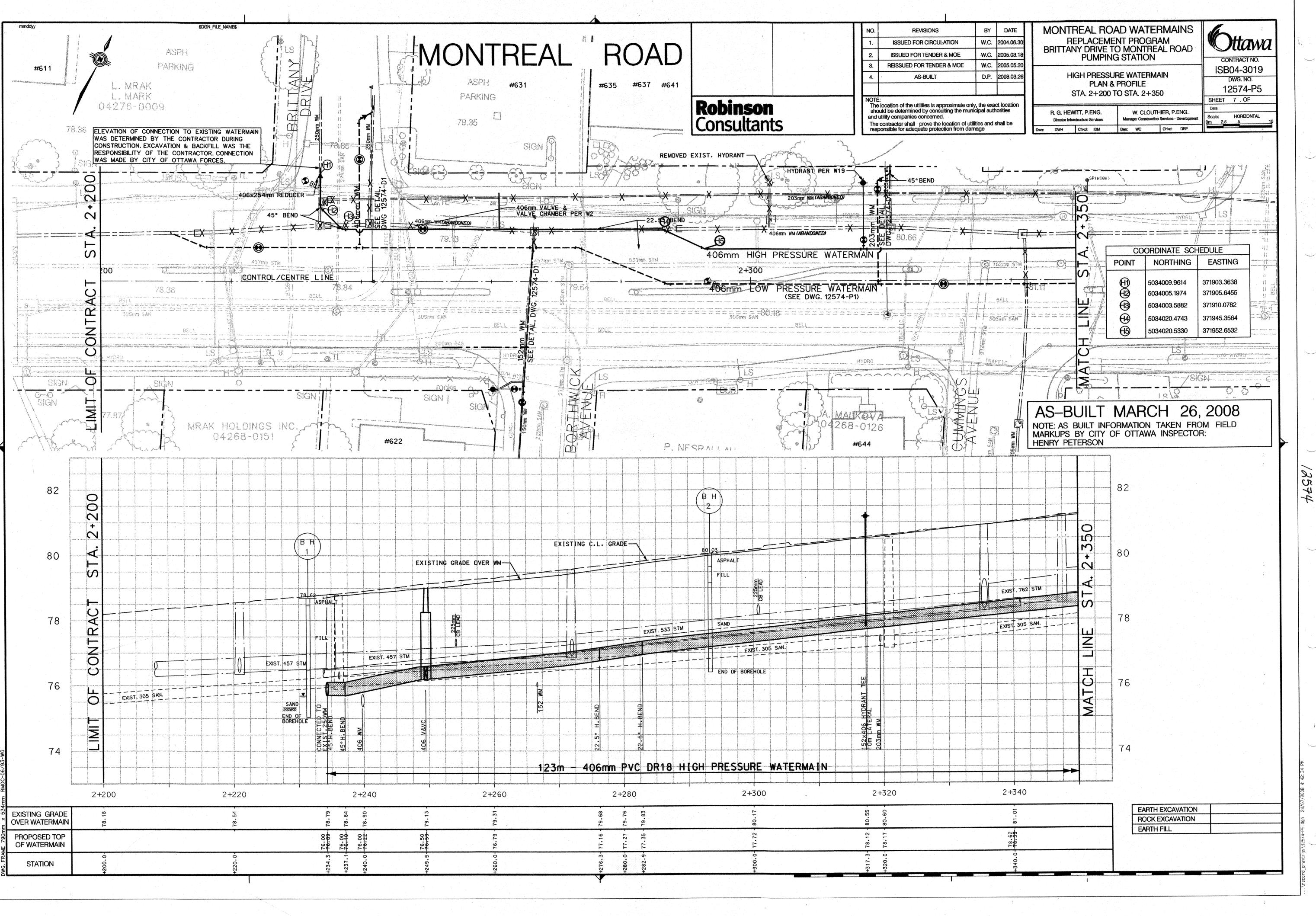


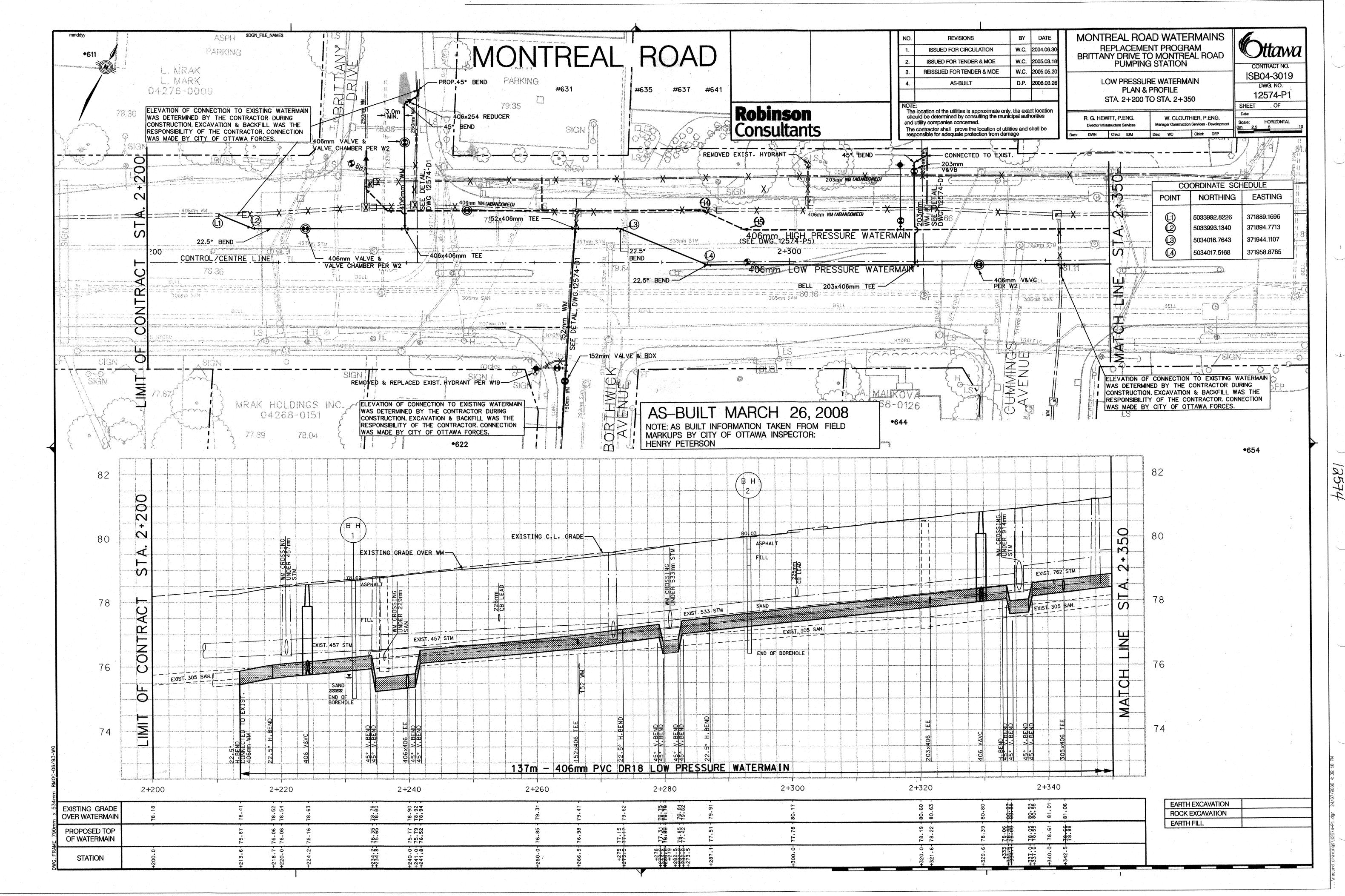












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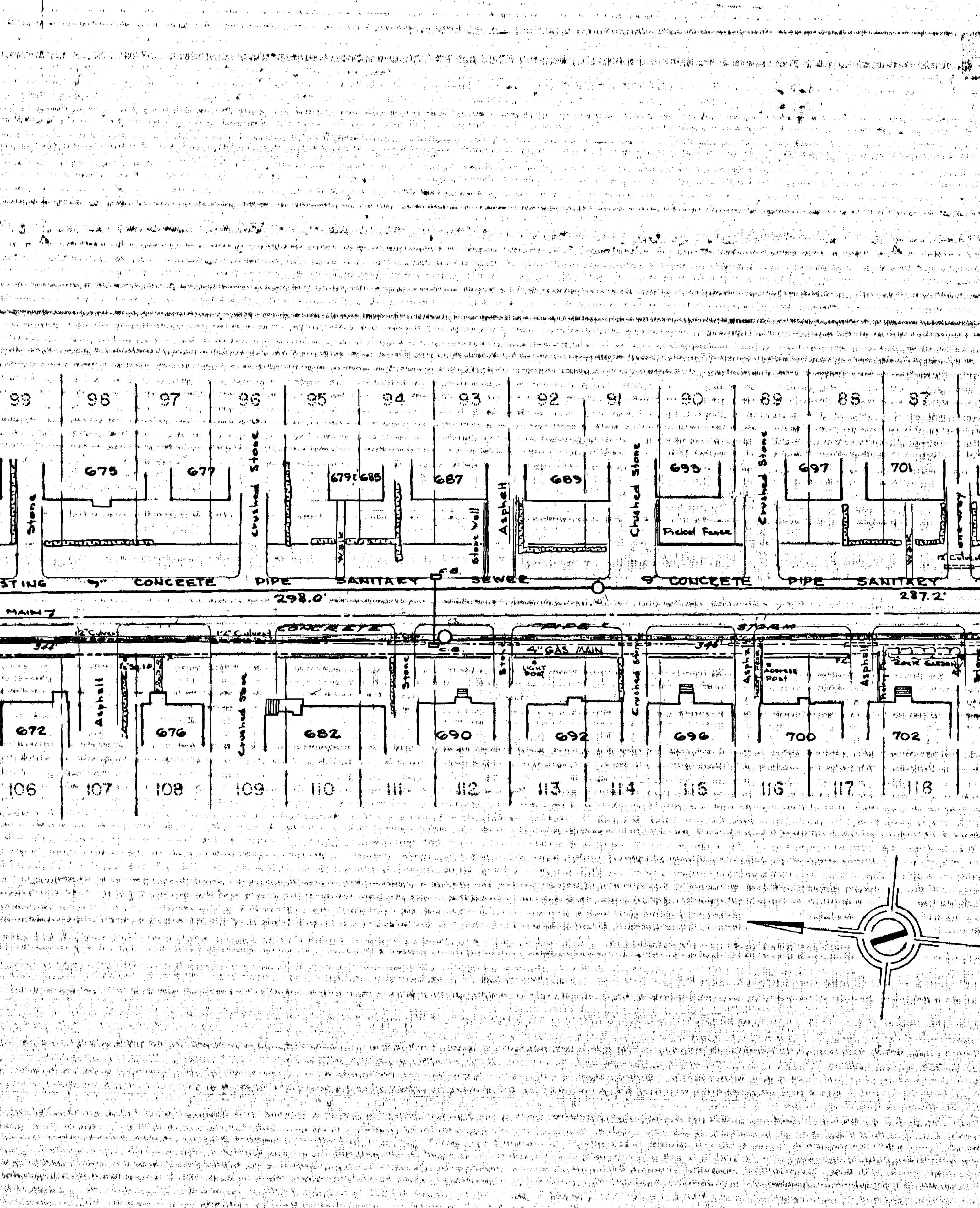
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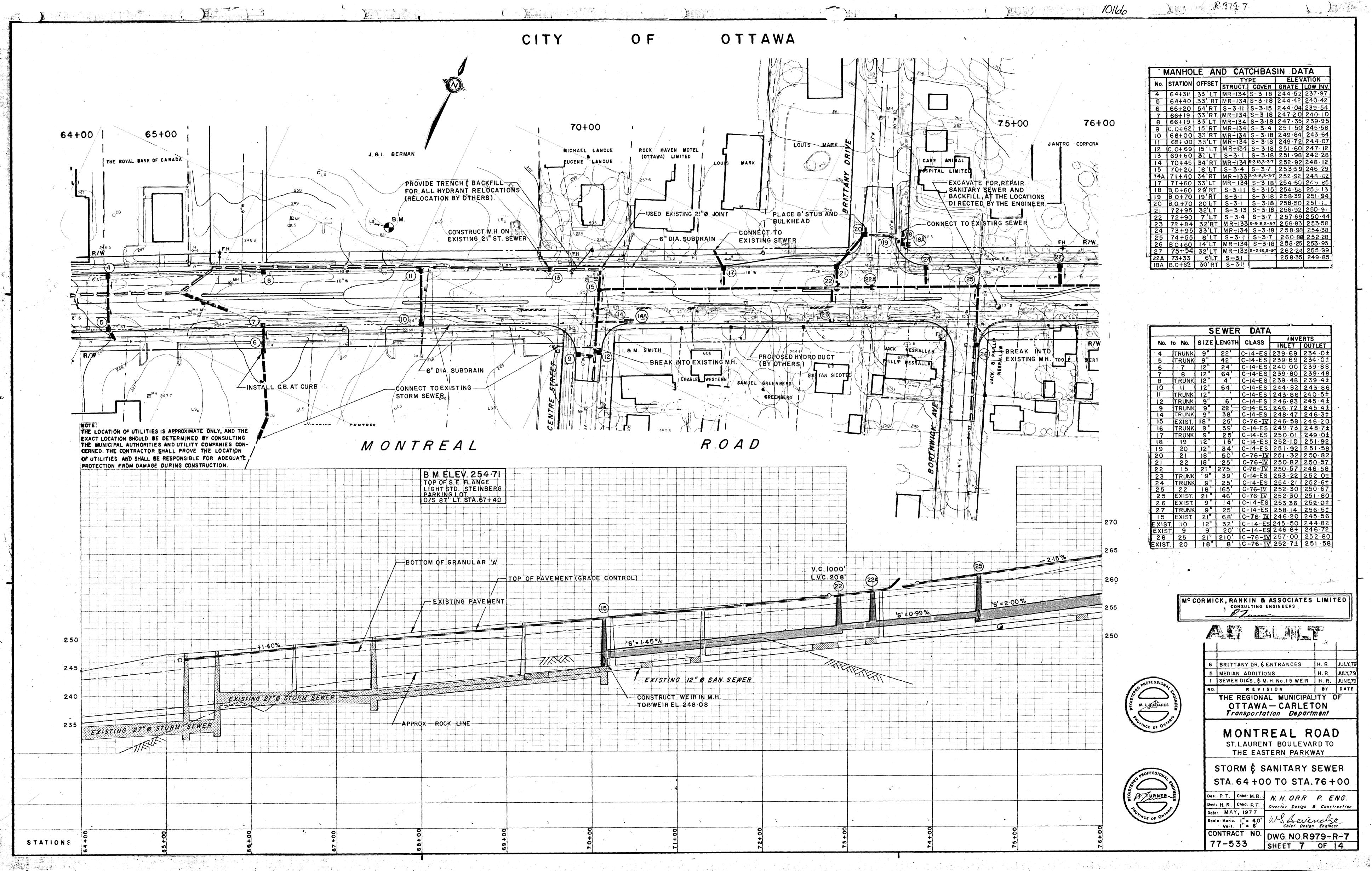
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			BLACK AVCM	SEO BA CONCAC		BLACK AKKY	Transformed and the second and the s		GRADIENT I B333



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Ĩ Ň	ANHO	LE AN	D CATCHBA			
No.	STATION	OFFEET	TYPE			
NO.	STATION	VEFSET	STRUCT.	COVER		
4	64+38	33'LT	MR-134	S-3.18		
5	64+40	.33' RT	MR-134	S-3.18		
6	66+20	54'RT	S-3.11	S-3.15		
7	66+19	33'RT	MR-134	5-3.18		
8	66+19	33'LT	MR-134	5-3.18		
9	C.0+62	15'RT	MR-134	S-3.4		
10	68+00	33'RT	MR-134	S-3.18		
11	63 + OO	33'LT	MR-134	S- 3.18		
12	C.0+69	15'LT	MR-134	S-3.18		
13	69+60	33'LT	5-3.1	S-3.18		
14	70+45	34'RT	MR-134	S-3·18,S-3·		
15	70+20	_8'LT_	S-3.4	S-3.7		
14A	71+40	34'RT	MR -133	5-3-18,5-3		
17	71+60	33'LT	MR-134			
18	B, 0+60	29'RT	S-3.11	S-3.1		
19	B 0+70	19'RT	S-3.1	S- 3.11		
20	B.O.+70	20'LT	5-3.1	5-3.11		
21	72+95	32'LT	S-3.13			
22	72+90	7.'LT	S-3.4	S-3.7		
23 24	72+84	32'RT	MR-133			
24	73+95	33'LT.	MR-134			
25	74+55	8'LT	S-3-1	S-3-7		
26	B0+60	14'LT	MR-134	<u>S-3-1</u>		
27	75+54	32'LT	MR-133	S-3-18,S-		
22A	73+33	6'LT	5-3.1			
18A	B.0+62	30'RT	S-311			

	the second			
		S	EWER	DATA
No. t	o No.		LENGTH	CLASS
· 4	TRUNK	9"	22'	C-14-ES
5	TRUNK	9"	42'	C-14-ES
,6	7	12"	24'	C-14-ES
7	8	12" 12" 12" 12"	64'	C-14-ES
8	TRUNK	12"	4'	C-14-ES
10	11	12"	64'	C-14-ES
11	TRUNK	12"		C-14-ES
12	TRUNK	9"	.6 '	C-14-ES
.9	TRUNK	· @"	22	C-14-ES
14	TRUNK	9"	38'	C-14-ES
15	EXIST.	18 "	25'	C-76-IV
16	TRUNK	.9"	.39'	C-14-ES
17	TRUNK	9"	25	C-14-ES
18	19	12"	1.6'	C-14-ES
19	20	12"	34'	C-14-ES
20	21	18 "	50'	C-76-IV
21	22	18"	25'	C-76-Ⅳ
22	15	21"	275	C-76-IV
23	TRUNK	~ 9 "	39'	C-14-ES
24	TRUNK	' Q"	25	C-14-ES
25	22	18"	165	C-76-IV
24 25 25	EXIST.	21"	46'	C-76-IV
26	EXIST.	9"	4 '	C-14-ES
27	TRUNK	9"	25'	C-14-ES
15	EXIST.	21"	68	C-76- Ⅳ
EXIST.	10	12"	32'	C-14-ES
EXIST.	.9	9"	20.	C-14-ES
28	25	21"	210	C-76-IV
EXIST.	20	18"	8'	C-76-IV

SIN DATA ELEVATION GRATE LOW INV. 244.52 237.97 244.42 240.42 44.04 239.54 249.85 INVERTS INLET OUTLET 243.8 246.3: 246.58 246.2 249.73 248.75 249.0 252·**7± |** 251·5 H. R. JULY.7 5MEDIAN ADDITIONSH.R.JULY,791SEWER DIAS. \$ M.H. No.15 WEIRH. R.JUNE,79 BY DATE THE REGIONAL MUNICIPALITY OF OTTAWA - CARLETON Transportation Department MONTREAL ROAD ST. LAURENT BOULEVARD TO THE EASTERN PARKWAY STORM & SANITARY SEWER STA. 64 +00 TO STA. 76 +00 Des: P.T. Chad: M.R. N. H. ORR P. ENG. Dwn: H. R. Chkd: P.T. Director Design & Construction Scale: Horiz. 1" = 40' WS Sevenche Vert. 1" = 6' WS Sevenche Chief Design Engineer CONTRACT NO. DWG. NO. R979-R-7 SHEET 7 OF 14

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