REPORT

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
178-200 ISABELLA STREET

Project: 124875-7.03.04

Prepared for Minto Communities Inc.
by IBI Group
August 16, 2023

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1 INTRODUCTION

1.1 Scope

The purpose of this report is to outline the required municipal services, including water supply, stormwater management and wastewater disposal, needed to support the redevelopment of the subject property. The property is approximately 0.24 hectares in area and is located at the following current municipal addresses, 178-200 Isabella Street. The site is bound by Isabella Street to the north, existing residential and commercial properties to the east, west and south. Please refer to **Figure 1 – Location Plan** located in **Appendix A** for more details.

This Assessment of Adequacy of Public Services Report, is being completed in support of the Re-Zoning Application for the subject site.

1.2 Subject Site

Minto Communities proposes to construct a 19 storey single use building with 234 residential units. The proposed development also includes 3 levels of underground parking. Vehicular access to the site will be from Isabella Street. Please refer to **Figure 2 – Site Plan** located in **Appendix A**, for more information.

The site currently consists of empty lots. All existing structures within the subject property have been previously removed.

1.3 Pre-consultation

A pre-consultation with the City of Ottawa was held on June 29, 2020 where, amongst other items, the servicing of the proposed development was discussed. Minutes of that meeting have been included in **Appendix A**.

2 WATER DISTRIBUTION

2.1 Existing Conditions

As previously noted, the site is located adjacent to Isabella Street. The Isabella Street ROW currently contains two watermains.

An existing 1200 mm diameter backbone watermain is located within the north half of the Isabella Street ROW. No connections to this watermain are proposed; however, at the time of Site Plan Application a plan for protecting this watermain during construction of building services will need to be provided.

The local watermain in front of the proposed building is a 127 mm main, which increases to a 152 mm main on the west side of the building, which connects to a 305 mm main on Bank Street. On the east side of the proposed building, the 127 mm main increases to a 203 mm main approximately 20 meters west of O'Connor Street, where it connects to a 406 mm watermain.

The watermains fall within the City of Ottawa's pressure zone 1W which will provide the water supply to the site.

2.2 Design Criteria

2.2.1 Water Demands

The population for apartment buildings is assumed at 1.8 persons per unit as found in Table 4.1 of the Design Guidelines. A watermain demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

	Subject Site
Average Day	1.37 l/s
Maximum Day	3.41 l/s
Peak Hour	7.51 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rates

The required fire flow rate has been determined with the Fire Underwriters (FUS) method. The calculation uses a non-combustible building type with protected openings as confirmed by the

building architect which results in a required fire flow rate of 6,000 l/min or 100 l/s. A copy of the FUS Calculation Declaration for Multi-Storey Buildings is included in **Appendix B**.

2.2.4 Boundary Conditions

Boundary conditions were requested based upon three scenarios; a connection to the 305mm watermain in Bank Street, a connection to the 152mm watermain in Isabella Street or a connection to the 127mm watermain in Isabella Street.

Based upon a review of the boundary conditions provided it was determined that a connection to the 127mm watermain provided insufficient pressure. A connection to the 152mm watermain was found to be adequate.

A copy of the boundary conditions are included in **Appendix B** and the boundary condition for a connection to the 152mm watermain is summarized as follows:

BOUNDARY CONDITIONS	
SCENARIO	**HGL (m)** **152mm in Isabella St. (proposed connection)**
Maximum HGL	114.7m
Minimum HGL (Peak Hour)	106.0m
Max Day + Fire Flow (152 mm main)	87.6m

2.3 Proposed Water Plan

The minimum water pressure inside the building at the connection is determined by the difference between the water entry elevation of 65.00m and the minimum HGL condition, resulting in a pressure 402.2 kPa which exceeds the minimum requirement of 276 kPa per the guidelines. Because this is a multi-storey building, a domestic water pump will be necessary for this building.

Maximum water pressure is determined by the difference between the water entry elevation of 65.00m and the maximum HGL condition resulting in a pressure of 487.6 kPa, which is less than the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure control is required for this building.

While the City provided boundary conditions for max day plus fire, a fire hydrant test was required to confirm the values. A hydrant test was undertaken on August 2nd, 2023 at the existing hydrant in front of the proposed building on the existing 127 mm watermain. While the static pressure was measured at 83 psi there was no significant flow when the hydrant was opened and no pressure or flow results. The existing 127 mm watermain is an unlined cast iron pipe installed in 1892 per the City of Ottawa infrastructure map. Due to the age of the main, it is required to be replaced. A copy of the hydrant test is included in **Appendix B.**

As part of this project, it is proposed to replace the 127 mm main between the watermain to the west which is a 152 mm PVC pipe installed in 2011, and the 203 mm main to the east which is also PVC installed in 1997. The total length of the replacement is approximately 187 meters and is shown on **Figure 3** in **Appendix B.** Since the average daily water demand exceeds 50,000 l/d, a pair of 150 mm dia watermains, separated at the main with a valve, are proposed to provide a redundant water supply to the proposed building. Preliminary details of the proposed water plan

are shown on drawing 124875-C-001 – Site Servicing Plan, a copy of which is included in **Appendix B**.

With the 127 mm watermain replaced the max day plus fire flow boundary condition for the 152 mm connection can be used in the analysis. The HGL for the connection to the 152 mm main is 87.6 m and based on a fire flow of 150 l/s. The fire flow rate required is now 100 l/s per Section 2.2.3, using the difference between the 87.6 m HGL and the highest surface elevation at the front of the building. 67.7 m results in a pressure of 195.2 kPa which exceeds the required residual pressure of 140 kPa, and therefore meets City guidelines.

3 WASTEWATER

3.1 Existing Conditions

Isabella Street currently contains two combined sewers and no dedicated sanitary sewer.

An existing 1500 mm diameter brick combined sewer is located within the north half of the Isabella Street ROW. No connections to this sewer are proposed; however, at the time of Site Plan Application a plan for protecting this brick combined sewer during construction will need to be provided.

South of the above noted trunk combined sewer, to which the proposed building will connect, exists a 225mm clay combined sewer. The upstream limit of said clay sewer is at the western property line of the subject site.

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3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

- Commercial/Institutional flow — 28,000 l/ha/d
- Residential flow — 280 l/c/d
- ICI Peaking factor — 1.5 if ICI in contributing area >20%
1.0 if ICI in contributing area <20%
- Residential Peaking Factor — Modified Harmon Formula
- Infiltration allowance — 0.33 l/s/ha

Given the above criteria, total wastewater flow from the proposed development will be about 4.73l/s, the detailed sanitary sewer calculations are included in **Appendix C**. A 200 mm dia sanitary service connection will provide sufficient capacity for the site.

3.3 Recommended Wastewater Plan

Please refer to the Site Servicing Plan 124875-C-001 in **Appendix B** for connection location details. Given that the building is proposing to connect to the extreme upper end of the 225mm combined sewer, that no known surcharge conditions exist downstream, and that the existing storm flows tributary to the combined sewer will be significantly reduced as part of this redevelopment, sufficient capacity exists to support the flows for the subject site.

4 STORMWATER SYSTEM

4.1 Existing Conditions

Isabella Street currently contains two combined sewers and no dedicated storm sewer.

As noted in section 3.1 an existing 1500 mm diameter brick combined sewer is located within the north half of the Isabella Street ROW. No connections to this sewer are proposed.

South of the above noted trunk combined sewer, to which the proposed building will connect, exists a 225mm clay combined sewer. The upstream limit of said clay sewer is at the western property line of the subject site.

4.2 Design Criteria

Criteria for the stormwater management of existing infill sites outletting to combined sewers within the City of Ottawa are as follows;

- Existing adjacent storm sewers were designed to a 2 year level of service
- Site to be designed to limit the 100 year post development flow to a maximum of the 2 year pre development flow
- Pre development flow to use a maximum C of 0.4 and a minimum TC of 10 min.

Some of the key design criteria include the following:

- Design Storm — 1:2 year return (Ottawa)
- Sewer Sizing — Rational Method
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.30
  - Asphalt/Concrete — C = 0.90
  - Roof — C = 0.90

4.3 Proposed Minor System

The preliminary design for this site shows a storm sewer connection along with some uncontrolled surface drainage entering into the 225mm clay combined sewer within Isabella Street ROW

Using the above-noted criteria, a 200 mm dia storm service lateral can provide sufficient capacity for the site. A storm sewer design sheet and the associated storm sewer drainage area plan are included in **Appendix D**. Please refer to the Site Servicing Plan – 124875-C-001 for connection location details.

4.4 Stormwater Management

The subject site will be limited to a release rate established using the criteria described in section 4.2. This will be achieved through roof inlet controls and/or an inlet control device (ICD) at the outlet of the cistern.

Flows generated that are in excess of the site`s allowable release rate will be stored on the building's roof and/or within a cistern located within the underground parking areas of the building.

4.5 Release Rate

The allowable release rate for the 0.24 ha site is estimated to be 10.57 l/s. The calculations are included in **Appendix D**. The calculation took into account uncontrolled flows.

4.6 On-Site Detention

During the Site Plan Application process, it will be necessary to demonstrate that sufficient flow controls along with on-site detention will be provided to ensure the maximum release rate is met during the 100 year storm event.

At this stage of the development coordination, it is assumed that flow controls and on-site detention could be provided by either an underground cistern or roof top storage, or a combination of both.

5 SEDIMENT AND EROSION CONTROL PLAN

During construction, existing stream and storm water conveyance systems can be exposed to significant sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings may be used such as;

- Filter socks will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use;
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.

During construction of the services, any trench dewatering using pumps will be fitted with a “filter sock.” Thus, any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filter sock as needed including sediment removal and disposal.

All catchbasins, and to a lesser degree manholes, convey surface water to sewers. Consequently, until the surrounding surface has been completed these structures will be protected with a sediment capture filter sock to prevent sediment from entering the minor storm sewer system. These will stay in place and be maintained during construction and build-out until it is appropriate to remove them.

A copy of a preliminary Erosion and Sedimentation Control Plan (drawing 124875-C-900) is included in **Appendix E**.

6 SITE GRADING

A preliminary Site Grading Plan (drawing 123875-C-200) is included in **Appendix E**. Most of the site will be graded to ensure surface water is routed to an underground cistern. Some runoff, especially along the frontage of the site, will be uncontrolled and flow directly to Isabella Street.

It is also likely that perimeter retaining walls will be required to properly tie into surrounding properties. Final grading details will be provided at the time of Site Plan Application.

7 CONCLUSIONS

Municipal water, wastewater and stormwater systems required to accommodate the proposed development are available to service the proposed development. Prior to construction, existing sewers will be surveyed, and CCTV inspected to assess sewer condition.

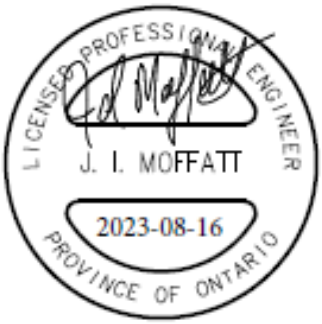
This report has demonstrated sanitary and storm flows from the subject site can be accommodated by the existing 250 mm dia combined sewer in Isabella Street. However, a reliable water supply, including fire flow is not presently available from the existing watermains fronting the site. In order to provide a reliable water supply to the site a new 150 mm dia watermain needs to be constructed between Bank and O'Connor Streets to replace the aged 125 mm pipe. Also, the proposed servicing requirements have been established in accordance with MECP and City of Ottawa current level of service requirements.

The use of lot conveyance controls and end of pipe controls outlined in the report will result in effective treatment of surface stormwater runoff from the site. Adherence to the sediment and erosion control plan during construction will minimize harmful impacts on surface water.

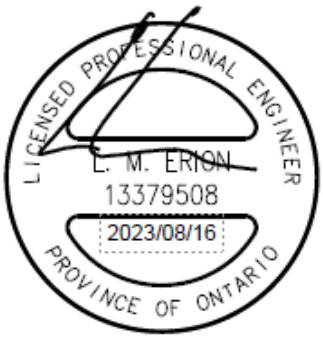
8 RECOMMENDATIONS

Based on the municipal servicing review provided in this report, rezoning of the site to support the proposed development should not be held up due to lack of public services. It is further recommended that the City either replace the aged 125 mm dia watermain in front of the site and/or enter into a cost sharing arrangement with the Owner prior to site development.

Report prepared by:



James Moffatt, P. Eng.
Associate



Lance Erion, P.Eng.
Associate

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APPENDIX A

- Figure 1 – Location Plan
- Figure 2 – Site Plan
- Minutes of Pre-consultation Meeting

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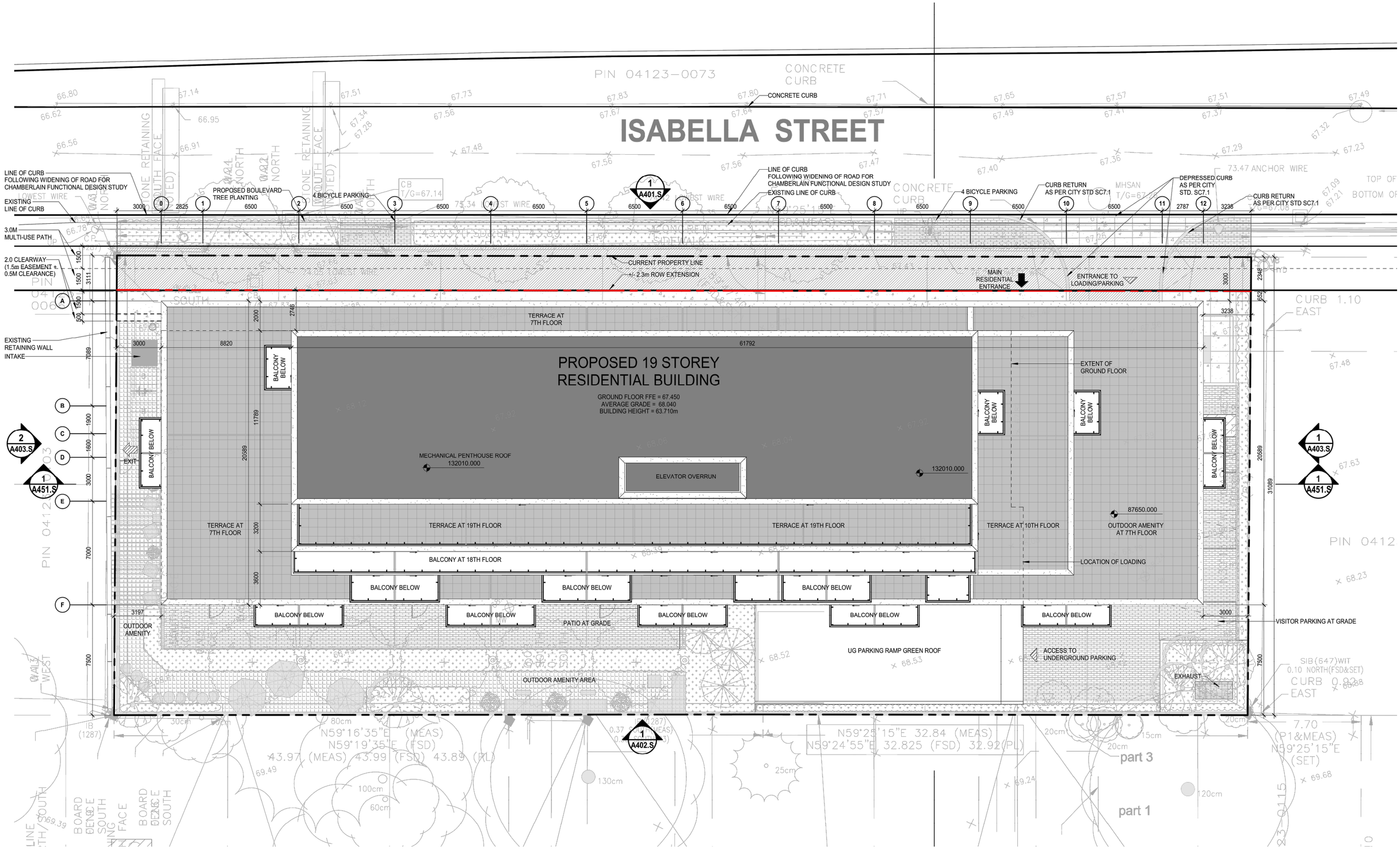
Project Title	Drawing Title	Sheet No.
178-200 ISABELLA STREET	KEY PLAN	FIGURE 1



Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	178-200 ISABELLA STREET	SITE PLAN	FIGURE 2

Pre-application Consultation Meeting Minutes
Address: 178, 180, 182 and 200 Isabella Street
File No: PC2020-0150
Date: Monday June 29, 2020, 2:00pm to 3:00pm
Location: Teams Videoconference
File Lead: Ann O'Connor

City of Ottawa Attendees		
Name	**Role**	**Email**
Ann O'Connor	Planner, Central Development Review, PIED	Ann.oconnor@ottawa.ca
Mohammed Fawzi	Infrastructure Project Manager, PIED	mohammed.fawzi@ottawa.ca
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Community Association Representative Attendees		
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Carolyn Mackenzie	Glebe	carolynwmackenzie@gmail.com
Peter Hook	Glebe	Peter.hook@sympatico.ca
Applicant Team Attendees		
Name	**Role**	**Email**
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Introductions and Acknowledgements

- Round table introductions

- Acknowledgement that Carolyn Mackenzie and Peter Hook from the Glebe Community Association are in attendance and have each signed an NDA.

Overview of Proposal (applicant team)

- Proposal for a 16-storey high-rise residential building with a 9-storey podium and approximately 269 dwelling units. All parking will be underground.
- Attended an informal review at the UDRP on July 2, 2020 for a 30-storey tower and amended design after considering staff and UDRP comments.
- Doing ongoing work with Peter Giles with the Draft Bank Street in the Glebe: Height and Character Study.
- The new 16-storey height allows for a 45-degree angular plane measured from the front lot line on the north side of Pretoria.
- Are aware of the RMA along Isabella and will be working with transportation staff to address these requirements.
- Intention to apply for a ZBLA in the near future, followed by a SPC application in the fall.

Preliminary Comments from the City

Planning Comments (Ann O'Connor)

- Based on the current proposal and policy context, the following applications and processes will apply:
  - Major Zoning By-law Amendment
  - Site Plan Control, New, Complex, Non-Rural application.
  - Section 37 may apply. Provide calculations alongside submission.
  - While the property falls outside of a "Design Priority Area", staff recommend an additional review at Urban Design Review Panel (UDRP)

- Please use these the following policy context to guide the design as it progresses and refer to them in your Planning Rationale.

  - Official Plan designations:
    - Sch B – Urban Policy Plan designates the site as "General Urban Area"
    - Sch. C – Primary Urban Cycling Network designates O'Connor St (intersects w Isabella to the east) as both a "Spine Route" and a "Cross-Town Bikeway"
    - Sch D – Rapid Transit Network designates Isabella as a "Transit Priority Corridor (Isolated Measures)"
    - Sch E – Urban Road Network designates Isabella as an "Arterial – Existing"

- Sch I – Scenic – Entry Routes – Urban designates Hwy 417 as a "Scenic Entry Route"

- As per Section 3.6.1, policy 3, the building heights in the General Urban Area will continue to be predominantly low-rise. Policy 4 provides exceptions where new taller buildings may be considered, including sites that are on a Transit Priority Corridor on Sch D, OP and in an area characterised by taller buildings. As Isabella is designated a "transit priority corridor (isolated measures)" in Sch D and as there a several taller buildings in proximity to this site, an Official Plan Amendment will not be required. However, a strong planning rationale analysis of the area and compatibility with the OP sections is needed upon submission.

- As per Annex 1 of the OP, the Right-Of-Way requirements on Isabella is 23m; however, there is also an ongoing study being done by Transportation Engineering Services titled *Chamberlain, Catherine & Isabella Functional Design Study*. This study outlines a new ROW cross section for Isabella and will delineate the amount of area required. Contact Vanessa Black for more information at Vanessa.Black@ottawa.ca

- While there is no Council-approved Secondary Plan or Community Design Plan applicable to this site, the development is to have regard for the draft policy document: *Bank Street in the Glebe Height and Character Study*. Please speak to compliance with this draft policy document within the Planning Rationale. Contact Peter Giles for more information at Peter.Giles@ottawa.ca

- The site is zoned GM4 F(3.0) – General Mixed-Use Zone, Subzone 4, max Floor Space Index of 3
  - The current zone does not permit an 'apartment dwelling, high rise' and a major ZBLA is therefore required. There are a number of other areas of non-conformity with the existing zone, requiring amendments through the application.

- The *Urban Design Guidelines for High-rise Buildings* apply to this proposal. Please address these Guidelines in both the design of the development and in the Planning Rationale submitted with the application. For information on how best to apply these guidelines, contact Christopher Moise at Christopher.Moise@ottawa.ca

- Comments:
  - Planning Services is supportive infilling this site. Replacing the surface parking with a building format that defines the street edge with active frontages is positive and supported.

- Certain aspects of the project require further review and work:
    - Access
        - reducing the number of vehicular accesses to one
        - desire to highlight the pedestrian/active transportation access into the site/building and reduce the impacts of vehicular access

    - Massing & building design
        - massage the overall massing
        - reduce the mass/height of the podium to be more pedestrian-friendly and relate positively to the Isabella streetscape
        - keep the relationship to the established Glebe neighbourhood top of mind as the massing evolves
        - give serious consideration to future redevelopment potential on abutting lots and separation distances required as per design guidelines
        - more broadly, provide visuals and rationale for how the proposal fits into the area
        - As per Sch I in the OP, Hwy 417 is designated a Scenic Entry Route. The high-visibility this development will have will necessitate a high-level of design work.
        - strongly encourage a second visit to the UDRP for additional guidance in this regard

    - Trees and greenspace
        - retain large trees at rear of site to create a buffer and preserve existing tree canopy
        - plant new trees and incorporate soft landscaping to enhance the site and streetscape
        - consider the relationship to the future urban parkette and mid-block MUP in the *Bank St in the Glebe Height and Character Study*

    - Isabella streetscape/public realm relationship
        - incorporate design features to relate the building well to the public realm
        - consider the practicality of how the site will function for residents, including residents who use active transportation (eg. providing ground floor bicycle parking)

Infrastructure Comments (Mohammed Fawzi and Abdul Mottalib)

- It is the consultant /designer's responsibility to verify all the information related to the infrastructures by using as built drawings or field visit and inspection as required.

- <u>Available Infrastructure:</u>
  - **Isabella Street:**
    - Combined: 225mm Clay (Install 1900)
    - Combined: 1500mm Brick (Install 1899)

    - Water: 125mm UCI (Install 1892)
    - Water: 1220mm COO (Install 1960)

- <u>Capacity issues for sewers</u>
  - Please find the Servicing Report Template & Study Guidelines" in the attachment and prepare the servicing study accordingly. A completed checklist with corresponding references from the servicing study is mandatory for the completeness of the study. Please add a completed checklist in the report.

ServicingGuideli nes_ final_Dec...

Servicing Report Template Final Versi

  - The allowable sewer release rate should be based on the existing Zoning Designation using the City's Sewer Guidelines. Please calculate the sewers demand for the proposed development and send it to us ASAP, if you want to verify whether there is enough capacity in the city system. Normally, it takes 10 business days to get response back from the internal circulation.

- <u>Required information for Water boundary conditions (not required if you're using existing service)</u>

  - 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. Please 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.

    - Location of Service

        - A sketch of the proposed water service to the city watermain
        - Street Number & Name
        - Type of development and units
        - Amount of fire flow required ___l/s (Calculation as per the FUS Method).
        - Average daily demand: -l/s
        - Maximum daily demand: -l/s
        - Maximum hourly daily demand: -l/s

    - Please note two separate service connections will be required for a proposed development if the basic day demand is greater than 50m^3/day to avoid a vulnerable service area. Two compound water meters will be required for two service connections.

- <u>Utility conflict with the proposed servicing</u>
    - It is the consultant's sole responsibility to investigate the existing utilities in the proposed servicing area while preparing the Servicing and Grading Plans to avoid any conflict with the proposed services and will require a note stating this on the servicing plan.

- <u>Underground and above ground building footprints</u>
    - All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any of the permanent structures does not extend beyond the property line either above or below ground or does not encroach into sight triangles and future road widening protection limits.

- <u>Grade limitations for underground ramps (Wally)</u>
    - Underground ramps should be limited to a 12% grade and must contain a subsurface melting device when exceeds 6%. If the ramp's break over slope exceeds 8%, a vertical transition curve or a transition slope should be used in the midway of the ramp.

- <u>Stormwater Management criteria (Quantity control criteria) connecting into a combine sewer system</u>
    - Total (storm +sanitary) allowable release rate will be 2-year pre-development rate.

    - C Coefficient of runoff will need to be determined **as per existing conditions** but in no case more than 0.4

    - TC =20 minutes or can be calculated,

    - TC should not be less than 10 minutes, since the IDF curves become unrealistic less than 10min.

- Any storm events greater than 2 year, up to 100 year, and including 100-year storm event must be detained on site.

- Two service laterals will be required for a single unit.

- Foundation drains are to be independently connected to sewer main unless being pumped with appropriate back up power, enough sized pump and back flow prevention.

- Roof drains are to be connected downstream of any incorporated ICD within the SWM system.

- Environmental Compliance Application required for stormwater management.

- TECHNICAL BULLETIN PIEDTB-2016-01

  Section 5.4.9.2,Page 5.31,

  - While rear yard grading will create low points and storage at each catch basin, the storage will not be considered in the available storage requirements. It will be assumed that all backyard flows in excess of the 2-year will flow towards the roads. Effective available storage will only be considered on streets and open space/park storage. Furthermore, there must be at least 30 cm of vertical clearance between the rear yard spill elevation and the ground elevation at the adjacent building envelope.

  - Major system storage in backyards is not to be included/accounted for in design computations, however the effect of flow attenuation can now be accounted for by assuming a constant slope ditch/swale draining to the street with the following geometry: a minimum slope of 1.5% and a minimum depth of 150 mm. The maximum allowable depth of a swale/ditch shall be 600 mm. The maximum side slope of swales/ditches shall be 3 horizontals to 1 vertical.

  Section 8.3.11.6, Page 8.20:

  - Rear Yard storage cannot be accounted for in the water storage calculation. It should be assumed that all water in excess of the 2-year event will flow to the street. The maximum depth of flow depth in rear yards is 300 mm. Furthermore, there must be at least 30 cm of vertical clearance between the rear yard spill elevation and the ground elevation at the adjacent building envelope. See Section 5.4.9 for further information. Major system storage in backyards is not to be included/accounted for in design computations, however the effect of flow

attenuation can now be accounted for by assuming a constant slope ditch/swale draining to the street.

- Implementation considerations
    - Accounting for external overland drainage
    - Use of standard ICDs
    - Requirement for ICD plans
    - Requirement for plans showing 100-year and stress-test ponding limits
    - Provide a dead-end manhole but connect the services directly to the extended storm/sanitary sewermain using a manufactured TEE as per Std Dwg S11.1.
    - Provide a foundation drain backwater valve installed as per Std Dwg S14.
    - Provide a full port backwater valve, in the sanitary building drain, installed as per Std Dwg S14.1.
    - Connect the water service to the existing /extended watermain and show proposed fire route and existing fire hydrant on the plan.
    - Underground Storage: Underground storage volumes are to be based on 50% peak flow rates or use dynamic compute model.
    - If a storage tank (internal cistern) is considered as part of the SWM solution sufficient details and system information will need to be provided. A detailed cross-section of such system (provided from the mechanical engineer and shown on the plans) with sufficient details and information (HWLs, release rate, volume, location, size (dimensions), control device, emergency flow outlet and backflow protection, etc.) will need to be provided. An appropriate emergency overflow location will need to be determined and documented. Backup power supply necessary if pump controlled. Details regarding the proposed on-site stormwater management system are to be provided for review.

- Monitoring MHs
    - Onsite Monitoring MHs are required for sewers (sanitary and storm) if there will be commercial component with the residential development.

- Sight Triangle, Road widening and Sidewalk requirement (By Transportation Project Manager Mr. Wally Dubyk)
    - City needs minimum 2.0 m monolithic concrete sidewalk for more information please contact with Wally Dubyk at 613-580-2424 ext. 13783

- Noise and Vibration Study:
    - Noise and Vibration Study (proximity to Highway 417)

- Phase I and Phase II ESA:
    - Phase I ESA is required; Phase II ESA may be required depending on the results of the Phase I ESA. Phase I ESA must include an EcoLog ERIS Report.

    - Phase I ESA and Phase II ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

- RSC
    - RSC is a provincial requirement

    - It needs more than a year to file an RSC to the ministry, so the owner should start working on filing this application ASAP.

    - There will be a holding provision/condition in the ZA/SPCA to address this requirement

    - No building permit will be issued prior to the filing of the RSC to the ministry.

- Studies and Plans required for **combined ZBLA/Site Plan applications**
    - Serviceability Study
    - Erosion and sediment Control Plan, it can be combined with grading plan
    - Stormwater Management Report
    - Geotechnical Study
    - Transportation Screening Report
    - Noise and Vibration Study - Please add stationary noise concerns if the usages are considered as Industrial, car dealerships, moto vehicle maintenance and commercial activities and equipped with generator, fans or commercial air conditioners.
    - ESA-Phase 1 Study needs to be prepared as per current MOECP regulation not as per CSA standards, as this site will require an RSC the phase 1 study must be prepared by a qualified person (QP).
    - ESA-Phase 2, Depend on the Phase I recommendation if required needs to be prepared by a qualified person (QP)as per current MOECP regulation not as per CSA standard
    - Wind Study
    - RSC will be required for this site for moving to a more sensitive land usage.
    - Constructability Study
        - Watermain Contingency plan

        - Vibration impacts to backbone watermain and trunk sewer main
        - Post construction CCTV footage
    - Plans required;
        - Site Servicing Plan
        - Grade Control and Drainage Plan
        - Erosion and Sediment Control Plan
        - Plan and profile required for all MOECP ECA application

- Studies required **for just ZBLA application**
    - Serviceability Study
    - Geotechnical Study
    - Transportation Screening Report
    - Noise and Vibration Study (Preliminary)- Please add stationary noise concerns if the usages are considered as Industrial, car dealerships, moto vehicle maintenance and commercial activities and equipped with generator, fans or commercial air conditioners.
    - ESA-Phase 1 Study needs to be prepared as per current MOECP regulation not as per CSA standards, as this site will require an RSC the phase 1 study must be prepared by a qualified person (QP).
    - ESA-Phase 2, Depend on the Phase I recommendation if required needs to be prepared by a qualified person (QP)as per current MOECP regulation not as per CSA standard
    - Wind Study (Preliminary)
    - RSC will be required for this site for moving to a more sensitive land usage.

- Studies required **for just Site Plan** application
    - Serviceability Study
    - Erosion and sediment Control Plan, it can be combined with grading plan
    - Stormwater Management Report
    - Geotechnical Study
    - Transportation Screening Report
    - Noise and Vibration Study - Please add stationary noise concerns if the usages are considered as Industrial, car dealerships, moto vehicle maintenance and commercial activities and equipped with generator, fans or commercial air conditioners.
    - ESA-Phase 1 Study needs to be prepared as per current MOECP regulation not as per CSA standards, as this site will require an RSC the phase 1 study must be prepared by a qualified person (QP).
    - ESA-Phase 2, Depend on the Phase I recommendation if required needs to be prepared by a qualified person (QP)as per current MOECP regulation not as per CSA standard
    - Wind Study
    - RSC will be required for this site for moving to a more sensitive land usage.
    - Constructability Study

- Watermain Contingency plan
- Vibration impacts to backbone watermain and trunk sewer main
- Post construction CCTV footage

- MOECC SWM Requirement:
  - Connecting to combined sewer, SWM requires an MOECP application

  - Multiple parcels using same infrastructures also require an MOECP application

- Relevant information
  - The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications

  - Servicing and site works shall be in accordance with the following documents:
    - Ottawa Sewer Design Guidelines (October 2012)
    - 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 Park and Pathway Development Manual (2012)
    - City of Ottawa Accessibility Design Standards (2012)
    - 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 InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).
    - Any proposed work in utility easements requires written consent of easement owner.

Transportation Project Manager Comments (Neeti Paudel)

- Follow Traffic Impact Assessment Guidelines
  - Start this process as soon as possible.

  - Applicant advised that their application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).

- Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)

- On site plan:
  - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.

  - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).

  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible

  - Show lane/aisle widths.

- Please ensure the accessibility requirements are implemented (checklist attached).

- The proposed access for the development should be as far as possible from the Bank and Isabella intersection.

- For the right of way protection on Isabella Street, enough space for the MUP and a few meters behind the MUP for grading, snow storage, benches, utilities, etc. will be required. To do this extending the establish property line of 210 Isabella Street (to the west) is recommended. The functional plan is attached. Please ensure this is shown on the site plan.

- Construction of the Isabella works is estimated at 6-9 years (see more in the Transportation Engineering Services Comments below). On google street view, I see a hydro pole on the sidewalk and it is also in bad shape, this may need to be upgraded.

Transportation Engineering Services Comments (Vanessa Black, Emmett Proulx, Elizabeth Murphy)

- The City has identified a multi use pathway (MUP) for the south side of Isabella Street from Percy Street to Elgin Street as part of the Chamberlain, Catherine & Isabella Functional Design Study (refer to functional design plan; design is 99% complete and pending RMA approval). In the block between Bank Street and O'Connor Street, the proposed functional design of Isabella Street includes the following:

- Two vehicle lanes 3.75m and 3.5m wide.
- A 1.9m boulevard that accommodates the existing hydro poles
- The 3.0m wide MUP.
- Approximately 2m behind the back of the MUP for grading, snow storage, benches (AODA requirement), utilities, signage, etc. will be required. This aligns with an extension of the established property line of 210 Isabella Street (to the west).

- In consultation with CREO staff, the City must acquire, as a minimum, the property identified on the draft plan for the Isabella Functional Design. This should be acquired at no cost given that more land is identified in the OP.

- The Isabella Street reconstruction and associate MUP is preliminarily scheduled to go to construction in 6-9 years depending on the capital forecast. It is also tied to the MTO bridge replacements; all Highway 417 bridges in the area including the Bank Street, O'Connor Street, and Metcalfe Street bridges are to be replaced soon.
  - The Preliminary Design and Environmental Assessment Study for the Rehabilitation/Replacement of Ottawa Queensway Downtown Bridges from Metcalfe Street to Main Street (https://queenswaydowntownbridges.com/wp-content/uploads/2017/07/GWP4170-13-00-17-010-PIC-1-EN-Exhibits-Dec-6-17-QC.pdf) identifies the parcel of land on the north side of the Queensway between O'Connor Street, Metcalfe Street, and Catherine Street as a preferred staging area for the Metcalfe Street bridge rapid replacement. This parcel would also likely rank highly for an O'Conner Street bridge rapid replacement.
  - Minto to reach out to the MTO (Frank Vanderlaan, Area Manager) to discuss the scope, status, and schedule of the MTO bridge replacements.

- As the Isabella Street reconstruction is an integrated renewal, it is expected that much of the right-of-way will be ripped up and reconstructed. It is **not** expected that the developer would construct a short section of MUP in advance of the Isabella Street integrated renewal project. If the development proceeds prior to the Isabella Street renewal, it is instead suggested that a concrete sidewalk be constructed/rehabilitated with a 2m clear width (no interference from the existing hydro poles). The developer should provide a site plan that shows the temporary conditions with concrete sidewalk, and another showing how the development will interface with the future roadway renewal project and MUP.

- Limit the number of access points on Isabella to reduce the number of conflict points with the proposed Isabella Street MUP.

- Ensure that there is a pedestrian landing area (suggested 2m min.) provided on private property at the doorways, thereby guaranteeing clearance from MUP users to the open doors.

- Ensure that sufficient grading and drainage is provided on private property, specifically on Isabella at the most westerly part of the property.

- Provide adequate sight lines for the future MUP intersection of the Isabella Street MUP with the mid-block, north-south MUP that is envisioned east of the site on the 460 O'Connor Street property.

- Consideration should be given to bike parking that is convenient to cyclists. For example:
    - Bicycle parking in a ground-floor bicycle room.

    - When bicycle parking is provided in the parking garage, the first level is preferred.

    - Consider a separate ramp for bicycles with a reduced ramp gradient (Toronto Guidelines for the Design and Management of Bicycle Parking Facilities recommends 6-7%).

    - Provide a small number of bicycle parking spaces adjacent to the main commercial/residential entrances for customers/visitors.

- Pretoria from Metcalfe to Bank is scheduled for sewer reconstruction in 2022, pending budget approval. This scope includes traffic calming features and a westbound bicycle lane.

Urban Design Comments (Christopher Moise)

- Managing this height and density in relation to the surrounding context need careful analysis with the following having particular sensitivity:

    - Adjacency to the rear yards of the residential zone to the south where consideration for how those areas may be used (Ie rear yard amenity). A combination of setting the built form back to mitigate the negative impacts of walls and over look into this area and stepping the building should be investigated;

    - Scale of the building on Isabella to support the relationship to the pedestrian environment and contribute to the future relationships of adjacent properties by setting the building back at an appropriate storey to establish a street wall

- Further study of the Tall Building Guidelines especially having regard for scale of podium, height and design of podium, tower floor plate, etc.

- Further study of the planned context of the surrounding block pattern to better understand the proposal of a new typology into the local context;

- A Design Brief is a required submittal for all site plan applications. Please see the Design Brief Terms of Reference provided for details

- This is an exciting project in an area full of potential. We look forward to helping you achieve its goals with the highest level of design resolution. We are happy to assist and answer any questions regarding the above. Good luck.

Policy Planning (Peter Giles)

- The Bank St in the Glebe Height and Character Study is at about the ¾ mark. The draft recommendations have been presented to the Stakeholder Working Group, will be revised this summer, and will be released at the final public open house this coming fall. The staff report is expected to go to Planning Committee and City Council in late 2020. The latest draft recommendations establish the maximum heights of the block bounded by Bank St, Isabella St, O'Connor St and Pretoria Ave according to a 45 degree angular plane as described in the Urban Design Guidelines for High-Rise Buildings (Policy 1.13 and Diagram 1-3). The starting point for the 45 degree angular plane is determined by the front lot line on the north side of Pretoria, going up to maximum height in existing zoning (14.5m). This was discussed in detail with the proponent as part of the Height and Character Study and the proposed 16 storey building at 178-200 Isabella St falls within this angular plane and therefore meets the draft recommendations of the study.

- The proposal appears to have a driveway on the west side of the building. It is strongly recommended to remove this driveway and keep the vehicular access to the east side of the site in order to maintain as much active frontage along Isabella St as possible. This will also help to provide a continuation of the Bank St pedestrian-oriented retail experience as you move between Bank St and Isabella St.

- One of the draft recommendations for the Bank St in the Glebe Height and Character Study includes a future Urban Parkette and mid-block multi-use pathway (MUP) on the western part of 460 O'Connor St as part of future development of that site (see sketch below). As a result, the proposal at 178-200 Isabella St should include appropriate design considerations to provide passive supervision and connection to that MUP.

Forestry Comments (Mark Richardson*)
**Did not attend meeting but provided the following comments:*

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City; an approved TCR is a requirement of Site Plan or Plan of Subdivision approval.

- Any removal of privately-owned trees 10cm or larger in diameter requires a tree permit issued under the Urban Tree Conservation Bylaw; the permit is based on the approved TCR.

- The TCR must list all trees on site by species, diameter and health condition

- The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site

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

- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines listed on Ottawa.ca
    a) The location of tree protection fencing must be shown on a plan

b) Include distance indicators from the trunk of the retained tree to the nearest part of the tree protection fencing

c) Show the critical root zone of the retained trees

d) If excavation will occur within the critical root zone, please show the limits of excavation and calculate the percentage of the area that will be disturbed

- Please ensure newly planted trees have an adequate soil volume for their size at maturity. Here are the recommended soil volumes:

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

- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

Environmental Planner Comments (Sami Rehman*)
**Did not attend meeting but provided the following comments:*

- Recommend the applicant to plant trees/shrubs/vegetation that contributes to the urban canopy, which would also require sufficient soil volumes.

- Especially along the southern and western boundaries to offer more shade for the buildings and parking (i.e. to increase the building's energy efficiency and decrease urban heat island effect), as outlined in Official Plan Section 4.9

Glebe Community Association Representative Comments (Carolyn Mackenzie and Peter Hook)
**Below is a short summary from Ann's notes; Carolyn or Peter may follow up with additional written comments*

- Desire for an active frontage on Isabella
- Minimize the egress for vehicles
- Preference for a pedestrian-scaled podium

- Support for the development of ground-oriented units
- Important for trees to thrive in the area of transition to lower-scale residential

Next Steps

- Refine the proposal to address issues raised through the pre-consultation.

- Take the steps listed under Planning Comments prior to application.

APPENDIX B

- City of Ottawa Boundary Conditions
- Watermain Demand Calculation Sheet
- FUS Fire Flow Requirement Calculation
- FUS Classification Declaration for Multi-Storey Buildings
- Hydrant Test Results
- Figure 3 – Watermain Replacement

RE: Water Boundary Condition Request - 178-200 Isabella St.

Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>

Fri 8/28/2020 10:28 AM

To: James Battison <James.Battison@ibigroup.com>

1 attachments (85 KB)

178-200 Isabella Street August 2020.pdf;

Hi James,

The following are boundary conditions, HGL, for hydraulic analysis at 178-200 Isabella (zone 1W) assumed to be connected to the City owned watermains for the various scenarios provided (see attached PDF for location).

All Scenario Connections:

Minimum HGL = 106.0m

Maximum HGL = 114.7m

Connection to 127mm: MaxDay + Available Fire Flow = 78 L/s

Connection to 152mm: MaxDay + FireFlow (150L/s) = 87.6m

Connection to 305mm: MaxDay + FireFlow (150L/s) = 106.0m

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, E.I.T.
Engineering Intern
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

From: James Battison <James.Battison@ibigroup.com>
Sent: August 27, 2020 1:29 PM

To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: Re: Water Boundary Condition Request - 178-200 Isabella St.

Hi Mohammed,

Any update on the email below?

James Battison C.E.T.

mob +1 613 314 7920

IBI GROUP

400-333 Preston Street

Ottawa ON K1S 5N4 Canada

tel +1 613 225 1311 ext 64068 fax +1 613 225 9868

From: James Battison <James.Battison@ibigroup.com>
Sent: Wednesday, August 26, 2020 7:03 AM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: Re: Water Boundary Condition Request - 178-200 Isabella St.

Hi Mohammed,

Any update? We really need these?

James Battison C.E.T.

mob +1 613 314 7920

A Message from IBI Group's CEO on COVID-19: https://www.ibigroup.com/covid19-response

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Ottawa ON K1S 5N4 Canada

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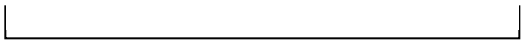

From: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Sent: Friday, August 21, 2020 9:44 AM
To: James Battison <James.Battison@ibigroup.com>
Subject: RE: Water Boundary Condition Request - 178-200 Isabella St.

Hi James,

All is well thank you, hope your doing well as well.

This is to confirm that I have forwarded your request.

Have a good weekend James.

Best Regards,

Mohammed Fawzi, E.I.T.
Engineering Intern
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

From: James Battison <James.Battison@ibigroup.com>
Sent: August 17, 2020 12:05 PM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: Water Boundary Condition Request - 178-200 Isabella St.

Hi Mohammed,

Hope all is well with with you.

Could you send us the water boundary conditions for the above noted site so that we can prepare for the water model? Please see below for the detailed information for the site. The timelines on this file are a little tight, we would appreciate it if this could be expedited somewhat.

A sketch of the proposed water service to the city watermains is attached. We are requesting three scenarios be run.

Scenerio #1 - a double connection to the 127mm watermain in Isabella Street, this connection would require a new vale in the exiting watermain to separate the connections

Scenerio #2 - a single connection to 152mm watermain in Isabella Street in front of 210 Isabella St and a single connection to the 127mm watermain in Isabella St.

Scenerio #2 - a single connection to the 305mm watermain in Bank Street and a single connection to the 127mm watermain in Isabella St.

16-storey Mixed Suites Residential Building, 231 Units in total

Amount of fire flow required: **150** l/s (Calculation as per the FUS Method).
Average daily demand: **1.35** l/s
Maximum daily demand: **3.38** l/s
Maximum hourly daily demand: **7.41** l/s

The water demand and FUS Fireflow calculation are also attached. Please let us know if you have any questions. Thank you!

James Battison C.E.T.

mob +1 613 314 7920

A Message from IBI Group's CEO on COVID-19: https://www.ibigroup.com/covid19-response

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WATERMAIN DEMAND CALCULATION SHEET

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT : 178-200 Isabella
LOCATION : City of Ottawa

FILE: 124875-6.4.4
DATE PRINTED: 2023-07-25
DESIGN: 2023-08-04
PAGE : 1 OF 1

NODE	RESIDENTIAL				NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND
	Single	Town	Apt	POP'N	INDTRL (ha.)	COMM. (ha.)	RETAIL (m^2)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	(l/min)
BUILDING			234	421				1.37	0.00	**1.37**	3.41	0.00	**3.41**	7.51	0.00	**7.51**	**9,000**

ASSUMPTIONS

RESIDENTIAL DENSITIES

Apartment (ave) 1.8 p / p / u

** Residential Daily Demand reduced to coincide with current waste water guidelines

AVG. DAILY DEMAND

Residential:**	280	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:		l / 1000m^2 / day

MAX. DAILY DEMAND

Residential:	700	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:		l / 1000m^2 / day

MAX. HOURLY DEMAND

Residential:	1,540	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:		l / 1000m^2 / day

FIRE FLOW

From FUS Calculation 9,000 l / min

Fire Flow Requirement from Fire Underwriters Survey - 178 - 200 Isabella Street

178-200 Isabella Street

Floor	Area (m^2)	Largest Floor	25% of adjoining floors
3	1453.8		363.45
4	1453.8	1453.8	
5	1453.8		363.45
Total	4361.4		**2180.7**

Total Floor Area 2,181 m^2

F = 220C√A

C	0.8		C =	1.5 wood frame
A	2,181	m^2		1.0 ordinary
				0.8 non-combustible
F	8,219	l/min		0.6 fire-resistive
use	8,000	l/min		

Occupancy Adjustment

		-25%	non-combustible
		-15%	limited combustible
Use	-15%	0%	combustible
		+15%	free burning
Adjustment	-1200 l/min	+25%	rapid burning
Fire flow	6,800 l/min		

Sprinkler Adjustment

		-30%	system conforming to NFPA 13
		-50%	complete automatic system
Use	-30%		
Adjustment	-2040 l/min		

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	>30m				0%
east	>30m				0%
south	10.5	6.0	2	12	10%
west	19.5	24.0	2	48	4%
Total					14%

Adjustment	952	l/min
Total adjustments	(1,088)	l/min
Fire flow	5,712	l/min
Use	**6,000**	**l/min**
	100	**l/s**

FUS CLASSIFICATION DECLARATION FOR MULTI-STOREY BUILDINGS

Project Name and Civic Address: 178-200 Isabella Street Number of Floors: 19

Development Review PM: _____ City File No. _____

The building's FUS calculation has been determined using the following criteria: (check one of the following).

C = 1.5 ☐	**Type V Wood Frame Construction** A building is considered to be of Wood Frame construction (Type V) when structural elements, walls, arches, floors, and roofs are constructed entirely or partially of wood or other material. Note: Includes buildings with exterior wall assemblies that are constructed with any materials that do not have a fire resistance rating that meets the acceptance criteria of CAN/ULC-S114. May include exterior surface brick, stone, or other masonry materials where they do not meet the acceptance criteria. Total Effective Area (A) = 100% of all Floor Areas
C = 0.8 ☐ C = 0.9 ☐ C = 1.0 ☐ C = 1.5 ☐	**Type IV Mass Timber** Mass timber construction, including Encapsulated Mass Timber, Heavy Timber and other forms of Mass Timber are considered as one of the following sub-types relating to the fire resistance ratings of assemblies as follows: • Type IV-A Mass Timber Construction (Encapsulated Mass Timber) • Type IV-B Mass Timber Construction (Rated Mass Timber) • Type IV-C Mass Timber Construction (Ordinary Mass Timber) • Type IV-D Mass Timber Construction (Un-Rated Mass Timber) *Refer to Water Supply for Public Fire Protection, latest revision, for further Mass Timber Construction definitions and how to calculate Total Effective Area (A).
C = 1.0 ☐	**Type III Ordinary Construction** A building is considered to be of Ordinary construction (Type III) when exterior walls are of masonry construction (or other approved material) with a minimum

	1-hour fire resistance rating, but where other elements such as interior walls, arches, floors and/or roof do not have a minimum 1 hour fire resistance rating. Total Effective Area (A) = 100% of all Floor Areas
C = 0.8 ☒	**Type II Noncombustible Construction** A building is considered to be of Noncombustible construction (Type II) when all structural elements, walls, arches, floors, and roofs are constructed with a minimum 1-hour fire resistance rating and are constructed with noncombustible materials. Total Effective Area (A) = ☐ if any vertical openings in the building (ex. interconnected floor spaces, atria, elevators, escalators, etc.) are unprotected**, consider the two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of eight; or ☒ if all vertical openings and exterior vertical communications are properly protected* in accordance with the National Building Code, consider only the single largest Floor Area plus 25% of each of the two immediately adjoining floors.
C = 0.6 ☐	**Type I Fire Resistive Construction** A building is considered to be of Fire-resistive construction (Type I) when all structural elements, walls, arches, floors, and roofs are constructed with a minimum 2-hour fire resistance rating, and all materials used in the construction of the structural elements, walls, arches, floors, and roofs are constructed with noncombustible materials. Total Effective Area (A) = ☐ if any vertical openings in the building (ex. interconnected floor spaces, atria, elevators, escalators, etc.) are unprotected**, consider the two largest adjoining floor areas plus 50% of all floors immediately above them up to a maximum of eight; or ☐ if all vertical openings and exterior vertical communications are properly protected* in accordance with the National Building Code, consider only the single largest Floor Area plus 25% of each of the two immediately adjoining floors.

Note: If a building cannot be defined within a single Construction Coefficient, the Construction Coefficient is determined by the predominate Construction Coefficient that makes up more than 66% of the Total Floor Area.

*Protected openings:

a) Enclosures shall have walls of masonry or other limited or non-combustible construction with a fire resistance rating of not less than one hour.
b) Openings including doors shall be provided with automatic closing devices
c) Elevator doors shall be of metal or metal-covered construction, so arranged that the doors must normally be closed for operation of the elevator.

**Unprotected openings:

a) Any opening through horizonal separations that are unprotected or otherwise have closures that do not meet the minimum requirements for protected openings, above.

The building's FUS calculation has been determined using the following criteria: (check all that apply)

30% ☒	**Automatic sprinkler protection designed and installed in accordance with NFPA 13** The initial credit for Automatic Sprinkler Protection is a maximum of 30% based on the system being designed and installed in accordance with the applicable criteria of NFPA 13, Standard for Installation of Sprinkler Systems, NFPA 13R, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies, or NFPA 13D, Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes and being maintained in accordance with the applicable criteria of NFPA 25, Standard for the Inspections, Testing and Maintenance of Water-Based Fire (see Recognition of Automatic Sprinkler Protection).
10% ☐	**Water supply is standard for both the system and Fire Department hose lines** a) Sprinkler system is supplied by a pressurized water supply system (public or private) that is designed and built with no major non-conformance issues (i.e. water supply system is designed in accordance with Part 1 of the Water Supply for Public Fire Protection to qualify for fire insurance grading recognition). b) Calculated demand for maximum sprinkler design area operation in addition to hose stream requirements are below the available water supply curve (at the corresponding flow rate and pressure). An appropriate safety margin is used to take into account the difference between the available water supply curve at the time of hydrant flow testing as compared to the available water supply curve during Maximum Day Demand. c) Volume of water available is adequate for the total flow rate including the maximum sprinkler design area operation plus required hose streams plus Maximum Day Demand for the full duration of the design fire event. d) Residual pressure at all points in the water supply system can be maintained at not less than 150 kPa during the flowing of the sprinkler and required hose streams (plus Maximum Day Demand).
10% ☐	**Fully supervised system** a) a distinctive supervisory signal to indicate conditions that could impair the satisfactory operation of the sprinkler system (a fault alarm), that is to sound and be displayed, either at a location within the building that is constantly attended by qualified personnel (such as a security room), or at an approved remotely located receiving facility (such as a monitoring facility of the sprinkler system manufacturer); and

	b) a water flow alarm to indicate that the sprinkler system has been activated, which is to be transmitted to an approved, proprietary alarm-receiving facility, a remote station, a central station, or the fire department.

Note: Where only part of a building is protected by Automatic Sprinkler Protection, credit should be interpolated by determining the percentage of the Total Floor Area being protected by the automatic sprinkler system.

☐ Fully Supervised sprinkler system (per above description)

PROFESSIONAL SEAL APPLIED BY:

Civil Consultant: _____

Consultancy: _____

Phone Number: _____

Address: _____

Engineer's Seal

_____ **(initial)**	The FUS design parameters will be carried into the building's design

PROFESSIONAL SEAL APPLIED BY:

Architect or Building Engineer: Richard Witt

Consultancy: Quadrangle Architects Limited

Phone Number: 416-598-1240

Address: 8 Spadina Avenue, Suite 2100, Toronto, Ontario

Architect's or Building Engineer's Seal

ONTARIO ASSOCIATION OF ARCHITECTS
RICHARD WITT
LICENCE
6010

_____ **(initial)**	The FUS design parameters will be carried into the building's design

FIRE HYDRANT INSPECTION

Aug 2nd 2023

OWNER: City of Ottawa

HYDRANTS R US INC.

53 FOREST CREEK DRIVE
STITTSVILLE, ONTARIO.
K2S-1M1

613-804-0088

Customer Arcadis IBI Group
Address 333 Preston St #500
Ottawa, ON K1S 5N4

Location Isabella St
Hydrant # infront 178

HYDRANT MODEL Century

INSPECTION CHECKLIST	***YES/NO***
1) Isolation Valve ok	YES
2) Is Hydrant Accessible?	YES
3) Grease all threads and Cap?	N/A
4) Remove Caps, Inspect for wear, Rust, and Obstructions?	N/A
5) Is Hydrant operating Nut in good condition?	N/A
6) Is Hydrant Free of Leaks?	N/A
7) Is Hydrant Barrel Dry and crack Free?	N/A
8) Is Hydrant painted per NFPA Color Codes?	N/A
9) Is Road Valve Box accessible and cap in place?	YES
10) Caps and Gaskets OK	N/A
11) Fully open Hydrant	YES
12) Is Hydrant in operating condition?	YES

HYDRANT FLOW TEST DATA

Nozzle Size		2"
Static Pressure	**83**	psi.
Residual Pressure	**0**	psi.
Pressure at Full Flow	**0**	psi.

HYDRANT FLOW TEST RESULTS

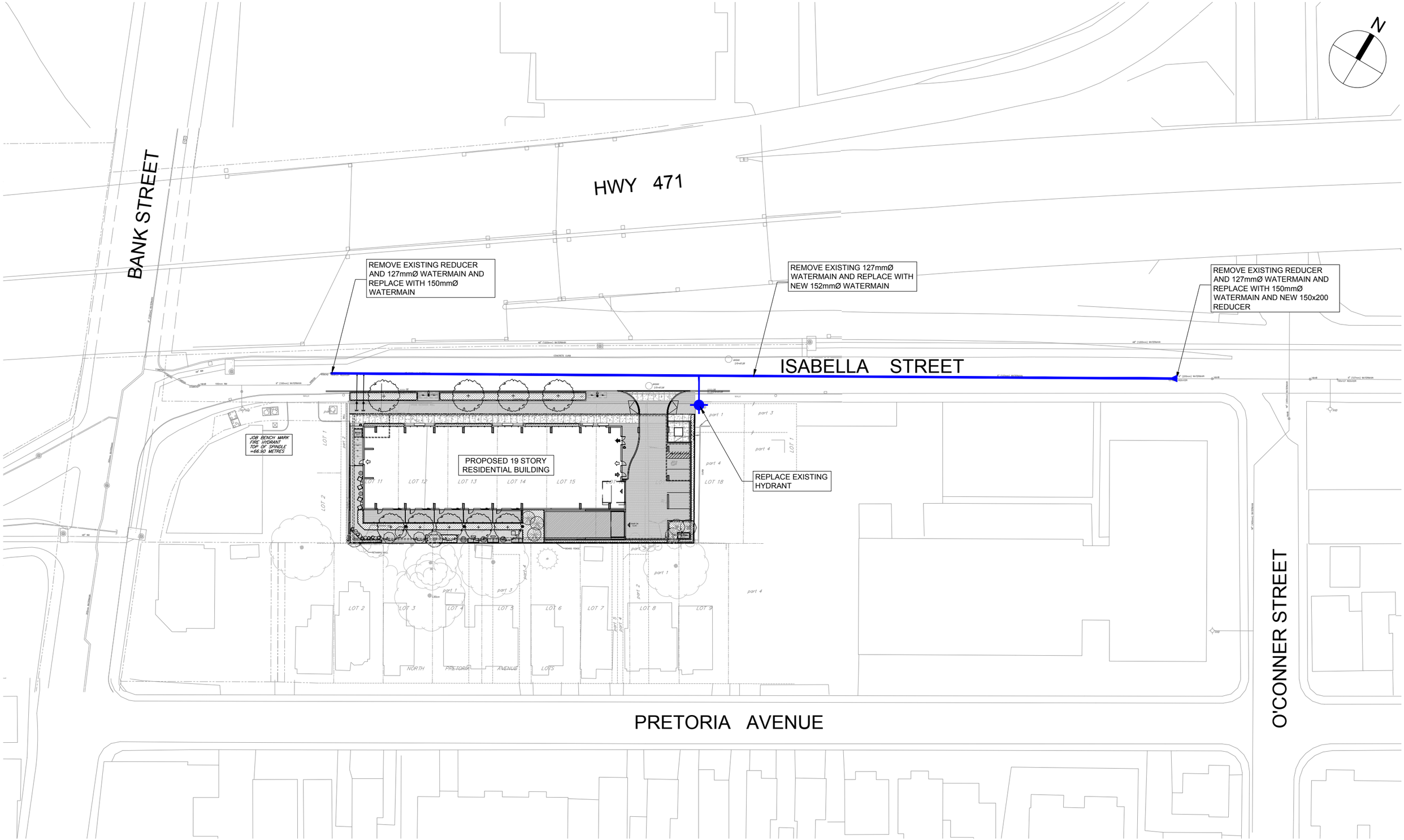
GPM **0**

GPM @ 20 PSI **0**

COLOUR CODE

NOTES: RECOMMENDATIONS AND DEFICIENCIES

Water Pressure too low to gather any results.



Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	178-200 ISABELLA STREET	WATERMAIN REPLACEMENT	FIGURE 3

APPENDIX C

- Sanitary Sewer Design Sheet

IBI GROUP
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

SANITARY SEWER DESIGN SHEET

178-200 Isabella Street
CITY OF OTTAWA
Minto Communities Inc.

LOCATION				RESIDENTIAL										ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		RES PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		SF	SD	TH	APT		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL				IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
														IND	CUM	IND	CUM	IND	CUM														
178-200 Isabella Street		Building	MH1A	0.24				234		421.2	421.2	3.41	4.65									0.24	0.24	0.08			4.73	34.22	1.37	200	1.00	1.055	29.48	86.17%
178-200 Isabella Street		MH1A	Main							0.0	421.2	3.41	4.65									0.00	0.24	0.08			4.73	34.22	5.21	200	1.00	1.055	29.48	86.17%

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u	INST	28,000	L/Ha/day	
TH/SD	2.7	p/p/u	COM	28,000	L/Ha/day	
APT	1.8	p/p/u	IND	35,000	L/Ha/day	MOE Chart
Other	60	p/p/Ha		17000	L/Ha/day	

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
   where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area, 1.5 if greater than 20%, otherwise 1.0

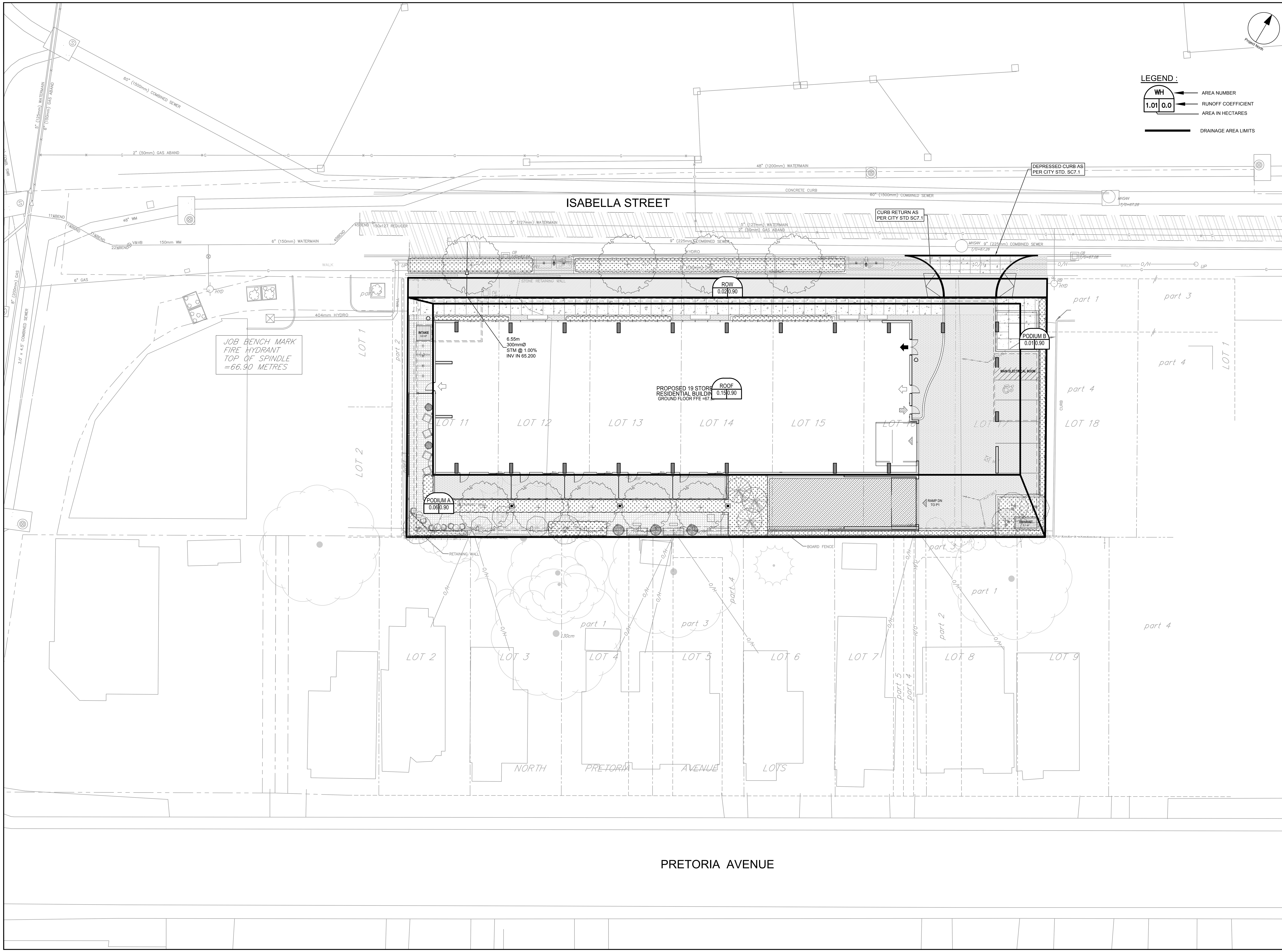
Designed: MAP
Checked: JM
Dwg. Reference: 124875-C-001

No.	Revision	Date
1.	Issued for Re-Zoning Application	2020-09-11
2.	Re-Issued for Re-Zoning Application	2023-08-04

File Reference: 124875.7.03
Date: 2023-08-04
Sheet No: 1 of 1

APPENDIX D

- Storm Drainage Area Plan Drawing C-500
- Storm Sewer Design Sheet
- Stormwater Management Design Sheet



CLIENT

minto Communities

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ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR RE-ZONING	2020:09:11
2	REISSUED FOR RE-ZONING	2023:08:16
3		
4		
5		
6		
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8		
9		
10		

NOT FOR CONSTRUCTION

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

KEY PLAN
N.T.S.

CONSULTANTS

SEAL

J. I. MOFFATT
2023/08/16
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

IBI GROUP
500 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

PROJECT
178-200 ISABELLA
OTTAWA, ONTARIO

PROJECT NO: 124875	
DRAWN BY: **D.P.S.**	CHECKED BY: **J.I.M.**
PROJECT MGR: **D.C.**	APPROVED BY: **J.I.M.**

SHEET TITLE
STORM DRAINAGE AREA PLAN

SHEET NUMBER C-500
ISSUE 2

File Location: J:\124875_IsabellaSt\7.0_Production\7.03_Design\04_Civil\Sheets\C-500.dwg Last Saved: August 16, 2023, by dsurma Plotted: Thursday, August 17, 2023 9:35 AM by Don Surma

D07-XX-XX-XXXX

SCALE CHECK 1 in 10mm XXXXX

IBI GROUP
400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

STORM SEWER DESIGN SHEET

178 Isabella Street
City of Ottawa
Minto Communitis Inc.

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW												SEWER DATA									
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.25	C= 0.30	C= 0.50	C= 0.57	C= 0.65	C= 0.69	C= 0.70	C= 0.76	C= 0.90	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	PIPE SIZE (mm) W	PIPE SIZE (mm) H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
178-200 Isabella St.		Building	Main										0.22	0.55	0.55	10.00	0.10	10.10	76.81	104.19	122.14	178.56	**42.28**	57.35	67.23	**98.29**										
																							As per swm calcs, allowable release rate =					16.53	34.22	6.55	200			1.00	1.055	17.69	51.69%

Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 732.951 / (TC+6.199)^0.810] 2 YEAR
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013

Designed: MAP

Checked: JM

Dwg. Reference: 124875-500

No.	Revision	Date
1.	Issued for Re-Zoning Application	2020-09-11
2.	Re-Issued for Re-Zoning Application	2023-08-04

File Reference: 124875.7.03
Date: 2023-08-04
Sheet No: 1 of 1

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT: 178 Isabella Street
DATE: 2023-08-04
FILE: 124875.7.03
REV #: 1
DESIGNED BY: MAP
CHECKED BY: JM

STORMWATER MANAGEMENT

Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = 732.951 / $(T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = 998.071 / $(T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = 1735.688 / $(T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Flow Allocation

C =	0.4	(Pre-Development)
T_c =	10	min
i_{2yr} =	76.81	mm/hr
A_{TOTAL} =	0.24	Ha

Q_{TOTAL} =	20.50	L/s

Uncontrolled Release ($Q_{uncontrolled} = 2.78*C*i_{100yr}*A_{uncontrolled}$)

C =	1	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.020	Ha

$Q_{uncontrolled}$ =	9.93	L/s

Maximum Allowable Release Rate ($Q_{max\ allowable} = Q_{restricted} - Q_{uncontrolled}$)

$Q_{max\ allowable}$ =	10.57	L/s

MODIFIED RATIONAL METHOD (100-Year & 5-Year Ponding)

Drainage Area	***Site***		
Area (Ha)	0.240		
C =	0.99	Restricted Flow Q_r (L/s)=	10.57

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
51	63.03	41.63	10.57	31.06	95.06
53	61.28	40.47	10.57	29.90	95.10
54	60.44	39.92	10.57	29.35	**95.10**
55	59.62	39.38	10.57	28.81	95.08
57	58.07	38.36	10.57	27.79	95.03

Storage (m^3)

Overflow	Required	Surface
0.00	95.10	0.00

Drainage Area	***Site***		
Area (Ha)	0.240		
C =	0.90	Restricted Flow Q_r (L/s)=	10.57

5-Year Ponding

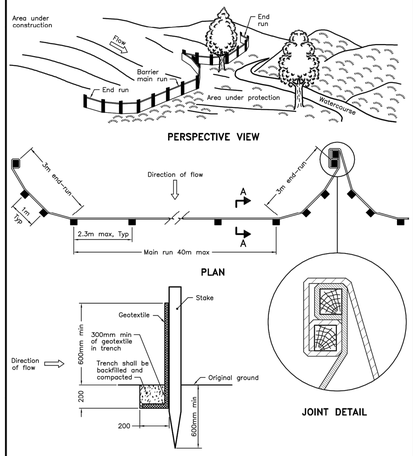
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
27	57.88	34.76	10.57	24.19	39.18
29	55.18	33.13	10.57	22.56	39.26
30	53.93	32.38	10.57	21.81	**39.26**
31	52.74	31.67	10.57	21.10	39.24
33	50.53	30.34	10.57	19.77	39.15

Storage (m^3)

Overflow	Required	Surface
0.00	39.26	0.00

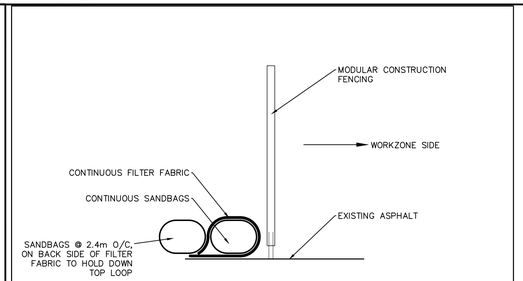
APPENDIX E

- Erosion and Sedimentation Control Plan Drawing 124875-C-900
- Site Grading Plan Drawing 124875-C-200



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

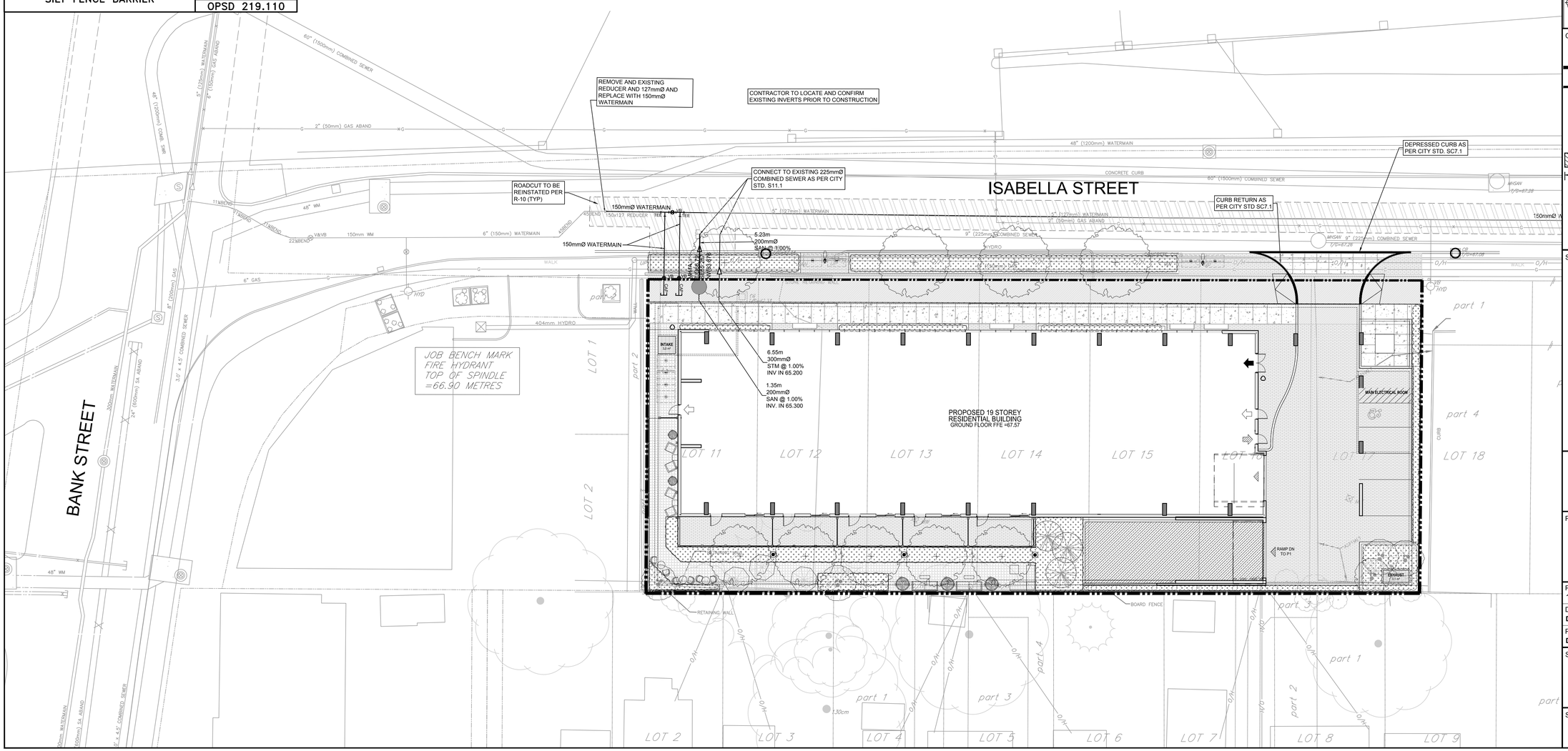
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		
OPSD 219.110		



CUSTOM SILT FENCE DETAIL
FOR SITE PERIMETER
LOCATION AS REQUIRED

NOTES:

1. 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,
2. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
3. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
4. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. GEOTEXTILE SILT SACK IN STREET CBs TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. GEOTEXTILE FABRIC IN RYCBs TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
5. CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
6. CONTRACTOR TO PROTECT EXISTING CATCHBASINS WITH FILTER CLOTH UNDER THE COVERS TO TRAP SEDIMENTATION. REFER TO IDENTIFIED STRUCTURES.
7. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
8. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT



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ISSUES

No.	DESCRIPTION	DATE
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2	REISSUED FOR RE-ZONING	2023.08.16
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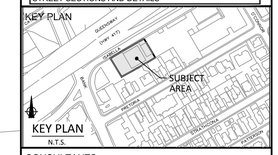
SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



CONSULTANTS

LEGEND :

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- CUSTOM SILT FENCE (SEE DETAIL)
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- ROCK CHECK DAM AS PER OPSD-219.210
- SILT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH

1:200

SEAL

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2023/08/16
PROVINCE OF ONTARIO

IBI GROUP
Suite 500 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 / 613 241 3300 fax 613 225 9868
ibigroup.com

PROJECT
178-200 ISABELLA

OTTAWA, ONTARIO

PROJECT NO:
124875

DRAWN BY:	CHECKED BY:
D.P.S.	J.I.M.
PROJECT MGR:	APPROVED BY:
D.C.	J.I.M.

SHEET TITLE
EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER	ISSUE
C-900	2

File Location: J:\124875_Isabella\5t7.0_Production\7.03_Design\04_Civil\Sheets\C-900.dwg Last Saved: August 16, 2023, by dsiurna Plotted: Thursday, August 17, 2023 9:40:21 AM by Don Siurna

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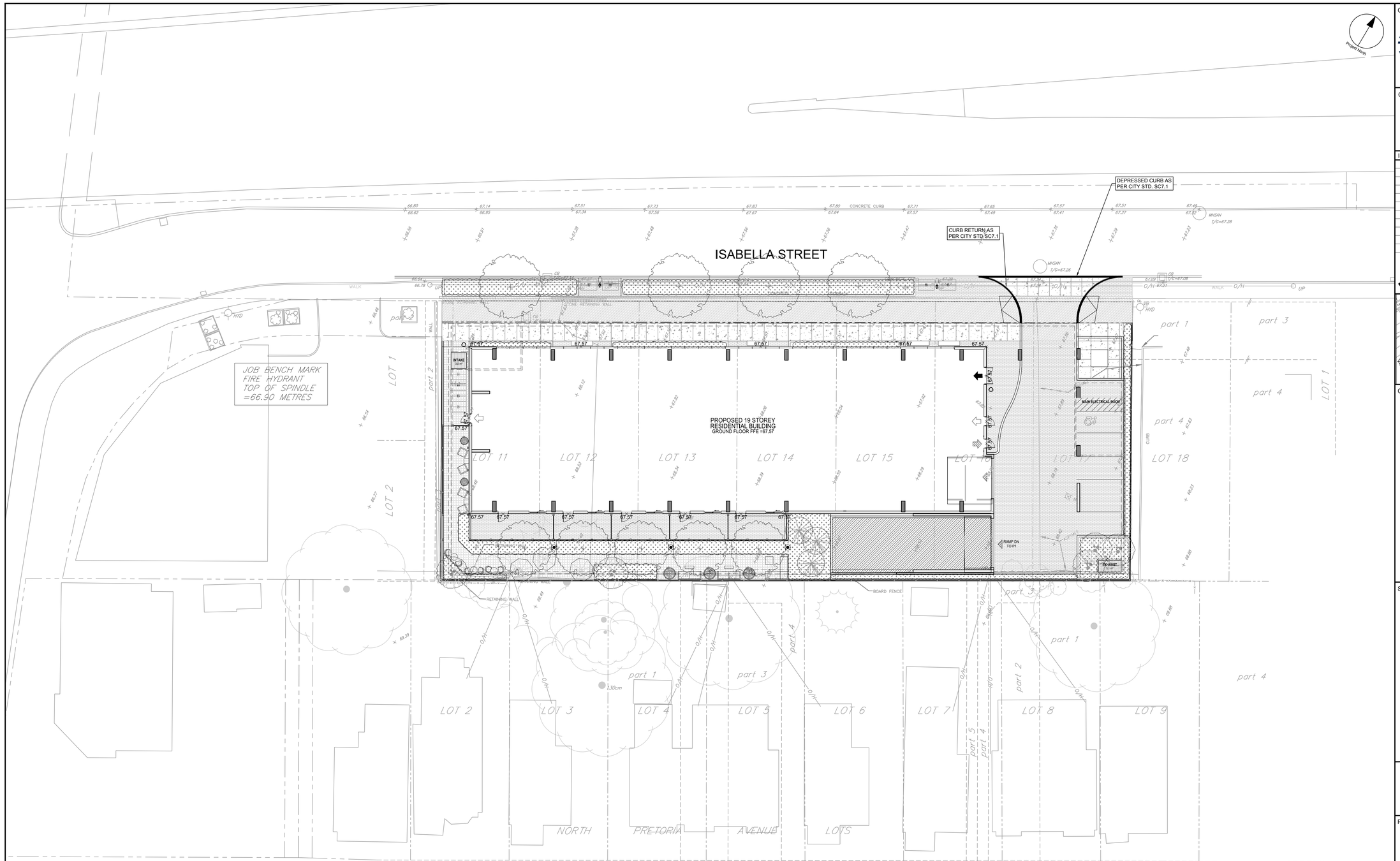

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2	REISSUED FOR RE-ZONING	2023/08/16
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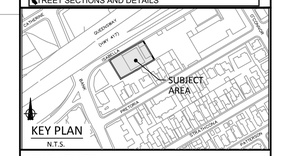
NOT FOR CONSTRUCTION

SEE SHEETS 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



CONSULTANTS

SEAL

L'I. LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2023/08/16
PROVINCE OF ONTARIO

IBI GROUP
500 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

PROJECT
178-200 ISABELLA

OTTAWA, ONTARIO

PROJECT NO:
124875

DRAWN BY:	CHECKED BY:
D.P.S.	**J.I.M.**
PROJECT MGR:	APPROVED BY:
D.C.	**J.I.M.**

SHEET TITLE
SITE GRADING PLAN

SHEET NUMBER	ISSUE
C-200	2

SCALE CHECK 10mm 1" in

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